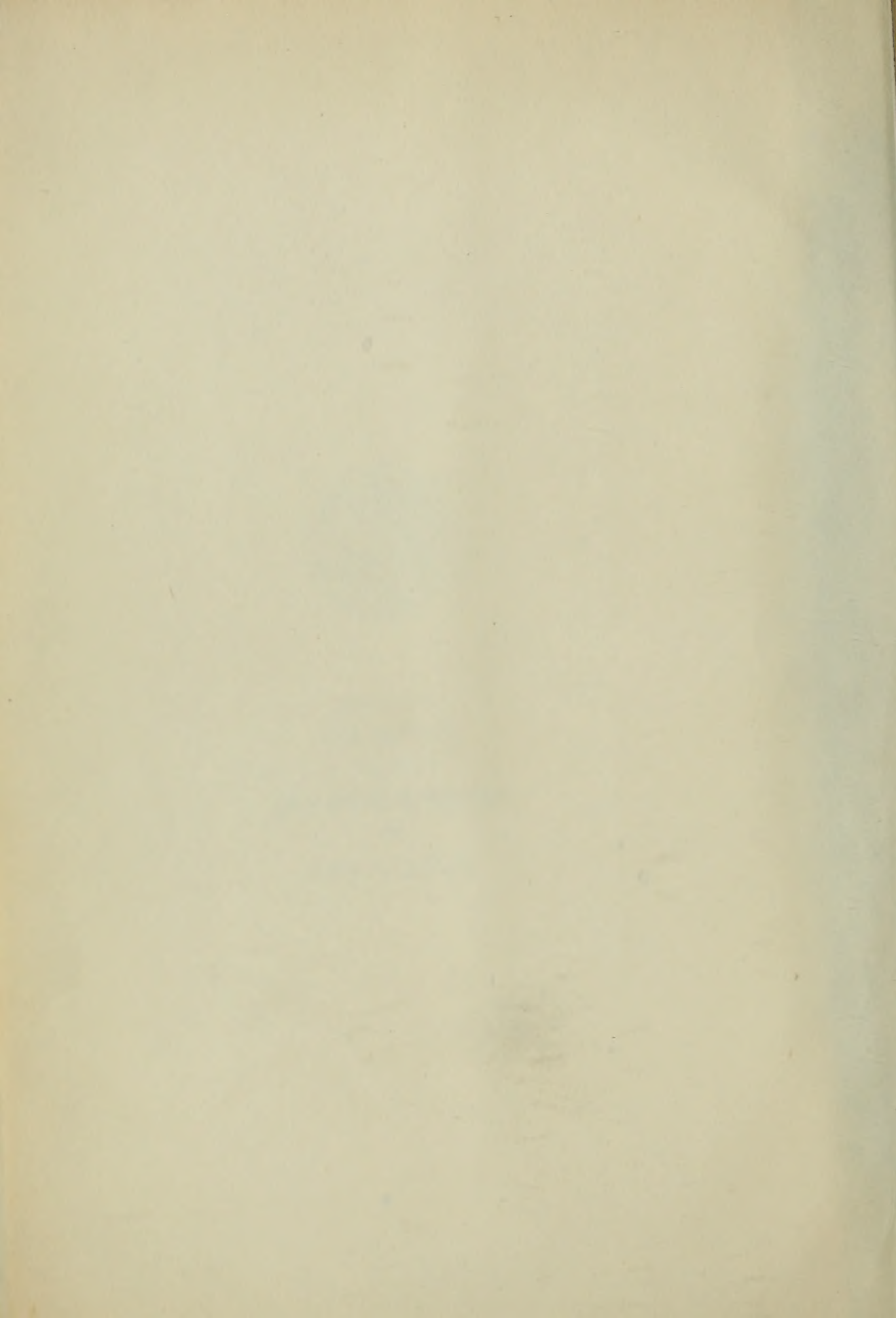
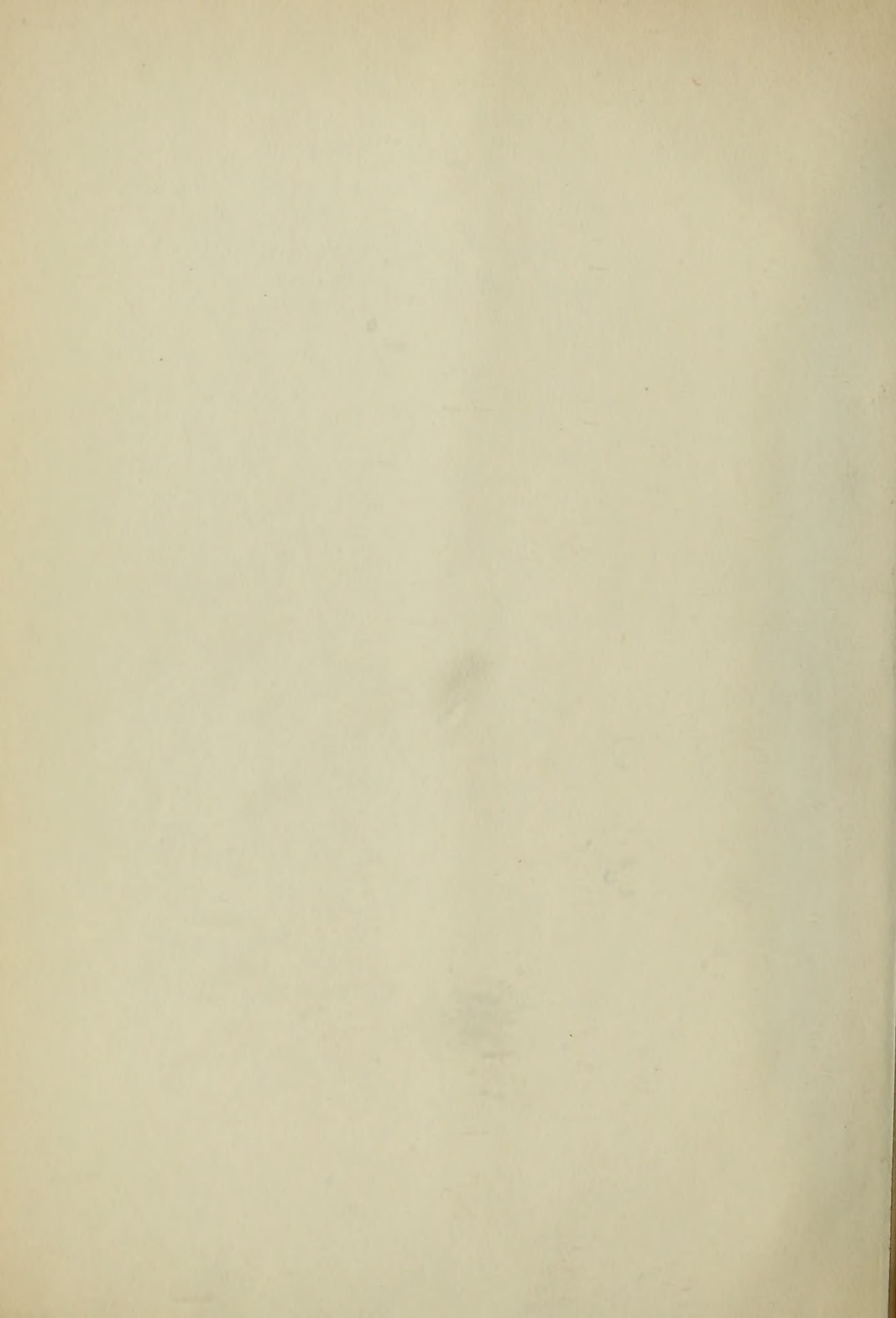




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Lecture.

TRAINED NURSING.¹

BY A. WORCESTER, A.M., M.D., WALTHAM, MASS.

LADIES AND GENTLEMEN:—I myself shall have a pleasant evening, for I have the chance of speaking upon a subject in which I am very much interested, and I take it that no pleasure can quite equal that.

I believe not only that we owe a great debt to professional nursing, but also that in no other direction can the medical profession do more to advance its own interests, and at the same time to alleviate the sum total of human suffering, than by giving attention to the nursing profession. When I think of the constantly increasing obligations that we are under to nurses, it seems to me rather strange that no more attention is paid to the question; and I think it particularly fitting in a graduate course at the Medical School that one of the younger graduates should give his testimony to this indebtedness, and point out what we can do to help the nursing profession along.

But before trying to point out what can be done by physicians to advance the interests of nurses we should follow our usual course of looking at the family history, and study the origin and development of nursing. When we hunt back for the history of our own profession we lose it of course in the Dark Ages, and we find that physicians are bound by traditions and inheritances, the origin of which are so obscure that we hardly know what reason we have for much that we do. With the nursing profession, on the other hand, its development is so recent that all has been acquired within the memory of men now living.

In 1822 a young German clergyman journeyed on foot into his parish of Kaiserwerth on the Rhine to save his poor parishioners the expense of his journey. After a few weeks' residence in his new parish he lost his church, which was sold for a debt of one of his parishioners. He then set out on foot through Belgium, the Rhenish Provinces and England, soliciting funds to regain his church; and on that journey he carried out his heart's desire of studying asylum and prison and hospital management with the view of bringing back to his parish all that was then known in the world. When he did come back to Kaiserwerth, he brought not only the gold to redeem his church, but what was of far more value, an intimate acquaintance with the methods of alleviating suffering. In 1833 in a little summer-house in his garden he founded the first nurses' training-school in the world. A couple of women agreed to devote their lives to this profession, which as yet existed only in the mind of Pastor Fliedner. In 1836 a new building was provided, and in 1886 when the semi-centennial was celebrated, there were sixty such houses and six thousand such women acknowledging their common parentage and inspiration.

In 1851 a young woman of England, determined upon doing all the good that could be done on earth, went to Kaiserwerth to learn how to relieve sickness and suffering. That was Florence Nightingale. In 1854, during the Crimean War, when the reports of the suffering of the English were so terrible, she asked for volunteers to go to the front to take care of the sick. About one hundred volunteered. That was the first corps of nurses in service in time of war. Hardly

any one is ignorant of that service, and Florence Nightingale's name is immortal. Upon her return from the Crimea, so great was the gratitude of the English nation for what she had done, that a fund of fifty thousand pounds was subscribed for her personal benefit, but she devoted it to the foundation of the first training-school for nurses in England, in connection with St. Thomas's Hospital.

In spite of the fact that during our Civil War there was exhibited such tremendous need of nurses' services, there were no trained nurses in America until 1872.

In 1865 the New England Hospital for Women and Children announced as one of its purposes the training of nurses; but it was not till 1872 that the first class was started.

There had been before this several sporadic attempts at teaching nursing. In the New York Hospital there is a tablet stating that in 1798 Dr. Valentine Seaman began giving systematic instruction in nursing. In 1861, in the Women's Hospital in Philadelphia, instruction was begun, but not even there was systematic instruction begun until 1872.

We owe what we have of trained nursing in America more than to any one else to the late Dr. Susan Dimmock. She was full of such enthusiasm as the world seldom sees. She fought down in Boston the prejudice against young women of good families and otherwise fair opportunities entering such work. But I think we may say that the first training-schools at the New England Hospital and at the Women's Hospital in Philadelphia, judged by the present standard of nursing, can hardly be counted as regular training-schools, because nurses there were trained only in the care of women and children. In 1873, when the school was started at the Massachusetts Hospital, it was distinctly understood that the nurses would have employment only in the care of women and children. It was not until some years after that they were put in charge of the male wards. But so rapid has been the advance in the foundation of training-schools within these last few years, that when in the Section upon Nursing in the Chicago Conference last year the question of the numerical strength of the nursing profession was under consideration, there were reports of 150 schools, 3,250 students and nearly 5,000 graduates upon their rolls. Training-schools are now multiplying very fast; and it is easy to foresee that the time is not far distant when no considerable-sized town will be without its training-school.

The profession, however, is not nearly so far advanced here as it is abroad. In England great strides have been taken under the direct inspiration of Florence Nightingale and with the accession of strength that came from the glorious services of her early pupils, as, for instance, Mrs. Dacre Craven, who was sent in 1870 to Metz by the Empress Frederick and the Princess Alice, and who with a corps of volunteer nurses took charge of those typhus-fever wards and did most heroic service. Their hospital training-schools are better than ours, if for no other reason than that they require a longer period of training. It takes three years for the nurse in England to gain her diploma. The profession is further advanced, again, because in England a close relationship is kept between the graduate nurse and her school in after life; and, again, better than the condition of things in America, because whenever a nurse tires out, she is

¹ A lecture given in the Graduates' Course at the Harvard Medical School, October 25, 1894.

there taken care of and finally can avail herself of a pension fund for nurses, which so far has not been successfully established here.

In Germany the Protestant deaconesses have similar advantages. But we have one advantage which they have not. In Germany there are the Roman Catholic nurses and the Protestant nurses, the Roman Catholic schools and the Protestant schools. In this country all our training-schools are open upon equal terms to both Roman Catholic and Protestant, and no difference or discrimination made. And while the Protestant deaconesses and the Roman Catholic sister nurses make of prime importance the profession of their religion, and the nursing is perhaps for that reason rather a secondary object, in this country the profession of religion finds its most beautiful illustration in the work that they do. Thus the American trained nurse may be said to be more distinctly a member of a profession, for she has given herself to her work as physicians give themselves to the practice of medicine.

It is not by recounting the numerical strength of nurses that we can estimate the position and the development of the profession. That, however, needs more than passing mention, because even if we have 5,000 trained-nurses to-day we have in this country 120,000 physicians, which means only one nurse to every twenty-four physicians, or to every 15,000 of population. So the market is not already overstocked, even if trained nurses to-day are not all employed. It is very true that there were several hundred in Boston last winter unemployed. But think of the hundreds and hundreds of people who needed nurses! The fault lies in not bringing the workers to the work, and that fault rests primarily upon the medical profession, because nurses in the main await the call of physicians, and only when the medical profession understands more fully than it does to-day, how much the success of the medical profession depends on nurses, may we look forward to the bringing into the work all the nurses who are willing to work.

In trying to set before you the present condition of the nursing profession I want to picture what the nursing profession stands ready to do to-day. What as physicians may we expect nurses to do? Well, we certainly may expect this, that all our surgical material of every sort shall be kept in perfect order and in perfect aseptic condition by the trained nurses of to-day. This work demands a high degree of intelligence, considerable skill and a professional conscientiousness that only the trained nurse stands ready to give. Again, physicians may properly expect of the trained nurse of to-day that the patient about to be operated upon shall be put in perfect condition for the operation, and that the room in which the operation is to be done shall be put in complete readiness. Moreover, he may expect that after he leaves the sick-chamber the patient shall be taken care of so scrupulously that all his directions shall be minutely carried out, and that a record shall be sent to him perfect in its details, in its accuracy, and as often as he may require. In his poor practice he has the right to expect of the nurse of to-day that she shall go to the sick-room that is so filthy and forlorn that his visits seem a mockery, and shall clean that house, and bring order out of chaos. In midwifery work he has a right to expect that the trained nurse shall watch the case from the beginning of labor, send him records of its advancement, and be fully able to carry it out and do

everything for the mother and child provided the case be a perfectly normal one. Now in these particulars, and they are only a few which I select here and there, the physician has a right to expect full and satisfactory service, and the trained nurse stands ready to give that service.

Now, the question comes, How is the physician to get it? The answer requires more than a passing thought. Nurses are ready to work and would be willing to work for nothing while waiting for other cases, as young physicians are glad to work for nothing while waiting for more lucrative practice. But the nurses are not in touch with the medical profession. The two professions are not estranged, because they have never been in complete harmony; and physicians must go more than half-way in securing that co-operation which will be beneficial to both professions. Just think of the disadvantage that the nurse labors under in the mere matter of registry. What if we physicians were obliged to submit to rating at the hands of nurses. Suppose we found employment only as we were called out from some central registry in the hands of a committee of nurses, where were kept the reports, which we might never have the liberty of seeing, sent in by disgruntled patients. Now that is where the nurse stands to-day. She finds employment only at the pleasure of a registry which intends to perform its duty first for the benefit of the public, and secondly of the medical profession, and lastly for the benefit of the nurses. We know very well that patients are sometimes very unreasonable, and that their complaints sometimes have very little foundation. Sometimes when nurses have tired themselves out in conscientious self-sacrifice the only thanks they get from the patients they nurse are growls and grumbles. It is unfair to the nursing profession that such complaints should be put on record without the nurses being free to defend themselves or to profit by just criticisms. This difficulty in registration in part accounts for the fact that trained nurses are not now in more general employment. Even if they want to work for nothing, they are not sure of finding suitable opportunity from the registry. They do here in Boston volunteer for gratuitous work. Under the guidance of different clergymen in the city some nurses devote several weeks each year to purely gratuitous service, and many nurses of my acquaintance would be very thankful indeed to give more service under the leadership of the medical profession if they could be at the same time learning.

And this brings us to the very touchstone of the question. The modern trained nurse is willing to do anything provided she can learn to be a better nurse by doing it. It is not generally recognized that the modern trained nurse is a professional person, guided and governed as members of the medical profession are guided and governed. She is willing to work at anything provided she can be a better nurse for that work. Of course, she is not willing to go and do absolute drudgery where there is no opportunity for earning her bread, and no opportunity for learning anything; and unless the medical profession steps forward and helps to arrange matters so that nurses shall find that opportunity for continued instruction, we have no reason to grumble if the nurses stand back and wait for lucrative cases.

There is another reason that interferes with their working. There is a popular feeling that nurses are

paid too much; and that is held to be the case by physicians who perhaps charge three or five dollars a visit, amounting to twenty or forty dollars for the week's charge. They may not have been in the sick-chamber each day more than a half-hour; but if the nurse who is there during the day and night should charge as much, it would be considered an extortion. The trained nurse comes into competition with the old untrained nurse, who was willing to go out for ten or fifteen dollars a week and was well paid. But the trained nurse can do a great deal more and is not so well paid even if paid twice as much.

Another objection to the more extended employment of the trained nurse, is the notion that she is inclined to take charge of the case, and that it is better not to tell her too much or take any steps toward extending her education lest she usurp the physician's place. That view is totally wrong because the more the nurse knows the less likely she is to usurp the responsibility of the physician. The old-time nurse was always willing to do this. She never hesitated in giving a diagnosis. I remember an old-timer taking care of a patient of mine when I was considerably in doubt as to the diagnosis, who did not seem to be the least in doubt; and while I in my ignorance did not even think of the patient's liver, she declared that the patient's "liver pin" was out of order. She had probably looked inside of a Connecticut clock, and imagined the inside of the human body was somewhat like it. I remember putting on a breast bandage, and the next day asking the patient if it did her any good. She said she didn't know whether it did or not; the nurse had whipped it off as soon as I left the house, saying that she did not approve of such things. It will be difficult in a few years to believe the stories of the old-time nurses. And now, in this transition stage, it is pretty hard for the trained nurse who is, to begin with, an intelligent woman and well educated, who has given several years to the acquirement of her profession, it is pretty hard that she should be judged and treated in the way that the old-time nurse was.

After picturing what physicians may rightly expect from the trained nurse of to-day, and mentioning the different directions in which she stands ready for service, I must pass to the question, Why cannot any physician here in Boston avail himself of such services? And the answer can best be given by asking why do they have such privileges in other places. I know of many of the smaller cities of Massachusetts, and some of the larger towns, where physicians do have all the advantages I have mentioned, because in those places the physicians have banded together to do on their part something towards the real advancement of the nursing profession. Let a company of physicians agree to give a portion of their time to this work, and they will soon have student nurses who will be most glad to do all these services I have mentioned in return for the instruction that they may so receive. Think for a minute of the little community down in Virginia at Hampton where a few white people, a few educated people, are surrounded by a large population of densely ignorant negroes. The former suffering and the ignorance in that district is something dreadful to think of. But within the last few years a training-school has been established down there, and now the physicians practising in Hampton can call upon student nurses to go to any sort of case. They can send out a couple or squad of them to any

part of that country where they find wretchedness, where a few years ago they would turn round in despair and not make a second visit because their efforts would so evidently be unavailing. It is not only in Hampton. In Waltham we have the same advantages. There are a large body of nurses at the beck and disposal of any physician who is willing to join in giving these nurses instruction. The telephone or mail or messenger sent to the training-school will bring immediately a young nurse and an older one as teacher who will go into the house, clean it up, clean the patient up, watch the patient if she be in labor, send a bulletin to the doctor of the advance, clear things up after his visit and go the next day to take care of the mother and baby, sending back a report to the physician so that when the physician comes to his office in the morning he can decide in what direction to drive for his first call. Where families can pay for such service they do pay a little. If a patient needs massage, or a sponge bath, or to have the afternoon temperature taken, all that is done by the nurses. It seems to us there in practice that doctors who attempt the practice of medicine and surgery and midwifery without these advantages are much to be pitied; and when we think of what little we have to do in return for what we get, it seems a small contribution that we have the privilege of making towards the advancement of the nursing profession. It means for each of us perhaps one lecture a week through the year. These students come back to the school every day in the year. They go out to do their work, report to the doctors, receive the doctors' criticisms, and come in for lectures where they are told beforehand what to expect.

Now it seems to me that this fundamental idea must be grasped, that it is just as unfair for us to expect nurses to acquire knowledge only by experience as it would now be unfair to expect the medical profession to return to the old way of studying under the wing of physicians in private practice and learning how to do things only by seeing them done. The medical profession has advanced so far that that seems perfect folly. We cannot understand how the old physician could have learned enough to begin his practice simply by watching the practice of another. It is now incorporated in our notion of what is meant by medical education that a student of medicine shall be told beforehand what to expect and how to treat conditions he will find. It is so with the nursing profession. It is derogatory to intelligent womanhood, unjust to a rising profession, to expect that nurses shall learn only as they see work done. Of course, the profession of nursing, like the profession of medicine, is both a science and an art, and of course an art can be learned not from text-books nor from lectures, but only from personal observation. You cannot learn the touch of a kind physician from any page nor from any lecture. You must see the physician in active practice, see a master of the art of medicine in the wards of a hospital, at least, and it is to your advantage if you can see such practice in the private family also, if you would acquire the art.

So nurses must in the main learn the art of nursing from other nurses. There has been from the foundation in Kaiserwerth a direct succession. It was what Theodor Fliedner gathered in all parts of the world, and what Florence Nightingale in her turn was able to impart to her pupils and her pupils to others, that

constitutes the art of nursing; but besides that, there is an immense amount of knowledge that the student nurse can get from text-books and lectures, and that she must get before she meets the cases where that information is desirable. It is just as easy to teach a nurse, for instance, how to nurse a case of typhoid fever before she meets a case as it is to teach a physician how to treat the disease before he sees it. It is even easier, because the physician besides being taught to treat typhoid fever must also be taught in lecture how to recognize it. The nurse is saved that. It is not her business to make the diagnosis, but to carry out the treatment ordered. And I would just as lief have a nurse who had never seen typhoid fever, but who had been thoroughly trained as to the treatment required, as a nurse who had learned how to take care of typhoid-fever patients only by observation, for the typhoid cases where she learned her lessons would not very likely be like the case of typhoid fever where I wanted her. So with ever so much of the work that nurses have to do, much can be taught in lecture and can be studied from books.

Ten years ago I remember asking a bookseller in Boston to send me all the books on nursing that were to be found; and I think I am within the limits when I say that the whole library amounted to not over a dozen books. Now, books come out every month. There were then no periodicals of any kind devoted to nursing, and no mention in the medical periodicals about the art of nursing. Now, there are several such journals; and in a great many different ways, in congresses of nurses, in graduate-nurses associations, in training-school clubs, in the American Association of Superintendents of Training-Schools, and notably in the Section upon Nursing at the World's Fair, where the famous nurses from all parts of the world and likewise physicians interested in the problem were present and read papers, much has been done and is being done to advance the profession of nursing.

My main purpose to-night is to show how any physician can do something towards this advancement, and how richly he will be repaid by such exertion. Of course, here in Boston there are large training-schools in successful operation, and Boston used to be a centre for America. Training-schools, as they were started in different parts of the country, sent here for their superintendents; but Boston has now fallen behind in comparison with the advance made in New York and Baltimore. One reason for this drifting backwards can be very plainly seen in the self-satisfaction each school has in its own methods and in the rigid exclusion that is maintained. A visiting superintendent would not be allowed in a Boston training-school to even see the methods of training employed; while in Baltimore and in New York a visiting nurse is received at the training-schools with as much courtesy as a foreign surgeon would receive in Boston. The visiting nurse is made at once the guest of the institution and afforded every facility of studying the methods employed, and as a result of such proper professional co-operation there is a general stimulation of interest. If one school has an advantage, it is immediately shared. The nurses of the different schools meet together, the superintendents are close friends, and carry into good effect the different ideas as they are developed, and the profession advances rapidly. Unless there is some interchange of thought, some interchange of new-found theories and methods, of course the different schools,

while they may progress, will progress only in the way that China does. But after all, Boston is Boston, and it would be the height of presumption to point out any possible improvement in the Boston training-schools. But when we look abroad through the country as a whole, and at the new training-schools as they are being established, we find not only great encouragement, but we can see splendid opportunities there for the active co-operation of any physicians who are interested in the movement. These schools welcome the volunteer services of physicians who are willing to give instruction either in the schools or outside of the schools, and it is only where outside instruction is made a part of the curriculum that real advance may be expected. It is all well enough to train a nurse to do the work of a hospital while inside the hospital buildings, of course she can only there be so trained; and it is equally evident that she cannot in any hospital ward be well trained for private work. Work for a medical man, as each soon learns, is different outside of the hospital from what it is inside; and it is ten times more different for the nurse.

This is no new idea. It is only within the last ten years that any training was given in this country outside the hospital walls. But in 1859 there was a school established in Lausanne where there is not even yet a hospital; and the graduates of that school, five hundred in number, are to be found in different parts of the world, not only in private practice, but many of them as heads of hospital work and superintendents of training-schools. The work of training nurses is entirely carried on outside. In the morning they have a lecture upon the work of the previous day, and upon the work already before them. One or two nurses are sent out to this kind of nursing, another pair to another kind of nursing, and so on. When they come back with their reports they are criticised, and during their day's service they are visited by the medical men in charge or the superintendent or assistant superintendent. At the end of a certain course of day-work they are sent out to do similar night-work, and visited to see if they do their work correctly. They are taught what to do in taking care of private patients so well that when they get through their three years' course they stand among the very best of the educated nurses of the present day. So it is no new idea, and although not favored in Boston is rapidly becoming so elsewhere. In the Long Island Hospital Training-school, for instance, if a surgeon or a physician of the staff there has a private patient that he is anxious about, he sends not to the registry to get a nurse of whom he knows nothing, but to the superintendent of nurses, who will send to him a student nurse accustomed to his methods. This is better both for the surgeon and for the nurse. And, it is in this line that the work of training nurses will develop. Nurses from the training-schools will be sent out during part of the course to private work under the physicians who are giving them instruction. In that way the physicians will have splendid service even in the families of the poor. There is a complete interchange of values. The nurse has her time to give in return for her education. Her time is of value to the sick patient and to the physician. The physician has time to give instruction to his class of nurses, because that takes less time than without their aid he would have to give to the nursing details of patients where there is no nurse. Nobody gives any money; the nurse gives her time;

the doctor gives his time and there results a complete care of a patient in place of the very incomplete care she would otherwise receive. I do not think any one who is acquainted with what an intelligent student nurse can do if he had to choose for himself between the few minutes' visit of a physician and the twenty-four-hour care of a day or night nurse would hesitate in deciding which he would have. The medical service or the surgical service is not made of less importance by emphasizing the importance of the nurse.

When we consider this problem we must keep in mind that the nurses are to the physician what the staff is to the general. The chief of the staff does not stand ready to take the general's place in case of the general's death on the battle-field. The general's place will be supplied by the senior officer of the line, and the staff-officer will go on serving him just as faithfully and truly; but what the staff stands ready to do is to carry out in fullest detail the orders and the wishes and the least hints given by the general in command. So with the executive officers of the ship. The captain is not undervalued as the executive department of the ship becomes more skilled. What if the executive officer on board is able to do every little thing, the function of the captain is not thereby lessened. The physician's service is not less great, the surgeon's service is not less valuable, when surrounded by a corps of trained nurses willing and glad to do his least bidding, nor need it be feared that the medical profession will ever lose its great advantage. The more completely the orders and the directions and the wishes of the medical profession can be carried out, the more good the medical profession can do. And I really believe that were it fully in evidence before us how many good intentions and even how many orders of the physician and the surgeon, miscarry simply because of lack of faithfulness in the execution of the orders, I believe the importance of the nursing profession would become so prominent that there could not be any hanging-back about it; there would be only an intense conviction on the part of physicians and surgeons everywhere that we must take hold of the problem if we are to do our part.

Now the trained nurse stands even here in Boston asking for help. There is a graduate nurses' association asking for lectures and for chances to work where they can learn improved methods of treatment. And I hope wherever it will be your privilege in the future to do so that you will throw your influence in the direction of advancing the nursing profession. I not only plead for that as a matter of evident self-interest, but I plead for that action on your part as a matter of simple justice. If a physician dies in the diphtheria wards of a hospital all the papers laud his memory. And popular sympathy goes out for the poor tired doctor who does this and does that, but how little is ever said of the nurse who not only goes into the wards of contagion, but stays there; who not only fearlessly meets the danger that the doctor meets when he goes in for a few minutes and out again into the fresh air, but who holds the little, dying, diphtheria child in her lap while it takes its last breath, not because she wants to, but because the little thing clings to her heart. Little is said of the devotion that tires not even by long days and night after night, until she, in comparison with the doctor's service, earns a veritable halo. Think of the nurses who work so tirelessly, so conscientiously carrying out the doctor's orders and

struggling even to the very end. If we are depressed with the loss of a patient we have seen half an hour for a few times a week, think of the depression of the nurse who has lived there and felt the cling and clutch of the dying soul hanging on to life. As a matter of simple justice to intelligent educated women who are giving their whole lives in noble devotion, I plead for a larger interest in their work on the part of the medical profession, and I plead for a constant readiness on the part of every member of the medical profession to do every thing that in him lies for the advancement of our sister profession of nursing.

Original Articles.

METAPNEUMONIC EMPYEMA.¹

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It has long been recognized that pleurisy as a secondary affection stands in an intimate relation to many infectious diseases. It is often found in scarlet fever, variola, typhoid fever and rheumatism. It complicates traumata, sub-diaphragmatic abscesses, peritonitis and pelvic inflammations, especially those related to puerperal infection. The general infectious influence belonging to these conditions is reinforced in the case of tuberculosis, pneumonia and pulmonary cancer by the element of contiguity, with the natural result that tubercular and pneumonic pleuritis are especially common. No constancy in the character of the pleuritic effusion, as to whether purulent or serous, exists with regard to any of these infections. The generally reported frequency of empyema in connection with scarlet fever is perhaps explainable from the fact that children's pleuritis are more apt to be purulent than those of the adult, and that most cases of scarlet fever are in children.

The general ratio of empyemata to all pleuritis is variously given as from 14 to 20 per cent. What proportion of metapneumonic pleuritis are purulent I am unable to say. Though the complication is by no means rare, it seems to me sufficiently important to warrant attention, especially as in so important a discussion as that of the New York State Medical Association,² the first speaker only refers to croupous pneumonia as "perhaps" one of the causes of empyema. On the other hand, Ewald³ finds that no less than 36 per cent. of the cases of empyema which he collected from the Charité Hospital in Berlin were of pneumonic origin. I therefore ask attention to the following cases:

CASE I. W. D., male, age nineteen. Good family history. Never seriously ill before.

April 22d, taken suddenly with chill and some pain in chest. Two days later, April 24th, admitted to hospital. In right axilla and at base behind, diminished respiratory movement; dulness; increased voice sounds and tactile fremitus; crepitant râles.

April 27th. Fifth day of disease. Signs of consolidation intense at right base; friction râles on left side. Defervescence occurred on the eighth day of the disease, but dyspnea continued, with much pain and restlessness.

¹ Read before the Boston Society for Medical Improvement, October 22, 1894.

² Transactions, 1893, vol. x, p. 84.

³ Charité Annalen, 1874.

May 2d. Eleventh day. Flatness at bases. On right side signs of resolution over middle lobe, and of fluid at base. At left base fine moist râles, friction rubs and signs of probable fluid. This condition continued without improvement for the next few days. Dyspnea marked.

May 4th, a considerable increase in the cardiac area was made out. The left edge below was indistinguishable from the flatness of the left axilla, but the right side extended to the parasternal line, and a marked increase in the dulness over the base of the heart was evident.

May 8th. Dyspnea much increased. Sixteenth day of illness. Fluid at mid-scapula on right. Aspirated in tenth interspace, and 28 ounces of odorless pus was withdrawn with considerable relief.

May 9th, a marked increase in the cardiac area was demonstrated, the upper limit being one and a half inch below the sternal notch, the right one and a half inch to right of sternum at level of nipple, and the left edge two and a half inches outside the left nipple. This was believed to indicate a pericardial effusion; but as there was also evidence of fluid in the left pleura, aspiration was performed on this side in the fifth space to determine the character of the fluid. It proved to be serum. Ten ounces was withdrawn. It was quite clear, except at the end when it was slightly opaque and reddish. There was no pus. Very unfortunately neither the pus from the right nor the serum from the left side was submitted for bacteriological examination.

The removal of this small amount of fluid seemed to produce a slight return of the heart toward the left side, but there was still a marked dulness to the right of the sternum in the fourth intercostal space. Whether this dulness also occupied the fifth space to the right of the sternum (Dr. Rotch's test of a pericardial effusion) could not be determined on account of the considerable amount of fluid still remaining in the right pleura. No attempt was made to aspirate the pericardium, but the patient was transferred to the surgical side for permanent opening of the empyema. This was done on May 12th, the twentieth day of illness, but he survived the operation only three or four hours. No autopsy was allowed. A report was made by the bacteriologist of a culture from the pus obtained by operation, that it represented a pure culture of the staphylococcus pyogenes citreus.

CASE II. M. S., female, married, age forty-five. Family history good, and previous health fair except fistula five years ago. Taken suddenly ill August 13th, while sitting at the window, with sharp pain in left costal region and much dyspnea; slight dry cough, without expectoration. Admitted August 16th, on fourth day of illness. Well-marked signs of consolidation over left lower lobe, the dulness becoming absolute at extreme base. These signs continued without much change till August 21st, when an increase of pain was complained of and flatness was observed through the left back below the angle of the scapula and in the axilla. The heart was displaced to the right, the apex being two inches to the right of the nipple. Respiration and voice sounds diminished. Aspirator needle introduced in posterior axillary line, at eighth interspace and 34 ounces of foul-smelling pus removed. The first flow of the fluid was thin and purulent, but later it became thick pus with some blood at the very end. The next day some resonance was ob-

served as low as the seat of puncture, and the apex of the heart had returned three-quarters of an inch toward the left.

The report of the pathological laboratory on the bacteriological examination was as follows: "Culture tube contained many fine, pin-point colonies and a number of large, light-yellow, shiny, round colonies. Former are diplococci without chains; latter are short oval bacilli. Diagnosis: pneumococcus and bacillus coli communis present in pus. Cover-slip showed many leucocytes but no organisms."

August 24th, the level of flatness had risen to one inch above point of puncture, and the patient's condition was weaker and the pulse poor. Despite these unfavorable symptoms she was transferred to the surgical service for operation. The eighth rib was excised, and a pint of very foul pus evacuated. She failed, however, and died two days after the operation. No autopsy.

CASE III. P. W., female, age twenty-six. Father died of phthisis, but patient is strong and robust. Nine months ago had diphtheria with good recovery.

August 16th, visited a harbor resort and danced all the afternoon. Returning, sat in an exposed position at the bow of the boat, without a wrap, and felt cold draught on her left shoulder.

August 18th, went to bed with a chill, and woke at 2 A. M. the same night, vomiting. Cough with bloody expectoration followed.

Admitted to hospital August 20th. Marked signs of consolidation in left lower lobe, except at extreme base where there was flatness, and where the strong tubular breathing, increased voice sounds and tactile fremitus of the upper part of the lobe were absent.

August 23d. Effusion had risen to the angle of the scapula, consolidation persisting above.

August 25th. Effusion just above angle of scapula, consolidation still remaining above. Heart not materially displaced.

During the following week, the second of the illness, the effusion gradually increased, with harsh respiration and moist râles over the upper lobe. The heart was not displaced but a systolic mitral murmur had developed. The pain had increased and on September 1st she was aspirated in the eighth interspace in the post-axillary line and eight to ten ounces of pus were withdrawn. This specimen became contaminated, so that the bacteriological cultures were not reliable.

Two days later, a permanent opening being deemed desirable, Dr. Gavin kindly operated in my ward to spare the patient the shock of removal. An incision was made in the axilla in the seventh interspace, but to our surprise failed to reach pus; and an exploratory puncture made near the site of the former one also gave a negative result. The wound of the operation healed kindly in about twelve days and the patient was meantime comfortable.

September 6th, an examination of the sputa was made by the pathologist who reported: "Some diplococci seen, with at times a suspicion of a capsule about them, but no clearly defined capsule. No bacilli tuberculosis found."

September 19th, the patient began to cough for the first time in many days and to expectorate freely. The signs of effusion still persisting, she was again aspirated near the site of the original puncture and about three ounces of thick, odorless pus were re-

moved, which gave, according to the pathologist's report, "a pure growth of the pneumococcus."

September 26th, the healed incision of the surgeon's operation of September 3d reopened and discharged a considerable quantity of pus. This discharge was facilitated by the introduction of a drainage-tube, which remained in for eight days. At the present time the cavity is discharging freely, and she is out and about and gaining steadily.

CASE IV. J. M., female, age fifty-three, widow. Anemic; poorly nourished. Says she has been well except for rheumatism.

May 13th. Sudden onset of illness, with pain and bloody sputum. Entered on fourth day of disease. Pneumonic consolidation of left lower lobe was diagnosed. The temperature fell by lysis reaching the normal on the ninth day; but she had involuntary dejections, and gradually failed, dying on the eleventh day. No fluid was detected during life.

Autopsy showed in addition to the pneumonia of the left lower lobe an empyema of the same side, with nine ounces of dirty-yellow purulent fluid. This patient was also found to have gummata of the liver and syphilitic disease of both lungs.

The bacteriological examination specimens from the lung and pleural exudate, gave on blood serum pure cultures of the pneumococcus.

The four cases already reported occurred in my own service at the City Hospital during the past summer. I present only one temperature chart, that of Case I, which is a perfectly typical representation of this combination of diseases, showing the defervescence from the pneumonia on the eighth day, with subsequent rise due to the pleuritic involvement. It is noteworthy that we have here simultaneously a purulent pleurisy on the right side and a serous one on the left.⁴ There was also an undoubted pericardial effusion, but as to its character we remain in the dark. To the point of the diverse nature of the two effusions, both of which would seem to own the pneumonic infection as their common origin, we will return later.

I will now very briefly outline the chief clinical features of a few other cases of distinctly metapneumonic empyema, greatly condensed from the hospital records, of the past ten years. They represent by no means all the cases which have occurred during that time.

CASE V. Male, age forty-one. Taken sick April 24th with pneumonia. May 15th, by aspiration, one quart of pus was removed; May 19th, 45 ounces; May 26th, 46 ounces. May 29th, permanent opening. July 25th, died.

CASE VI. Female, nurse. January 1st, had diphtheria. April 20th, same year, had measles; discharged, convalescent, May 3d. May 6th, broncho-pneumonia; May 20th, convalescent, but slow gain in strength. June 24th, aspirated, and pus obtained. June 28th, pus again obtained. July 10th, permanent opening. July 28th, died. No autopsy.

CASE VII. Female, age thirty-two. March 18th, chill, followed by pneumonic signs. April 2d, rise of temperature; effusion diagnosed. May 8th, aspirated; twenty-five ounces laudable pus. May 24th, aspirated; twenty-eight ounces laudable pus. This was followed by improvement, and patient was walking

about. July 18th, aspirated; thirty-two ounces sweet pus. July 25th, discharged to surgical side for operation. October 3d, left hospital with wound of permanent opening nearly closed.

CASE VIII. Male, age seventy-two. April 20th, chill; cough, with rusty sputa. April 30th, cough had stopped and patient was convalescent, but great prostration and dyspnea. May 7th, signs of effusion. May 25th, pus removed by aspirator, and again on June 8th. The next day, June 9th, died suddenly.

CASE IX. Male, age thirty-five. Cough began with brownish sputa about November 23d. Kept about till December 20th; then had a chill. Signs of effusion. Aspirated on entrance, December 22d; very little pus. Signs of effusion continued. Died December 30th.

CASE X. Female, age thirty. December 30th, taken suddenly sick with chill. December 31st, admitted with signs of pneumonia at right apex; good resonance below. January 10th (twelfth day), temperature normal. The next day signs of effusion in right base. January 15th, aspirated two to three ounces of pus. Next day permanent opening; 42 ounces pus evacuated. February 27th, discharged, well.

CASE XI. Male, age sixteen. Taken sick August 23d. Admitted September 1st. Roseola, tympanites (typhoid), dulness right lower back. September 4th, increased voice sounds and fremitus, with crepitant râles. Pneumonia diagnosed. September 8th, effusion appeared. September 16th, aspirated 38 ounces of pus. September 20th, aspirated 24 ounces of pus. September 23d, permanent opening. November 20th, discharged, well.

CASE XII. Male, age thirty. March 16th, sudden onset of illness with chill; pneumonia evident in left lower back and no signs of effusion. March 26th, crisis on tenth day. April 3d, pus obtained by aspirating, also, April 10th. Operation the same day. Discharged May 12th, relieved.

CASE XIII. Male, age twenty-one. Onset January 23d. Consolidation right middle and lower lobe. February 3d, crisis on tenth day. February 9th, effusion recognized, which rapidly increased. February 10th, aspiration of pus; permanent opening. March 21st, discharged, well.

The foregoing cases have been presented entirely from the clinical standpoint, and the bacteriological evidence is unfortunately largely wanting. But the important question as to all such cases is, What is the relation of these empyemas to the specific micro-organism of pneumonia? In the majority of such cases as have been studied, this question is answered by the finding of Fränkel's diplococcus in both the sputum and the purulent exudate, and post-mortem in cultures from both the lung and the pleura.

But why do we find in a majority of cases of pleuropneumonia only a serous exudate, and why can we have, as in Case I, a serous exudate in one pleura and a purulent one in the other, when both come from one presumably identical primary infection?

In answering these questions we can say, first, that the difference between a serous and a purulent exudation is probably more apparent than real. It is a well-known fact that serous exudates become purulent, not usually, as was once thought to be the case, by infection through careless paracentesis, but through a natural evolution. Hence though not all serous effusions

⁴ A precisely similar case reported by Ewald (loc. cit., Case xxxi) is the only other one of the kind that I have come across.

become purulent, many purulent ones have once been serous, and have gradually undergone an increase of cellular elements till they have become converted into pus.⁵ This accounts for the rarity with which pus is found in the early days of an infection, two of Ewald's cases in which it was detected on the fifth and seventh days respectively, being regarded by him as quite exceptional. The occurrence, outside of these cases, of genuine primary empyemata is, of course, not denied.

Further, it is known that certain micro-organisms which are generally characteristic of pus may exist in a primary serous effusion without ever forming pus. For example, Goldscheider⁶ has found (and his conclusions are in accord with those of other observers, as Levy, Weichselbaum, etc.), cases of primary pleurisy in which the streptococcus and others in which the staphylococcus pyogenes existed, which never developed pus but which underwent complete and permanent resolution.

It has been shown that the production of pus is dependent not alone on the specific character of the pus organism but on other conditions favorable to its growth connected either with the coccus itself or with the organism which receives it. Perhaps one such condition has to do with the numerical quantity of the micro-organisms. Thus Hermann at the Pasteur Institute found that at least 500,000,000 staphylococci were necessary to produce an abscess subcutaneously in a rabbit, and that different tissues of the animal possessed a varying susceptibility. Whether the fact be due to a less quantity or a less virulence of the streptococcus in certain cases, it is at all events true that that micro-organism which often leads to empyema may produce only a serous effusion. It seems, therefore, probable that the pneumococcus whose frequent causal relation to pneumonia and its accompanying pleuritis is demonstrated may, according to varying conditions, produce now a simple pneumonia of less or greater severity, now pleurisy with merely a serous exudate, and now one in which the serum passes over into pus.

Double empyema, though rather a rare affection, illustrates well the causal relation of pneumonia. Dr. G. A. Sutherland⁷ has very recently collected 21 cases of bilateral empyema in children and adolescents. In 14, or 67 per cent., the affection was secondary to lobar pneumonia, and while this ratio corresponds very nearly to that given by Adams for unilateral empyemata in children (when in 32 cases 71 per cent. were metapneumonic) it is especially interesting to observe that in Dr. Sutherland's cases, the double empyema followed in eight of the fourteen young patients a bilateral pneumonia.

The presence of the pneumococcus in a pleuritic exudation, while it indicates, of course, that the individual has received the specific infection which is the ordinary cause of pneumonia, does not necessarily imply that the clinical disease pneumonia, that is, a consolidation of the lungs, is present. For several cases were recently reported by Drs. Washbourn and Hale White before the Royal Medical and Chirurgical Society⁸ of purulent pleuritic exudate, containing pneumococci, accompanied by fever and serious symptoms, but without consolidation. Of seven cases claimed to

be such, one cannot help feeling that in some a latent or central pneumonia may have existed without giving physical signs. But in two cases death occurred after a few days' illness and in each the autopsy showed empyema containing pneumococci, and no involvement of the lung.

Not only may we have a pneumococcus empyema without pneumonia, but, rarely, also a pneumonic pleurisy without pneumococcus. From Levy's report on his bacteriological studies of 54 cases of pleurisy,⁹ it appears that among them were 19 which occurred as complications of pneumonia and influenza. Of these ten were serous and nine purulent. Of the former class, three showed no organisms, one the staphylococcus albus, one the same with the pneumococcus, and six (five?) the pneumococcus alone. But all nine of the purulent cases contained the pneumococcus.

It is not then to be denied that metapneumonic empyemata may contain other organisms than the pneumococcus—may even contain exclusively the streptococcus or the staphylococcus. This is accounted for by Fränkel and others on the ground that the last-named organisms are secondary growths in the pneumonic lung and yet may be the only ones to penetrate to the pleura. Thus, while Fränkel¹⁰ attaches no diagnostic value to them, either in primary or secondary empyema, he believes that the exclusive presence of the pneumococcus in an exudate shows that the empyema is the sequel of a genuine fibrinous pneumonia; and, further, that the spontaneous healing of empyemata occurs, as a rule, only where this is the organism present. This view of the relatively favorable prognosis in a pneumococcus empyema is in accord with the general opinion of others.

An interesting case reported by Bureau¹¹ illustrates how a case went on very favorably under the purely pneumococcus infection, but went badly when this became mixed with another purulent organism. The essential facts are these: A woman, age thirty-six, was taken ill on October 23d. There was well-marked pneumonic consolidation of the right base, and a mitral systolic murmur was heard. Examination of the sputum showed the pneumococcus as the only pathogenic organism. Convalescent on the thirteenth day. On the twentieth day there was a rise of temperature with pneumonia of the left lung. Pneumococci again found in the sputum, and after a few days, in addition, staphylococcus albus and leptothrix. Purpura developed, and also an empyema. In the pus aspirated there were at first only pneumococci, and later staphylococci—the same change that was observed in the sputum. Death occurred on the forty-fourth day. The autopsy showed an infectious endocarditis, with diplococci in the heart, pleura and peritoneum. The original (right) pneumonia had healed completely.

According to Netter¹² the pneumococcus is the causative organism in 43 per cent. of purulent pleuritis. The remaining 60 per cent. or so are described by him as due to streptococci; but if, as we have seen, a few truly metapneumonic cases present these other cocci, it would appear that pneumonia was responsible for nearly half the cases of empyema, a larger proportion than most other observers admit.

As to the relative benignancy of the purely pneumo-

⁵ Wilson Fox (Treatise on Diseases of the Lungs and Pleura, p. 965, American edition) almost alone of recent writers seems to doubt that serous effusions may become purulent independently of outside septic influence, "suppurated exudates," as he calls them.

⁶ Zeitschrift für Klinische Medizin, 1892, vol. xxi, p. 363.

⁷ Lancet, June 9, 1894.

⁸ Lancet, March 3, 1894.

⁹ Lancet, November 29, 1890.

¹⁰ Charité Annalen, 13 Jahrgang, 1888, p. 147.

¹¹ France Médicale, 1892, xxxix, p. 177.

¹² Quoted in the Boston Medical and Surgical Journal, May 25, 1893.

coccus empyemata, Netter also speaks hopefully. He has seen four cases which recovered after a single aspiration and has collected thirty-two similar cases from other sources. Whether some of these favorable results, however, did not occur in children, does not appear.

In conclusion, I would make the following suggestions:

(1) In all pneumonias where dyspnea or weakness follows the crisis, watch for effusion, and if found, aspirate for purposes of diagnosis.

(2) If the pneumococcus alone is found in the exudate, consider the pleurisy not a complication but only a phase of the pneumonic process.

(3) Give a comparatively good prognosis to such cases where pleurotomy is called for.

(4) Before resorting to this operation, wait longer than would be justified under other conditions, as there is a slight chance that simple aspiration may suffice.

DEFERRED DIAGNOSIS.

BY O. F. McCALLUM, M.D., MAITLAND, NOVA SCOTIA.

PHYSICIANS in early practice will sometimes find that after the most careful and prolonged examination of some cases, they will be in doubt as to the right diagnosis. In such cases they should endeavor to carry the diagnosis as far as possible, and explain to the patient the reason for their hesitation and doubt. This is a procedure which every practitioner now and again adopts. In some cases the facts are not sufficient to warrant a conclusion; in others, although sufficient facts are in reality present, yet their observation is attended with so much difficulty, or the case is so complex, that it is desirable, before committing one's self to a final opinion, to examine the patient again and again, and to take time to think over the case. This is truly a scientific method of procedure, which every one, who wishes to arrive at the best possible conclusion must frequently adopt. On first entering practice one will, of course, be frequently in doubt, and until one has thoroughly acquired the confidence of patients, one may feel some difficulty in telling them, when they ask for your opinion, as they usually will do, that he is unable to form a positive opinion as to the nature of the case; for one naturally will think that they will attribute hesitation and doubt, not to the intrinsic difficulties of the case, but to want of experience and knowledge. And in some cases they would be correct. Tact and ingenuity enable some men to get out of the dilemma, but one will, I think, generally find that the straightforward course is in the end the best. Sensible and intelligent people will seldom be dissatisfied if told that the case is one of difficulty and doubt, and that it is necessary before making up one's mind as to its exact nature, to take time for its consideration and further observation. Once having gained the confidence of patients, and acquired a certain reputation, there is no need to hesitate as to the course to be adopted.

To give an illustration of the kind of case in which it is necessary to defer the exact diagnosis: A patient comes, let us suppose, with symptoms of intra-thoracic pressure. On physical examination it is evident that there is a tumor within the chest. But it is difficult, or may be impossible, to decide at the first interview whether the tumor is an aneurism or solid growth.

The evidence may seem to be evenly balanced; and sometimes, though it must be confessed rarely, this is naturally the case. The chances being equal, the practitioner may deliberately choose to run the risk of being wrong, knowing if he happens to be right he will gain more credit from being right than he will gain discredit from being wrong. This is exactly the principle upon which the bone-setter makes his reputation. The public hears of the few successful results. They are widely noised abroad, both by the patient and operator; but the failures—the many gross mistakes and too frequently disastrous results—are forgotten, or make comparatively little impression on the public mind. As a matter of experience, it is found that one thoroughly successful result is quite sufficient to counterbalance a large number of serious errors. Now, suppose that the patient with the intra-thoracic tumor dies, and that the positive diagnosis which has been hazarded is found to be correct. The physician congratulates himself, and is congratulated, over the result. People talk of the wonderful diagnosis which Dr. So-and-So made, apparently without any difficulty where others deferred their diagnosis or would not give a definite opinion, and seemed to hesitate and doubt. Well, another doubtful case presents itself. The same process is adopted; but this time the guess—for it is nothing more—is not correct. The temptation to appear brilliant at the risk of failure where the chances seem equal, and to carry the diagnosis further than the facts of the case warrant, is a strong one; but it should be sternly resisted and suppressed. Like all other temptations, it grows stronger and less easily resisted the more frequently it is allowed to get the upper hand, until finally it becomes a habit.

Now, the object of the physician ought not to be to make a few happy and apparently brilliant hits, mixed up with an equal number—it may and probably will be with a greater number—of mistakes, but to arrive in every case at the best possible conclusion which the facts warrant.

Scientific caution is a quality which cannot be too highly honored; and it cannot be too strongly insisted upon that, in forming a conclusion, it is better to err on the side of caution rather than of rashness. Caution may, however, be carried to an extreme. In the great majority of cases which come before the physician, the facts are quite sufficient to enable a competent man to come to a positive conclusion. When one finds a man constantly or very frequently hesitating to give a positive opinion, one naturally thinks that he is not able to form one, and that he is using cautiousness as a cloak for ignorance and doubt. One does occasionally meet with a shrewd man of the world who is not very strong professionally, who knows by experience when he does commit himself to a positive opinion he is apt to make a mistake, and recognizing that positive errors tell injuriously against him, wraps himself up in the cloak of cautiousness, and tries to make capital out of his reserve, by posing as one who gives careful and well-considered opinions.

It has been computed that the death-rate of the globe is 68 per minute, 97,790 per day, or 35,717,790 per year. The birth-rate is 70 per minute, 100,800 per day, or 36,817,200 per year, reckoning the year to be 365½ days in length. — *Scientific American*.

Clinical Department.

REPORT OF A CASE OF UNILATERAL CYSTIC DEGENERATION OF THE KIDNEY COMPLICATED BY TUBERCULAR PERITONITIS.¹

BY AUGUSTUS P. CLARKE, A.M., M.D., CAMBRIDGE, MASS.

I WAS called, July 26th, to visit B., aged sixty-five years, a cordwainer by trade. He had been of good physique, and had enjoyed excellent health until about eight years ago, when he began to suffer from the effects of an abscess occurring in the abdominal wall, involving the peritoneal cavity, and presenting itself first in the upper portion of the hypogastric region. He, it appears, was taken to the Boston City Hospital, where he remained eight weeks, and was operated upon. At the time of his discharge from the hospital he regarded himself as entirely cured. He resumed his occupation, and was apparently well until about three years ago, when he began to suffer from gastric disturbance, and was unable to accomplish the work of his trade as easily as heretofore. Three months before I was called he had become much worse, and had been under medical attendance during that period, although he was not confined all the time to his bed.

From the history and account of his symptoms as furnished me, I have no doubt that his case must have been regarded as somewhat obscure. When I made my first visit he was in bed; his heart's action was weak; and there was marked ascites with considerable edema of the lower extremities. He complained much of the dyspnea with which he had for some time been troubled.

I suspected that the patient was suffering from some form of renal trouble, and I did not hesitate to apprise the family upon this point. I was, however, told that the kidneys were not affected, that they had been found by the previous medical attendants through recent examinations of the urine, to be free from disease.

During the early part of my attendance on the case there was some abnormal elevation of temperature; occasionally the patient would have a chilly sensation, though there was no prolonged or well-pronounced chill. Nausea and vomiting of bile were other distressing symptoms. Though the patient was suffering from dyspnea, I did not regard that symptom as sufficient indication to bear out the conclusion that there was any distinct cardiac lesion. By eliminating that possible source of disease, the diagnosis was narrowed down to affections of the kidney, mesentery and peritoneum. If the disease in its inception was confined wholly to the mesentery or to the peritoneum, there would have been more marked indications. The advantages usually afforded by palpation in arriving at a correct diagnosis were negative on account of the large amount of fluid in the abdominal cavity.

Dr. Tuttle made a visit with me on August 16th, and advised against resorting to paracentesis. The heart's action at that time was becoming weaker, so that exploratory incision became out of the question. Though the frequent examination of the urine up to this time had been attended with negative results yet we could not help feeling that there was more or less advanced renal disease.

Saline laxatives, digitalis, pilocarpine in connection

with tonics, strychnine, nitro-glycerine and other cardiac stimulants were early resorted to with some apparent temporary beneficial effect.

There was about the face a peculiar expression which indicated that the patient had undergone much general suffering; it did not seem to be due to chronic cancerous or malignant disease. The facies was such as sometimes appears in certain cases of tuberculous disease. There was, however, no cough, no night sweats. As regards the action of the kidneys, the quantity of urine voided per diem was not far from the normal amount.

The patient, as said before, was relieved somewhat by the treatment, but afterwards grew worse, and died August 30th.

An autopsy was performed by Dr. Tuttle and myself some twelve hours after death. On section of the abdomen there was found about two-thirds of a water-pailful of fluid. The peritoneum and mesentery presented a peculiar appearance; being everywhere thickly studded with what appeared to be miliary tubercles. The peritoneum involving the liver was also infiltrated with the tubercular deposits though the liver itself on section was normal. The gall-bladder was unduly distended with its usual liquid contents, otherwise it was normal. The urinary-bladder was much contracted. The prostate gland had undergone chronic enlargement. The heart presented no special abnormal appearance. There were no tubercular deposits found in either lung, and there were no plastic adhesions. There was, nevertheless, considerable fluid in both sides of the chest. The presence of this was, no doubt, a contributing cause of the dyspnea. The right kidney was much enlarged and had undergone *cystic degeneration*. The left kidney was nearly normal. The spleen was normal; so also the stomach. The condition of the kidneys revealed by the autopsy showed why the results of the several examinations of the urine were negative. The left kidney being normal or nearly so the urine secreted by it must also be normal; the right kidney having undergone extensive degenerative changes, and the glomeruli through which the albumin principally escapes having also been destroyed, there could scarcely be expected to occur any real loss or escape of albuminous elements and other products significant of nephritic lesion.

In closing, I would here incidentally remark that it would seem to be important to bear in mind that such particular changes in the kidneys may take place, and that when conducting an examination in the case of any obscure abdominal disease, the existence of such a possible condition should not be left unconsidered.

A CASE OF SUBCUTANEOUS SUTURE OF A FRACTURED PATELLA.

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,
Surgeon to Rhode Island and St. Joseph's Hospitals.

OF the many methods that have been devised for treating fractured patellæ, that by subcutaneous suture, described by Dr. L. A. Stimson, seems to offer the happiest results, with a minimum amount of risk.

The following case is one that came under my observation at St. Joseph's Hospital, this summer: T. A. K., male, twenty-four years old, student. On June 28, 1894, while playing ball, he was tripped by

¹ Read before the Cambridge Society for Medical Improvement.

a small, round stone, and felt something "give way" in the left knee. He did not fall, but deliberately sat down; and after a few minutes he arose, and walked about ten yards. He then felt as if something had again "given way," and was unable to walk. He was taken to his home, and later to the St. Joseph's Hospital. There was considerable swelling, due to a large amount of effusion into the knee-joint, and a transverse fracture of the left patella was found at the junction of its middle and lower thirds. The leg was elevated, and bandaged to an inclined splint with ice bags to the knee. Twelve days afterwards the effusion in the joint had disappeared to a considerable degree, leaving a separation of about a finger's breadth between the fragments.

OPERATION.

The field of operation was rendered aseptic, and the sutures and instruments sterilized by boiling ten minutes in soda solution. The patient was etherized. Four incisions, one-fourth of an inch long, were made through the skin at each corner of the patella. A strong twisted silk suture, similar to those employed in tying the pedicle of an ovarian tumor, was passed through the ligamentum patella, making an entrance at one, and an exit at the other lower opening. The suture was again entered at the lower opening of exit and passed beneath the skin, by the side of the patella, through the upper opening on the same side; then transversely, through quadriceps tendon, along the upper border of the patella, and out through opposite upper opening; then again, through latter opening, beneath the skin and by the side of the patella, through lower first point of entrance; thus encircling the patella. By leaving a loop of the suture at each opening, one is materially aided in making traction when the ligature is tightened. The fragments may be brought together by tenaculi in the hands of an assistant. The suture was drawn tightly, tied, and the ends cut short, the knot being buried in the wound of entrance. The four incisions through the skin, were closed with silkworm-gut sutures. An aseptic dressing was applied, and the leg bandaged to a posterior, inclined splint.

Eight days after the operation the wounds were dressed for the first time and the silkworm-gut sutures removed. Swelling diminished. No evidence of supuration. An antiseptic dressing and posterior splint. Ten days later a dressing consisting of a light plaster-of-Paris splint was applied, reaching four inches above and below the knee-joint. The plaster splint was removed one month from day of operation. There is at present about forty-five degrees motion in the joint.

Thirty-five days from the date of operation the patient was able to walk without a cane, and to fully extend the leg. The line of fracture can be felt, but no evidence of separation of the fragments. Hot and cold douching, and massage advised. Ordinary bandage about the knee.

August 30th. Elastic knee-cap worn. The range of motion was gradually increasing, and no inconvenience was felt from the silk buried suture.

Nine weeks after the operation the patient was able to flex the leg to 115 degrees.

I should advocate performing the operation as soon as practicable after the injury; aspirating the joint if necessary to enable one to approximate the fragments; but this latter procedure would seldom be found neces-

sary. The advantages of this method of treatment are, that the fractured surfaces are maintained in perfect apposition, thereby favoring bony, rather than fibrous, union; the joint is not opened, thus preventing the possibility of joint infection; the operation is simple and readily performed, and passive motion may be commenced early, rendering even partial ankylosis of the knee-joint improbable.

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., OF BOSTON.

(Concluded from No. 26, p. 643, Vol. cxxxi.)

SUBNORMAL ACCOMMODATIVE POWER.

THEOBALD⁶ says that, in 1,615 consecutive cases of refraction and muscular anomalies met with in private practice, since his attention was first attracted to this condition, he found subnormal accommodative power, more or less marked in 155 times, or in about nine and a half per cent. of the total number.

Theobald's doctrine of subnormal accommodative power is based upon the observation that, while the normal balance of the lateral muscles of the eyes, as shown by the vertical diplopia test is in distant vision one of orthophoria, in near vision (at the usual reading distance) the normal vision is exophoria, the relative divergence amounting, as a rule, to from three to five degrees. In cases where there is less exophoria than this for near if emmetropia be present, convex glasses for near vision only are indicated. In hypermetropia, stronger glasses for near vision than can be worn for distant vision may be called for; and in myopia weaker glasses must be prescribed for reading than would otherwise be given.

ON THE PRESCRIPTION OF LENSES IN THE PRESENCE OF ANOMALIES OF THE OCULAR MUSCLES.

Savage⁷ lays down the following rules which he believes should govern the prescribing of glasses in cases of abnormalities of the ocular muscles:

- (1) Give a full correction of hypermetropia when associated with esophoria.
- (2) Give no correction, or only a partial correction, of hypermetropia when associated with exophoria.
- (3) Give a full correction of myopia when associated with exophoria, and when there is orthophoria.
- (4) Give only a partial correction, or none at all, of myopia when associated with esophoria.

DISTURBANCES OF VISION IN HYSTERIA.

Drs. J. K. Mitchell and G. E. De Schweinitz⁸ in an article upon this subject, come to conclusions which are briefly as follows:

- (1) Achromatopsia, or loss of color sense, is not present in American cases (certainly not as described by French observers).
- (2) Reversal of the normal sequences of colors, so that red is the largest field, is usually present when there is anesthesia (although two cases are mentioned of universal anesthesia with no alteration of the visual

⁶ Transactions of the American Ophthalmological Society, 1894, p. 138.

⁷ Ophthalmic Record, May, 1894, p. 447.

⁸ The Journal of Nervous and Mental Diseases, January 1894, p. 48.

fields, and another case in which there was marked contraction but no reversal).

(3) The green field is, relatively at least, more, and more often contracted than the others.

(4) In the difficult distinction between certain types of neurasthenic and hysterical patients, the presence of disturbance of the color sense is of diagnostic import; it is less apt to be present in the former than in the latter, and yet its absence is of little meaning, as it was not found in many cases of hysteria and was found in some neurasthenics.

(5) That it is possible that in rare cases of one-sided or general hyperesthesia that the colors are more acutely appreciated than is normal.

(6) The violence of the hysterical manifestations bears no relation to the disturbance of the color sense.

(7) The following changes in the field of vision are likely to be present in cases of hysteria:

(a) Simple contraction of the color fields with unaffected form fields.

(b) Contraction of both color and form fields, the green fields being relatively more contracted than the form field.

(c) Partial or complete reversal of the normal color fields, most commonly that variety in which the red field is the largest.

(d) Unusual obscurations of portions of visual field.

INCREASE OF TENSION AFTER OPERATION FOR SECONDARY CATARACT.

Teale⁹ says that the irido cyclitis or panophthalmitis which sometimes follow this operation has for its initial stage an increase of tension, and if that can be properly dealt with the process will be stopped. He cites two cases of his own in which within forty-eight hours after the operation the patient suffered intense pain and dimness of vision with increase of tension, and recalling advice offered to him many years before in a similar case by Sir William Bowman, he in one case on the third day, and in the other on the fourth day, punctured with a broad needle through the upper part of the cornea and through the iris into the vitreous humor. The needle was turned sideways and allowed a few drops of vitreous humor to escape. In a quarter of an hour, in each case, intense agony was converted into perfect ease and with the most happy ultimate result.

THE HALO SYMPTOM OF GLAUCOMA.

Richey¹⁰ suggests that the halo symptom of glaucoma must be caused by some condition which is probably to be found in front of the retina, and as the symptom is a prodrome of glaucoma cannot be caused by any increase of tension, and further suggests that the sequence of colors is such as would be produced by the reflection of light from the surfaces of the rhombic prisms of acid sodic urates, or from amorphous granules of the same material, which also has this quality.

M. GUENIOT brought before the Academy of Medicine of Paris two women each of whom had had the operation of Caesarean section twice performed upon her. The four children were living. The mothers were rachitic, and so were two of the children. In one case there was an interval of seventeen months between the two operations.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, October 22, 1894, the President, Dr. C. F. FOLSOM, in the chair.

DR. C. F. WITHINGTON read a paper on

METAPNEUMONIC EMPYEMA.¹

DR. A. L. MASON: Cases such as Dr. Withington has reported have been common of late years, and I think especially so during the late epidemic of influenza. What connection the influenza germ may have with these empyemas is not altogether clear; but it has appeared to me that since the influenza epidemic has subsided empyemas have been less frequent, pneumonias also.

The diagnosis of these cases when they come to the hospital is sometimes difficult. They enter late, having suffered from pneumonia perhaps a longer time than is reported; and the physical signs are often obscure, those of pneumonia being present as well as those of effusion. When cases are watched from the outset it is much easier to treat them promptly and efficiently.

There has been a distinction made, chiefly by French writers, between the so-called metapneumonic and parapneumonic pleurisy, chiefly based upon the statement that the effusion in parapneumonic pleurisy, which occurs in the early days of the pneumonia, is serous, whereas the metapneumonic effusion is purulent. This, no doubt, is often true; but from the case which Dr. Withington reported with double effusion, it is quite evident that empyema may originate very early. The fact, however, that an early effusion in pneumonia is most frequently serous I have verified in a considerable number of cases tapped for extreme dyspnea, the effusion being sometimes sanguinolent from the acuteness of the process.

As to the prognosis in the purely metapneumonic empyemas, I should think it was better than the cases that Dr. Withington has reported would lead one to suppose. The mortality, so far as I can recall in the large number of cases that have presented themselves in the last four or five years, has been very moderate indeed, after drainage. I remember one instance of recovery in an adult after simple aspiration. The pus did not reaccumulate. Such a fortunate result is no doubt more frequent in children; and in the City Hospital records there are a number of instances in which they have recovered from this form of empyema after one or two aspirations. That fact, however, would not lead one to defer a more radical operation, because such a result is certainly exceptional.

There are one or two matters in regard to the drainage of chests under these circumstances which are interesting. One relates to the question of etherization. I noticed that Dr. Withington said one of his cases was operated on in bed without removal. Many of these patients are so exhausted, debilitated by prolonged illness, that the resection of ribs should be deferred. Most surgeons to-day think it important to resect ribs in all cases of empyema, but certainly the result in these metapneumonic empyemata is usually favorable without resection of the ribs; that necessitates etherization, in itself a dangerous procedure

⁹ Bowman Lectures, The Lancet, June 17, 1893, p. 1,429.

¹⁰ Transactions American Ophthalmological Society, 1894, p. 85.

¹ See page 5 of the Journal.

when one side of the thorax is full of pus and the other lung perhaps edematous from pressure. I have heard of a number of fatal instances of this kind which seemed to be the direct result of anesthesia; therefore, a rapid evacuation by simple incision without removing the patient from bed, seems to me to be the proper procedure where there is great exhaustion or great oppression in breathing.

DR. E. N. WHITTIER: I think, Mr. President, after the conversation we had over the telephone with reference to the title of this paper, I shall be obliged to admit myself as occupying a peculiar position. I did not think then that the title could be successfully demonstrated in a paper of the ordinary limits; but I am free to admit that the situation is not very different from that so well described by Goldsmith in which he said, "Truth from his lips prevailed with double sway." For, certainly, after listening to Dr. Withington's paper I must admit that he has demonstrated the right to preface the paper with a title which to some may seem somewhat obscure. I cannot quite satisfy myself, however, as to the impropriety of using *para* instead of *meta*. If these cases of purulent pleurisy follow after and can be demonstrated, as in so many instances they have been demonstrated, as dependent upon, I do not see why the other prefix may not with more accuracy be applied. The difficulty seems to be in demonstrating the causal relation between the two diseases. A year ago was a dark experience with me in this regard. I saw a number of cases of this purulent pleurisy, which I supposed was a sequence of pneumonia, and not necessarily in the ordinary sense of the word a complication, and which seemed to resist by reason of the severity of the pre-existing disease the best methods of treatment for purulent pleurisy. During my service in the Massachusetts General Hospital, I saw six cases in a state of great exhaustion from pre-existing pneumonic process, with a history such, that there was every reason to believe that the clinical history furnished was accurate, and leaving the patient in such shape that it was impossible to bring out a good result by the most careful treatment for the succeeding empyema. I believe that if it had not been for the extreme degree of surface inflammation, we should not have seen those empyemas, nor such difficulty in the successful application of remedial agents. Under ordinary circumstances pneumonias are not exposed to influences such as have been prevalent in this community for four or five years. I refer to the "influenza" which is, after all, primarily, a disorder of the central nervous apparatus, and which has modified in no small degree the hitherto observed natural order of diseases, notably the pneumonias and the continued fevers — particularly in the direction of a lessened percentage of favorable results. These collections of pus seem to me to deserve more nearly the name of pleural abscess, than empyema, meaning by that a localized process which would be followed by good result with the ordinary means used to evacuate pus, and that the resection of ribs, and the use of the drainage-tube would be found not to be demanded, in anything like the percentage of cases ordinarily called empyema.

DR. H. JACKSON: I felt as I came in to-night that empyema as seen in children should be classified rather differently from the empyema seen in adults. Pleural exudation in children in a pretty large proportion of cases is purulent. The exudation, as I have seen it in children, often comes on gradually without marked

constitutional symptoms, often coming on so gradually that there may be a large exudate in the pleural cavity without giving rise to severe dyspnea. In children I have certainly not diagnosed the pre-existence of a pneumonia. Dr. Withington, in speaking of cases of empyema at the end of his paper, spoke of a large number of them as following pneumonia in children. In adults my experience with empyema has been small; I have notes of only four cases to draw from. Two of them followed a pneumonia, in each case not what we speak of as a typical frank pneumonia, but a pneumonia of a portion of a lobe; one of them a pneumonia following a septic puerperal case that I saw in a dispensary district, and the other a pneumonia where the fever was slight, where only a portion of the lung was affected. In the two other cases, in one there was no history of any pre-existing disease, and the fourth, an examination of the lung and aspiration of the fluid, showed it to be tubercular. There were signs of consolidation in the lung. The puerperal case had pneumonia of a violent type and empyema, and proved fatal.

As to the organisms found in empyema, Prudden gives a list of twenty-four cases of empyema. Of these, eleven were due to the pneumococcus, eight being due to the streptococcus, the empyema being an intercurrent affection in a general septic process. Of the other cases, one was tubercular, and in four various organisms were found, the empyema being secondary to perforation of the lung. I have not had the opportunity of seeing empyema follow an ordinary frank pneumonia of the whole lobe of the so-called sthenic type.

DR. H. F. VICKERY: It has been a trouble to me in treating cases where there is consolidation and also liquid outside of it to know when to endeavor to remove that liquid. It has seemed to me personally that a small amount did a good deal of harm by increasing the dyspnea, and yet my efforts to relieve the patient by removing the fluid have not been very reassuring. If you get it out early when it is still serum, it seems as if the raw pleura caused great pain. In the case of two patients I should like to be perfectly certain that it did not hurry their death. I think they would have died anyway. I got out a scanty pint of fluid in each case, and it did not afford the relief I expected. I do not know how Dr. Withington has made up his mind about that subject.

DR. WITHINGTON: In regard to Dr. Vickery's question, my feeling has been if the fluid were purulent and in any considerable amount it usually afforded some relief to the patient to aspirate it, and if it were serous fluid and large enough in amount to add very materially to the embarrassment of the respiration, then remove it. I think that a moderate amount of serous effusion in pneumonia is not of much consequence. It is not a complication, not a different thing engrafted upon the pneumonia, but simply a manifestation of the pneumonic bacterium in the pleura.

In regard to Dr. Mason's remark about the greater frequency of empyemata as a result of influenza, it ought to be said, on the other hand, that some of these cases which I have taken from the records of the hospital date back before this last epidemic visited us. Furthermore, the cases which Ewald speaks of in his compilation in the *Charité Annalen* of 1874 were in a time when epidemic influenza was not rife.

The question of nomenclature between parapne-

monic and metapneumonic empyema is one which might be open to discussion, but the important fact in either case is the recognition of the relation of the empyema to the pneumonia. Whether it occurs along with it, as would be indicated by the term parapneumonic, or whether it occurs subsequently, as indicated by metapneumonic, might be perhaps open to some discussion. I have adopted the term metapneumonic, because it seemed to me that in most of these cases it was a matter of sequence rather than of simultaneous development. Many of these cases showed a typical resolution during the pneumonia, and after that a secondary rise and marked interruption of the progress of convalescence which was due to the development of the empyema after the crisis of the pneumonia itself had passed.

I believe Gerhard first used the term metapneumonic empyema, and it seemed to me a pretty fairly descriptive term.

I did not go into the question of treatment at all; but it seems to me the hint Dr. Mason gave is an important one as to the undesirability of removing a patient in the hospital down one or two flights of stairs and across to another wing of the hospital for operation when he is in a condition of exhaustion, as he is likely to be in with pneumonia and with the additional burden of a chest full of pus. Operation could be done in bed without the patient being transferred for that purpose. In other words, if you had such a patient in private practice, you would not subject him to such violent usage as would be involved in moving, and it is equally desirable in hospital practice that he be spared the same additional burden.

THE NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting, held at the New York Academy of Medicine, Tuesday evening, November 6, 1894, DR. EDWARD D. FISHER, President, in the chair.

DR. JAMES J. PUTNAM, of Boston, briefly reported the histories of

FOUR CASES OF BRAIN SURGERY

recently coming under his observation. In all of these cases the chief symptoms were headache, nausea, vomiting and optic neuritis, and operation was advised for the purpose of relieving pressure. The first patient, a comparatively young man, did not recover from the effects of the ether, and died about five hours after the operation. No autopsy was permitted, but from an examination of the brain made through the opening in the skull evidences of a large hemorrhage underneath the cortex were found. The second case was that of a young girl who died during the etherization, before an incision had been made. At the autopsy three tumors were found in the situation where the skull had been about to be opened. In the third case the patient's symptoms were markedly relieved by the operation. In the fourth case a tumor of the cortex was found, and a large cyst underneath the cortex: the latter was emptied, but it rapidly refilled, and during the past few days there has been some oozing of brain substance from the wound, and the patient is likely to do badly. These cases, the speaker said, go to show the dangers that attend opening the skull, which is usually regarded as a comparatively simple operation.

DR. M. ALLEN STARR gave an

EXHIBITION OF MICRO-PHOTOGRAPHS OF NERVE CELLS (GOLGI'S STAINS).

These photographs were made by Dr. Edward Leaming, Instructor of Micro-photography at the College of Physicians and Surgeons, from specimens prepared by Mr. Strong, in the laboratory of the Biological Department at Columbia College. They showed various portions of nerve tissue, some stained by Golgi's method and others by a modification of that method employed by Mr. Strong. These micro-photographs, Dr. Starr said, were exhibited this year at the British Association at Oxford, and received a good deal of favorable comment. One of them, showing the Purkinje ganglion-cell, took the prize in London for the best exhibit of micro-photography.

DR. C. L. DANA read a note on

A CASE OF ACUTE POLIOMYELITIS IN A HEN.

The speaker stated that during the past summer, in the months of July and August, there occurred in the neighborhood of Rutland, Vt., an epidemic of anterior poliomyelitis. Dr. Caverly, the health officer of the State, said that during this epidemic horses and fowls became affected, and on September 18th he sent to Dr. Dana a large Plymouth Rock hen for bacteriological purposes. This fowl, on its arrival here, was paralyzed; and the owner of the flock, a physician, reported that several had died, the symptoms being similar to those noted in this one. The hen was taken to the Carnegie Laboratory, and a careful clinical examination made, which revealed a paraplegia (not quite complete) and some paralysis of the wings; the head and neck muscles were not affected; there was no anesthesia. Dr. Dunham, who conducted the bacteriological examination, inoculated several culture tubes from the spinal cord and meninges, and also took several sections from the cord and made smear stains, all with a negative result. The spinal canal of the animal was opened, and no evidence of meningitis was found, nor were there any signs of hemorrhagic extravasation. On being placed in Müller's fluid and stained, a distinct area of softened tissue was seen in the central part of what might be termed the lumbar region of the cord. The destructive process was quite extensive; the congestion was intense, and there were several hemorrhages. From the appearance of the cord it appeared that there had been an acute exudative inflammation, and that the process was so severe that necrosis came on before the inflammatory reaction; hence it is practically a case of acute infectious softening rather than myelitis. In conclusion, Dr. Dana said that while this case might not have any actual value, yet to a certain extent it corroborated the infectious theory of anterior poliomyelitis, and, so far as it went, it supported the view that in this disease the changes were primarily vascular and not parenchymatous.

DR. PUTNAM stated that at an autopsy made in a case of anterior poliomyelitis of two months' standing in an adult, he found that the necrotic process was distinctly confined to the area immediately surrounding the vessels.

DR. STARR stated that while on a visit to Vermont last summer, he saw a number of the cases of anterior poliomyelitis referred to by Dr. Dana. Within a radius of perhaps twenty-five miles, about 160 cases of

the disease occurred between the 25th of July and the 1st of September. Dr. Starr said he saw about a dozen of these cases. The epidemic was first regarded as one of cerebro-spinal meningitis; but from the lack of sensory symptoms and the peculiar distribution of the motor symptoms, the speaker said he regarded them as true cases of anterior poliomyelitis. Sensory symptoms were present in some of the cases; but he has often found an anterior poliomyelitis in children over the age of twelve years and that hyperesthesia and stiffness of the muscles are among the first symptoms complained of.

DR. B. SACHS said that in France the tendency has been to regard anterior poliomyelitis as epidemic. Epidemics of the disease have been observed in Stockholm. In his own practice he has noticed that by far the larger number occur during the warm weather. It is probable that we must include this affection among the acute infectious diseases which are epidemic, or rather endemic. He has observed cases where it was difficult at first to say whether the disease was cerebro-spinal meningitis or anterior poliomyelitis. In several cases of the latter disease in the very early stage, pain along definite nerve tracts was a very characteristic symptom.

DR. A. JACOBI stated that last August he received a letter from Dr. Caverly regarding this epidemic in Vermont, in which he described a number of the cases, particularly emphasizing the fact that there was a good deal of hyperesthesia. Basing his conclusion on these data, Dr. Jacobi said, he expressed the opinion that the epidemic was one of cerebro-spinal meningitis, as the manifestations of that disease differ widely at times. Since then, however, he had received more detailed information regarding the cases from Dr. Starr, who examined a number of the patients, and he now had no doubt that the epidemic was one of anterior poliomyelitis.

DR. A. D. ROCKWELL stated that two of these cases were examined by him. In one the hyperesthesia was very distinct, and he was inclined to regard them as cases of cerebro-spinal meningitis.

DR. STARR called attention to the fact that in the classical descriptions of anterior poliomyelitis, so little mention is made of the pain and stiffness and hyperesthesia. The reason for this probably is that so few cases of the disease are diagnosed as such until they have gone on for a week or two, and by that time the sensory symptoms have practically disappeared. If this newer pathology of the disease is correct, and it is due to a congestion of the cord, sensory symptoms are undoubtedly present.

DR. PUTNAM said that in the case already referred to by him, the hyperesthesia was excessive; so much so, that he could hardly doubt that peripheral neuritis was also present. In all other respects the symptoms were typical of anterior poliomyelitis.

DR. A. JACOBI said there are two distinct classes of cases in this disease. In one class, that referred to by Dr. Starr, there is fever and hyperesthesia at the beginning, but these symptoms are readily obscured in cases where the myelitis comes on during the course of another disease, such as scarlet fever, pneumonia, etc. The acute symptoms are ascribed to the latter disease, upon recovery from which it is found that the child is paralyzed. In the other class of cases, and probably the large majority are of this character, the child is put to bed quite well, and when it is taken up in the morning

it is found to be paralyzed; there is no fever and no hyperesthesia; there is not even an outcry in the night.

DR. LANDON CARTER GRAY said he agreed with Dr. Jacobi that cases of anterior poliomyelitis like those last described were very commonly met with; yet there were a certain number where the patients had unquestionable sensory symptoms, which we were often apt to attribute to a neuritis. It was a fact that this disease usually occurred during the hotter months. This subject was carefully studied some years ago by Drs. Weir Mitchell and Sinkler; they also showed that chorea was not dependent on temperature, but rather on barometric fluctuations.

DR. G. M. HAMMOND inquired whether the diagnosis in the hen was based on the clinical symptoms or the pathological condition of the cord. In anterior poliomyelitis we were apt to associate a certain group of symptoms with certain pathological changes in the cord. In the microscopical sections exhibited by Dr. Dana the anterior horns appeared to be symmetrical, and the changes did not exactly resemble those we found in the true disease.

DR. DANA replied that in some of the sections, which he had been unable to bring with him, the lesion in the cord was very marked. In some there was a distinct loss of substance, with softening and hemorrhage.

The PRESIDENT said that in the differential diagnosis between anterior poliomyelitis and cerebro-spinal meningitis, the extreme muscular atrophy which we find in the former would not be so apt to be present in the latter. The electrical reactions, too, might aid us. Sensory symptoms, he thought, were often present in anterior poliomyelitis, and were apt to be overlooked.

SOME OF THE IMPORTANT ASPECTS OF THE THERAPEUTICS OF DISEASES OF THE NERVOUS SYSTEM.

DR. JAMES J. PUTNAM, of Boston, read an interesting paper on this subject. The main portion of his paper was devoted to a critical study of psychical therapeutics, or mental influence in certain forms of nervous disease with special reference to neurasthenia. This method of treatment, systematically carried out, often produces excellent results, not alone in functional, but even in organic nervous disease. Among the methods of psychical influence employed by him, the author mentioned static electricity as one of special value. As regards electro-therapeutics in general, he is not prepared to accept the dictum of certain French writers, and assert that its benefit is wholly due to its influence on the mind. Among other forms of mental influence, Dr. Putnam mentioned waking and hypnotic suggestion: as regards hypnotism, he stated that while he is not particularly in favor of it, the time has come when we ought to recognize what there is of value in it. This agent should never be employed excepting by one who is skilled in its use, or, if the patient's own physician undertakes it, he should be content to induce a moderate degree of hypnotism. In one case coming under his observation, a young woman with spastic paraplegia of several years' standing, numerous attempts made to hypnotize her never succeeded beyond the production of the first stage; through suggestions made to her while in this condition she partially regained the use of her legs, and the improvement has been permanent.

Among other therapeutic measures referred to by

the author, which he has found valuable, especially among dispensary patients, where the need of better methods for the treatment of nervous diseases has long been felt, were gymnastics, including the formation of classes for calisthenics, massage and hydro-therapeutics. During the past year he has treated fifteen cases of chronic spinal sclerosis by suspension, a method of treatment which he regards as wholly empirical. In almost every instance these patients declared themselves improved, both as regards eyesight and general condition.

In concluding his paper, Dr. Putnam stated that during the past few months he had tested the Flechsig treatment of epilepsy by means of large doses of opium; and he referred to a paper on this subject by Dr. Joseph Collins (*New York Medical Record*, September 22, 1894). The treatment was employed in ten cases; in none of them were the attacks wholly checked, but in all of them an improvement was noted. The opium was never pushed beyond ten grains daily.

DR. GRAY said that in some patients there is such an admixture of the symptoms of neurasthenia, hypochondriasis and hysteria that it is difficult to distinguish one condition from the other. There are, on the other hand, cases which we may term pure neurasthenia; and it is in these cases, as he understood the paper, that the author would employ hypnotism under the broad term of suggestion. Hypnotism, in the way that it is generally used, is an agent that we can seldom employ in neurasthenia, not only because there is a prejudice against it, but also because it is difficult to impress such patients favorably by means of it. The same thing may be said about it in hypochondriasis, while on the other hand, in hysteria its results are peculiarly favorable. As regards the value of electro-therapeutics, Dr. Gray said he was firmly convinced that the benefit following its employment in certain conditions was by no means confined to its influence on the mind of the patient. He had over and over again seen cases of neuritis in an advanced stage improve under the galvanic and faradic currents. He had seen marked benefit follow the use of this agent in many cases of anterior poliomyelitis and muscular atrophy.

DR. WILLIAM H. THOMSON referred to the value of newness or change as a psychical therapeutic measure in nervous diseases, and narrated the histories of a number of cases in which remarkable improvement followed the change of scene and surroundings.

DR. SACHS said it was claimed by some that hypnotism had not met with the reception in America which it deserved, and that one reason for this was that we were still subject to the old idea that the physician must prescribe; that we were altogether too fond of drugs. Personally, he regarded it as a therapeutic measure which was of value in comparatively few cases. After a thorough and impartial trial, his own experience with it had been anything but satisfactory.

DR. MARY PUTNAM JACOBI stated that she had found static electricity almost a specific for the purpose of dissipating muscular pains, whether rheumatic, hysterical or otherwise, even if such pain had entirely resisted the galvanic or faradic currents.

DR. ROCKWELL said he had employed static electricity for many years, and expressed the opinion that its value had been very much over-estimated; its slight quantity gave it little value as compared with other forms of electricity.

DR. STARR said it seemed to him that the reason why Dr. Weir Mitchell's rest treatment was so successful was that it combined most of the different elements which had been mentioned by the various speakers. There was first the expectation of taking a cure which had been of benefit to others; this was combined with a trip to Philadelphia, a change of scene, and an entire change in the daily routine of life. The speaker also referred to the value of hydro-therapeutics, which made an intense mental impression on the patient.

DR. MARY PUTNAM JACOBI said that one writer, probably humorously inclined, had made the assertion that the beneficial effects of hydro-therapeutics were more pronounced in France than in England, because no French person ever takes a bath.

DR. JOSEPH COLLINS said he recently had the opportunity of discussing the Flechsig treatment of epilepsy with its originator, who, although not so enthusiastic regarding it as he was at first, still considered it of great value.

DR. PUTNAM then closed the discussion.

At the close of the discussion, a vote of thanks was given to Dr. Putnam by the Society for his interesting and able paper.

Recent Literature.

The Medical News Visiting List for 1895. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year; and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-Patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Philadelphia: Lea Brothers & Co. 1894.

The Medical News Visiting List for 1895 has been thoroughly revised and brought up to date. The text contains useful data for the physician and surgeon, including an alphabetical Table of Diseases, with the most approved remedies and a table of doses; sections on examination of urine, artificial respiration, incompatibles, poisons and antidotes, diagnostic table of eruptive fevers, and the ligation of arteries. The classified blanks hold records of all kinds of professional work, with memoranda and accounts. It is one of the most convenient of the visiting lists published.

Dissections Illustrated. A Graphic Handbook for Students of Human Anatomy. By C. GORDON BRODIE, F.R.C.S., etc. With plates drawn and lithographed by PERCY HIGHLEY. In four parts. Part III. The Head, Neck and Thorax. London & New York: Whittaker & Co. Macmillan & Co., Publishers.

We have already spoken of the first two parts of this work. The dissections are beautiful and they receive full justice in the colored illustrations. The worst that is to be said in criticism is that the style of anatomy is that of the older English school.

NEW EDITOR OF THE ARCHIVS FÜR KLINISCHE CHIRURGIE. — Professor Gussenbauer, of Vienna, has been chosen to take the place of the late Professor Billroth on the editorial staff of this journal.

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REPORT OF THE SURGEON-GENERAL OF THE
UNITED STATES NAVY.

THE report of the Surgeon-General of the United States Navy embraces a "statement of the condition of the naval hospital fund, the naval medical establishment and other matters of interest pertaining to the duties of the Bureau of Medicine and Surgery." Certain of the *other* matters cannot fail to interest every one who is interested in the welfare of the new navy of which we have heard so much during the last few years.

One reads and hears so much concerning the *personnel* of the navy that the little the surgeon-general has to say on the subject of recruiting naturally attracts attention; and under that head one reads as follows: "Enlistments on sea-going ships should be prohibited by regulation, from the fact that many of our new ships are unprovided with suitable accommodations for such examination, some of them having no examining-rooms or sick-bays, and even in those having sick-quarters they are entirely inadequate for the proper performance of this work."

There is something quite startling about this lack of accommodation for the sick and wounded. It is entirely at variance with the forethought to be expected; and one looks with interest through the rest of the report to see what further can be found regarding sick-quarters in our new vessels which have been held up as a source of national pride.

The next information on the subject is given under the heading of sick-quarters on board vessels of war, where it is stated that "on board of ten vessels no quarters are designated for the treatment of the sick and wounded; in the case of the *Minneapolis* the omission was probably due to an oversight, as this vessel was designed on similar lines to her sistership, the *Columbia*." Some of the reports from the different vessels give more particulars. The medical inspector's report on the U. S. S. *New York*, contains the following: "The sick-bay is in the same part of

the ship that it has been for ages past, in the bow, on the berth-deck, having only a torpedo operating-room forward of it. . . . The forward torpedo is operated through the sick-bay while the blacksmith's forge is overhead. The noise of the huge cables running through the steel pipes that pass through the sick-bay is deafening, causing the patients to hold their heads in agony. . . . The operating-room, so called, is the bath-room and water-closet." The surgeon of the *Detroit* reports as follows: "The ship has no sick-bay. This is a most deplorable fact to contemplate on board of any sea-going ship; bad enough where the berthing spaces are sufficiently large and well ventilated to give fair comfort to men in good health, and where the sick may be isolated by temporarily depriving others of their regular berths, but in a ship of this class where every dry, ventilated and not overheated space is crowded beyond its healthful capacity, the absence of a proper place for the treatment and care of the sick is not only a source of annoyance and discomfort to others, but is fraught with no little danger to the unfortunate sailor."

These startling statements are given in the very words of their writers, and represent a strange state of things — which evidently does not exist without a protest on the part of the surgeon-general. "A special report relating to the importance of providing suitable accommodations on board of our ships for the care and treatment of the sick and wounded of the navy has already been submitted to the Department. The plans of all vessels in commission, undergoing construction and nearing completion, have been carefully examined with a view of selecting suitable location for sick-quarters, and recommendations made when required."

The medical inspector on the *San Francisco* speaks pleasantly of the naval militia, as follows: "They came on board full of enthusiasm and good-will, and while here devoted themselves to their duties and embraced every opportunity for the acquirement of a knowledge of the exercises of a vessel of war. The surgeon of the Massachusetts battalion came with them. He held a regular sick-call, and used his own medicines and instruments."

The "Department of Instruction" in connection with the U. S. Naval Laboratory at New York, is spoken of in the most routine manner. A system of instruction for assistant-surgeons immediately after passing a successful examination for admission into the medical corps of the navy, was created by a regulation issued by the Department over a year ago. Following the nomenclature elsewhere adopted, it might be called the Naval Medical School. It would be of general interest to know a little more about the work expected of the young assistant-surgeons and the advantages for post-graduate study given them. At the last meeting of the Association of Military Surgeons of the United States it was stated that the medical officers of the navy would gladly see the privileges of this school extended to the officers of the naval militia.

THE CITY INSANE ASYLUMS ON WARD'S ISLAND, NEW YORK.

On December 26th, the State Commission in Lunacy, of which Dr. Carlos F. MacDonald is chairman, made public the report of the investigation into the condition of the city asylums for the insane on Ward's Island, which it commenced last summer. In May, last, charges were formulated against the administration of these institutions, and, in consequence, the Mayor addressed a letter to the Commission, asking an immediate investigation. Regarding the charge that the Commissioners of Charities and Correction were negligent of their duties and had diverted moneys intended for the erection and repair of asylum buildings to other purposes, the report finds that the Commissioners failed of effective supervision by joint visitation and inspection, but, in view of the large number of institutions under their charge, that they did the best they could under the circumstances. As to the incompetency, neglect and inefficiency of the General Superintendent and other medical officers, the report finds the charges not sustained and commends all these officials. The report also considers inadequate and biased the testimony in relation to the character and conduct of the nurses and attendants. It maintains that, despite the safeguards of the probationary term and the civil-service examination, an unsuitable person will occasionally gain admittance to the service, and that while in certain occasional instances cases of neglect and ill-treatment of patients were brought to light, the offender was always promptly discharged when the facts became known to the Superintendent. As a rule, the attendants were found faithful to their trust and deserving of the confidence of their superior officers.

The report goes on to state that the attendants were justified in certain complaints they had made and condemns the proportion of attendants (one to sixteen patients) as entirely inadequate and in marked contrast to the proportion in the State hospitals for the insane. It sustains the charges made as to the insufficiency and poor quality of the food furnished, and finds fault with the character and amount of the furniture, clothing and bedding provided. The charge regarding a scarcity of alcoholic stimulants is not sustained, but the supply of medical and surgical appliances is found to be not as complete as it should be. Regarding the existence of scurvy and the overdosing of patients, the Commission does not think the evidence produced sustains either charge, but it does condemn the use of dangerous medicines in such large doses as in certain instances were indicated in the testimony. The charges that the female patients were overworked and that infectious cases were not properly isolated are not sustained. It is admitted, however, that patients suffering from pulmonary tuberculosis were not isolated, but this is regarded as impossible on account of the overcrowded condition of the wards.

The charges of overcrowding, dilapidation, defective plumbing, ventilation, etc., are fully sustained,

and the asylums are found to be overcrowded to the extent of 2,500 patients. The various charges having been disposed of, the report proceeds to discuss the causes of the existing abuses, and the conclusion is arrived at that they are due to the system under which these institutions are organized and administered, rather than to any particular individual officials or set of officials. In conclusion, the report presents a strong argument in favor of the transfer of the city's asylums to the care of the State.

THE BERLIN MEDICAL SOCIETY ON DIPHTHERIA ANTITOXIN.

THE Berlin Medical Society has been engaged in a discussion of the method of action and of the merits of the serum treatment of diphtheria. Dr. Hansemann, of Professor Virchow's pathological laboratory, led in an attack upon the diagnostic, etiological value of the Klebs-Löffler bacillus, and the value of the serum as a specific remedy.

Virchow pronounced the theory forming the basis of Behring's entire antitoxic theory to be a fallacy, but at the same time acknowledged that "all theoretical considerations must give way to the *brute force* of figures." There is certainly much "brute force" in the figures adduced by Professor Virchow as taken from the records of the Kaiser and Kaiserin Friedrich Hospitals. In June and July nearly all diphtheria cases were treated with the serum, and results were remarkably good, there being only eight deaths in 63 cases; the supply of serum then gave out, and in 109 cases treated without serum during the next seven weeks there were 55 deaths; a new supply of serum was then obtained and in 81 cases treated with it during the next six weeks there were only 12 deaths. In the whole period, 533 cases were treated—303 with serum, 230 without. Among the former there were 13.2 per cent. of deaths; among the latter, 47.8 per cent. of deaths.

In view of such results, Professor Virchow naturally holds, notwithstanding his opinion as to the fallacy of the theoretical basis of the antitoxin treatment, that it is the duty of every practitioner to use the serum in diphtheria.

THE POSITION OF THE PHILADELPHIA HOSPITAL TRUSTEES.

WE commented briefly last week upon the extraordinary action of the trustees of the Philadelphia Hospital in summarily dropping from the hospital staff Dr. Judson Daland, for apparently no other reason than that he postponed active therapeutic measures in the case of a malarial patient in order to study the case and verify the diagnosis by the aid of modern scientific methods.

The question thus presented is a much broader one than its mere effect upon an individual. It concerns the proper relation of hospitals to the public, and the

duties of their medical and lay officers to both hospitals and the public. We are glad, though not surprised to learn that it is thus regarded by Dr. H. A. Hare, whom the trustees of the Philadelphia Hospital appointed to the vacancy so summarily made, and who has declined an appointment given under such circumstances. Any physician holding his profession in honor, must perforce do the same. We hope a further study by the trustees of this hasty and ill-considered action, in all its bearings, will lead them to its revision in a liberal, comprehensive, intelligent spirit, and to the reinstatement of Dr. Daland.

MEDICAL NOTES.

CHOLERA IN ARGENTINA.—An epidemic of cholera is reported to have broken out at Rosario and Colastine in Argentina. Although there have been but few deaths the disease has been determined to be true cholera, and the ports have been closed against traffic.

AFTER-EFFECTS OF ANTITOXIN.—Rembold reports in the *Deutsche Med. Wochenschrift*, for December 20th, two cases out of six treated with antitoxin which showed the urticarial eruption, with constitutional symptoms, following the antitoxin treatment. These cases were in every respect similar to those reported by Cnyrim and Zublinski, and noticed in the *JOURNAL* for December 20th. In one of these cases though the effect of the antitoxin in the acute stage of the diphtheria was markedly beneficial, post-diphtheritic paralysis of accommodation ensued.

COMMERCIALIZATION OF SERUM THERAPY.—It is reported that the shares in the Höchst establishment for the production of antitoxin rose several points recently on the Frankfort Stock Exchange, on the strength of a report that the works were about to put on the market a typhoid antitoxin discovered by Behring! The results of such commercialization of the name of Koch are too recent to be forgotten.

A NATIONAL DIPHTHERIA COMMISSION.—According to the *Journal of the American Medical Association*, Representative Goldzier, of Illinois, has prepared and will endeavor to secure the prompt adoption of a joint resolution for the creation of a National Commission for the investigation of the antitoxin treatment of diphtheria.

A SNAKE STORY VERIFIED.—A surgeon who doubted the story of the male python in the London Zoölogical Garden having swallowed his mate, and claimed that the reptile might have in some way crawled out of the cage, is reported by the *Medical Press* to have had his doubts set at rest by the discovery of several vertebræ of the defunct reptile among the feces of the survivor. The surgeon now has the vertebræ in his possession.

A PUGILIST'S VIEWS ON FOOTBALL.—Mr. Robert Fitzsimmons, a pugilist, who in a recent exhibition dealt his sparring partner a fatal blow, has

been looking up the records, and informs the public that during the last ten years only twenty-three men have died of injuries received in the prize-ring, and that during the months of November and December there were twelve fatal football accidents. He therefore concludes that football is fifty times as dangerous as sparring. In his calculations he evidently forgets that inasmuch as November and December are the only two months in which football contests take place, during those two months there are probably more men engaged in playing football during one season, than there have been engaged in professional pugilistic contests for the last ten years.

A FATAL CASE OF CHICKEN-POX.—Nisbet reports, in the *Australasian Medical Gazette*, for November 15, 1894, a case of uncomplicated chicken-pox in a child eight and a half months old, which proved fatal, owing, in his opinion, to the fact that the eruption covered every part of the body, even the palms of the hands and soles of the feet, and produced practically the same effect as an extensive burn. On the seventh day of the disease spots appeared in the mouth, which changed to irritable ulcers, causing great distress. Death occurred on the tenth day. Dr. Nisbet thinks that there was no question as to diagnosis, as four older children in the same house were ill with the disease, and there was an epidemic in the town at the time. Collie, in "Quain's Dictionary of Medicine," states that "no physician has recorded a fatal case of chicken-pox."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, December 26, 1894, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 86, scarlet fever 62, measles 50, typhoid fever 12. During the week ending at noon, January 2, 1895, the following cases were reported: diphtheria 64, scarlet fever 54, measles 51, typhoid fever 4.

A DANGEROUS COSMETIC.—A four-ounce bottle of a certain face bleach examined by the State Board of Health during November was found to contain twenty-seven grains of corrosive sublimate.

DEATH OF A CENTENARIAN.—Mrs. Alma Ida Reynolds died at East Dedham, December 22d, aged one hundred years and eleven months. She was born in Eastford, Conn., in 1794, and was in good health until the last year of her life.

SEMI-CENTENNIAL OF THE DISCOVERY OF ANESTHESIA.—The Harvard Odontological Society, in conjunction with the Harvard Dental Alumni Association, held a meeting on December 26th, for the purpose of celebrating the discovery of anesthesia by Horace Wells, fifty years ago.

THE NINETEENTH REPORT OF THE SALEM HOSPITAL.—This report, that for the year 1893, shows that during that year 318 patients were treated, 178 medical and 140 surgical. Dr. Hardy Phippen was

appointed a member of the surgical out-patient staff. Five pupils were graduated from the training-school for nurses, and 531 cases were treated at the out-patient department during the year.

THE AMERICAN CHEMICAL SOCIETY.—This society held a general meeting in Boston on December 28th and 29th. It was reassuring to learn from the speech of the retiring president that chemistry had not yet reached the stage at which synthetic food products could be produced, and that the "beefsteak of the future," at least the immediate future, would not take the form of a compressed tablet, manufactured by some well-known and reliable firm, and "containing all the nutritive properties of a pound of beef." As an advantage of these tablets it would undoubtedly be claimed, that "inasmuch as our tablets are purely synthetic in composition, by their substitution for beef all danger from bovine tuberculosis is eliminated." With this prospect in view the work of the Cattle Commission would be viewed as an entirely unnecessary expense.

A LABORATORY FOR THE MASSACHUSETTS CATTLE COMMISSION.—The great increase in laboratory work necessitated by the attack on bovine tuberculosis, has made it necessary for the Cattle Commission to establish a laboratory to be devoted exclusively to its own use. The work has heretofore been done chiefly at the pathological laboratory of the Harvard Medical School, and at the Massachusetts Agricultural College at Amherst. The new laboratory is being fitted up at 50 Village Street, the present headquarters of the board, and the work is to be under the direction of Dr. W. F. Whitney.

THE ATTITUDE OF THE FARMERS TOWARD THE CATTLE COMMISSION.—Reports from various parts of Massachusetts indicate that in proportion as the farmers have the opportunity to see the work of the cattle commissioners, and become acquainted with the certainty of the tuberculin test, they realize the importance of having their herds purified. The protests about the unreliability of the test, and its alleged danger to healthy cattle are becoming fewer, and the owners of herds are apparently realizing that unless they show a willingness to have tuberculosis stamped out they will stand in a very bad light before public opinion in comparison with the more intelligent cattle owners, some of whom at their own expense had their herds examined before they were obliged to do so by law. On the question of compensation, however, most of the farmers still insist that they ought to receive for the loss of a diseased animal the full value of a healthy one.

NEW YORK.

THE ASSOCIATION OF AMERICAN ANATOMISTS.—The seventh annual meeting of the Association of American Anatomists was held at the College of Physicians and Surgeons on December 28th and 29th. Among those who were present and read papers were Drs. Thomas Dwight, of Boston, Burt G. Wilder, of Cornell University, Harrison Allen, of Philadelphia,

D. S. Lamb, of Washington, and E. C. Spitzka, of New York.

DEATH OF DR. DETMOLD.—The venerable Dr. William Detmold, the distinguished surgeon, died December 26th. Dr. Detmold was born December 27, 1808, in Hanover, where his father was physician to the king. He was graduated at Göttingen in 1830, and came to New York in 1837. He was one of the first to practice orthopedic surgery in this country and established an orthopedic clinic at the College of Physicians and Surgeons. At the time of his death he was emeritus professor of clinical and military surgery at that institution. When the New York County Medical Association was organized in 1884, Dr. Detmold was selected as its first president, and he was also one of the founders of the New York State Medical Association.

DIPHTHERIA AT THE MOUNT VERNON BRANCH OF THE NEW YORK INFANT ASYLUM.—Since the end of September diphtheria has prevailed to a considerable extent at the Mount Vernon Branch of the New York Infant Asylum, and it was found necessary to set apart three of the cottages at the institution for those suffering from the disease. Up to the present time there have been over eighty cases and about sixteen deaths. Recently antitoxin has been used in the treatment (a portion of the supply having been obtained from Berlin and a portion from the New York Pasteur Institute), and, while the number of cases thus treated is not large, no death is said to have occurred among them. Dr. Peck, one of the resident physicians, who was attacked by the disease a short time since, was among those treated with antitoxin.

AN EXPENSIVE ATTACK OF RABIES.—On December 21st a rabid dog bit no less than sixteen persons in the town of Salem, N. J., and of these seven are now under treatment at the New York Pasteur Institute. Others of those bitten will also be sent on for treatment, and it is stated that the total expense, amounting to over one thousand dollars, will be borne by the Salem Glass Works Company.

EXAMINATION OF CATTLE FOR TUBERCULOSIS.—The State Board of Health has made a report of the work accomplished during the first year under the law relating to examination of cattle for tuberculosis. "There can no longer be a reasonable doubt," the report says, "that cattle suffering from tuberculosis are extensively distributed through the dairies of the State, forming centres of infection in their respective herds; that the milk from such cattle is bad, and in many cases, though not acting perniciously upon all who partake of it, is still sufficiently dangerous to warrant as earnest precautions and as effective prophylactic measures as in the cases of small-pox, typhoid and cholera. The appropriations made, though incommensurate with the magnitude of the undertaking, have been sufficient to show to some extent the vast proportions of this menace to life and health and the need of adequate resources to intelligently meet and overcome it."

Miscellany.

THE ANTITOXIN TREATMENT IN LONDON.

WASHBURN, Goodall, and Card, in the *Lancet* for December 22d, report the results of 72 cases of diphtheria treated with antitoxin in London between October 23d and November 27th. In 61 of the cases the Klebs-Löffler bacillus was found in the fauces. In 45 cases streptococci were associated in large numbers. There were 14 deaths, or 19.4 per cent. The average mortality in the same hospital during 1893, and up to October 22, 1894, was 38.8 per cent. The mortality of the 72 cases immediately preceding the beginning of the antitoxin treatment was 38.8 per cent. In the opinion of the writers the cases treated with antitoxin were of more than average severity. From October 23d to November 27th, the mortality from diphtheria at three other London hospitals where antitoxin was not employed was 33.3, 32.2, and 23.3 per cent. Tracheotomy was performed in nine of the cases treated with antitoxin, three of which died and six recovered. In 13 previous series of nine tracheotomies, the recoveries had varied from zero to four, the average of the recoveries per series being 1.75. According to the observations of the writers, and contrary to most previous statements, the association of the streptococcus did not appear to affect unfavorably the course of the disease, or the results of the antitoxin treatment.

A FUND FOR A BRONZE STATUE TO CHARCOT.

THE pupils and former associates of Charcot in Paris and throughout France are engaged in raising a fund for the erection of a bronze statue of him in the Salpêtrière. This movement is receiving cordial and material support in Germany, England and Italy.

It has therefore seemed desirable to the Neurological Societies of New York and Philadelphia that the profession in America join in this testimonial, as an evidence of the eminent services of Charcot in neurology and medicine. The undersigned have been appointed a committee to bring the matter to the attention of the profession and to receive contributions, which will be duly acknowledged and forwarded to the central committee in Paris.

It is requested that all who desire to contribute to the success of this undertaking send their subscriptions to the members of the committee nearest to them or direct to the treasurer, Dr. C. A. Herter, 819 Madison Avenue, New York, before the first day of February, 1895.

E. D. FISCHER, M.D., E. C. SEGUIN, M.D., M. A. STARR, M.D., C. L. DANA, M.D., C. A. HERTER, M.D., for New York.

S. WEIR MITCHELL, M.D., WHARTON SINKLER, M.D., CHAS. K. MILLS, M.D., for Philadelphia.

J. J. PUTNAM, M.D., P. C. KNAPP, M.D., for Boston.

WILLIAM OSLER, M.D., for Baltimore.

ARCHIBALD CHURCH, M.D., for Chicago.

C. H. HUGHES, M.D., F. R. FRY, M.D., L. BREMER, M.D., for St. Louis.

JAMES STEWART, M.D., for Montreal, Canada.

E. B. ANGELL, M.D., for Rochester.

J. W. PUTNAM, M.D., for Buffalo.

THEODORE DILLER, M.D., for Pittsburgh.

HOWELL T. PERSHING, M.D., for Denver.

J. D. HIRSCHFELDER, M.D., for San Francisco.

December 22, 1894.

TREPHINING IN MENINGITIS.

NEARLY coincident with the editorial in the *JOURNAL* for December 20th on "Trephining for Tuberculous Meningitis," comes the account in the December number of the *International Medical Magazine* of a case of trephining for the removal of fluid in a case of acute cerebral meningitis, by B. Merrill Ricketts, M.D.

The operation, done, of course, for the relief of intra-cranial pressure, was performed on the tenth or eleventh day of the disease, in a case of meningitis following an attack of whooping-cough. The child was in very poor condition, with a high temperature, rapid pulse, pupils non-reacting, coma, complete motor paralysis, and retention of urine. No nourishment had been taken for twenty-four hours; there was paresis of the left facial nerve, and of the muscles of deglutition. Emaciation was excessive.

Two openings were made with the chisel, over the right and left parietal bones respectively. On opening the arachnoid cavity large quantities of serous fluid escaped and continued to flow. Immediately after the operation the child cried, and was able to move its limbs. The respirations fell from fifty to thirty, urine was passed freely, and sufficient nourishment was taken. The improvement continued for a few hours only, when the child began to fail, and died twenty-eight hours after the operation. The flow of fluid continued till death.

While the relief of cerebral pressure can be said to give these cases their only chance, death has so far only been postponed. Effective drainage will be found to be even more difficult in the case of the cranial cavity than in the abdominal. The impossibility of disinfecting these cavities, on account of their many ramifications and the delicate structure of their walls, in addition to their liability to rapid absorption of septic material, renders the successful surgical treatment of acute inflammation extremely difficult. Successful operations upon acute peritonitis are among the greatest rarities; and none upon acute meningitis has so far been recorded. It is a matter of extreme interest that the operative cure of chronic tuberculous inflammation, which has been accomplished in so many cases of abdominal tuberculosis, has been extended in one case to meningeal tuberculosis.

With regard to meningeal sepsis, Ricketts says: "As it is, nearly all these cases die without operation. The question now is, Will any of them be benefited or cured if operated upon during any particular time in the course of the disease?"

Although the clinical history of Dr. Ricketts's case points rather to an acute tubercular than to a septic process, his remarks will apply to acute cases. It is unfortunate that cultures were not taken in either of the cases alluded to.

A CASE OF TUBERCULAR MENINGITIS; DIAGNOSIS BY LUMBAR PUNCTURE; RECOVERY.

THE cases reported in medical literature of apparent recovery from tubercular meningitis naturally admit of doubt, for it is well known that errors of diagnosis are very common. Fürbringer, in the *Deutsche Med. Wochenschrift*, 1894, No. 36, reports a case in which the diagnosis was established beyond a doubt. The case was that of a laborer, twenty years of age, who while in the best of health was taken with severe

headache and fever. Various symptoms pointing to the central nervous system led to a diagnosis of meningitis. In order to establish the diagnosis, Fürbringer performed paracentesis of the spinal canal at the level of the second lumbar vertebra; 60 c. c. of a slightly cloudy serous fluid escaped, in the sediment of which were found a few pus corpuscles and numerous tubercle bacilli. Contrary to all expectation the fever subsided after the puncture, the sensorium became clear, the headaches gradually disappeared, as well as the rigidity of the extremities and of the spinal column. Convalescence was uninterrupted and the patient was discharged cured.

Although, as is acknowledged by the *St. Petersburger Med. Wochenschrift*, November 19, 1894, the therapeutic value of the lumbar puncture introduced by Quincke, after numerous trials, still admits of doubt, the method certainly is applicable, as claimed by that journal, for diagnostic purposes, and the more so that tubercular meningitis often takes the cerebro-spinal form.

A MINDLESS FROG.

At the meeting of the Association of American Anatomists in New York on Saturday, December 29th, Prof. B. G. Wilder showed a frog from which, under ether, the entire cerebrum was removed on the 7th, three weeks before. It looked natural. The scar on the head was hardly visible. It can swim and jump and even balance on a cylinder while it is slowly turned, and swallow food that is placed far back in the throat. But when undisturbed it sits without motion, and presumably has no consciousness. That such a frog, while in possession of all his senses (excepting smell, the olfactory lobes being removed with the cerebrum) has no real "sense" may be seen from the behavior of a similar specimen shown the American Neurological Association in 1886. A minnow was put into the mouth. The head reached the throat and aroused the swallowing reflex; but the tail protruded from the lips and caused the frog to put up his hands to push it out. The normal frog would have decided whether the fish should go up or down. The decerebrized animal was a mere reflex machine and could make no choice between incompatible operations.

Correspondence.

NOTES ON ANTITOXIN.

NEWTON, MASS., December 29, 1894.

MR. EDITOR:—Within the past few weeks I have used in three cases the diphtheria antitoxin, made by Dr. Paul Gibier in the Pasteur Institute of New York, as a prophylactic agent in doses of five cubic centimetres. A dermatitis has occurred about the site of injection in each case.

In the first patient, a baby of eighteen months, an erythematous eruption occurred on the day following the injection, accompanied by fever and malaise, lasting twelve hours. The injection was done in the lateral abdominal wall.

In the second case, a nurse in another family, the antitoxin was introduced into the upper and outer aspect of the left arm; and in five days a very fine scarlet papular rash appeared, attended with tremendous itching, and extending from the shoulder to the elbow. It looked, as the nurse remarked, like a limited area of scarlatina.

In the third patient, a male attendant in still another family, the injection was done by the patient in the calf of the leg, and in five days was followed by an urticarial eruption about the seat of the puncture.

There were no systemic symptoms in either of the two latter cases. While such unpleasant features should certainly not lead us to sacrifice the advantages to be gained by antitoxin, yet they may be worthy of mention, as in the prospectus issued by Dr. Gibier it is stated that there is "no local reaction" following its injection. On the other hand, in four cases of diphtheria where twenty-five cubic centimetres of antitoxin were injected as a curative remedy, no eruption or untoward symptoms have been noted. The syringe used is the one recommended, and furnished, I believe, by Gibier. It holds twenty-five cubic centimetres, and was made thoroughly aseptic in every instance. This syringe has a plunger, and is of metal and glass graduated. The four diphtheritic cases improved wonderfully, both as regard general symptoms and local lesions, after the use of antitoxin, which was employed on the first day of the disease, and the diagnosis verified afterwards bacteriologically by Dr. H. C. Ernst in each case. In a boy, seven years old, albuminuria and partial paralysis persisted some weeks notwithstanding the antitoxin. This boy's sister was apparently not more critically ill than he at the outset; but having no antitoxin on hand then, I sent her to a hospital, where she died on the twelfth day of general exhaustion due to the toxic infection, not having been treated with antitoxin at any period of her sickness.

The baby before mentioned, immunized with five cubic centimetres of antitoxin, had been lying all day in the same bed with a fully-developed case of diphtheria, and yet has shown no symptoms of the disease—neither have the other patients receiving prophylactic doses, although being adults this is not particularly surprising.

KENELM WINSLOW, M.D.

P. S. (December 31). Since writing the above I have had two cases of very extensive and annoying urticaria occurring in diphtheria patients inoculated seven days previous to this eruption with the New York Pasteur laboratory preparation of antitoxin. Can it be any fault of this special preparation? Is it due to the camphor contained therein and used to preserve the serum? K. W.

SERUM THERAPY IN PARIS.

HÔPITAL DES ENFANTS MALADES,
PARIS, Dec. 18, 1894.

MR. EDITOR:—It may be of interest to your readers to learn that out of a series of 118 cases of diphtheria treated in the service of Dr. Chaillou since November 17th by means of the Roux serum, there has been a mortality of ten only, or less than ten per cent. Of these cases four should be excluded as they were of the foudroyant nature and practically moribund on admission. No auxiliary treatment is given beyond lavage of the nares. I observe that tracheotomy is seldom resorted to, intubation being given the preference. Diphtheritic paralysis as sequela is also a rare phenomenon. A. GASTON ROETH, M.D.

A CHARACTERISTIC LETTER FROM DR. HOLMES.

BOSTON, December 23, 1894.

MR. EDITOR:—A gentleman, late of Houston, Texas, Fiquet by name, a graduate of Harvard University and Law School, failing in health, went into the business of breeding fancy cattle. At the outset, he intelligently determined, if there were a method of producing sex at will, that he would discover it. He claimed, finally, that he had done so, experimented largely, and, according to his own showing, successfully. After a time he had accumulated a large mass of printed and manuscript matter, in which he gave a detailed history of his experiments in the

direction in question. This printed and written evidence of his success, Mr. Fiquet sent to Dr. Holmes, with the request that he would bring it to the attention of physicians.

At that time I was a member of the editorial staff of the JOURNAL. The matter from Fiquet was therefore turned over to me in order that I might condense it into an editorial. I did so, and then sent my result to Dr. Holmes for his approval, which he sent me in the following thoroughly characteristic letter:

296 Beacon St., May 7, 1880.

MY DEAR DOCTOR:—I have carefully read your abstract, with which I am very much pleased, and made a few corrections, or at least suggestions, in pencil.

On the whole I think I would not print the passages marked in the letter of Mr. Fiquet you send me. Some will think they give too theoretical an aspect to what is a matter chiefly at present of practical experimentation.

I shall be happy to look over the proofs if you would like to have me, but I do not wish to have my name mixed up with the taurine and vaccine gallantries.

Yours very truly,

O. W. HOLMES.

When you have done with the letters, you may, if you please, send them all back to me.

Soon after discovering this letter among my papers, I met Dr. Holmes for the last time. During our conversation I asked him if he remembered the Fiquet matter, and found he had entirely forgotten it. Recalling to his mind the editorial and his note to me, I repeated to him the paragraph anent his wish to remain unmentioned. He laughed as heartily as many will who now read it for the first time.

The editorial was entitled "Production of Sex at Will," and was published in the JOURNAL for May 13, 1880.

Yours truly,

HAMILTON OSGOOD, M.D.

THE TREND OF IMPROVEMENT IN THE PHYSICIAN BY REASON OF INCREASING COMPETITION; OR, THE HOSPITAL PHYSICIAN VS. THE INDEPENDENT PRACTITIONER.

PHILADELPHIA, December 20, 1894.

MR. EDITOR:—The very admirable and wholesome article by Dr. Schaefer in the *Boston Medical and Surgical Journal* of November 22d, on commercialism or tradesmanship in medicine, suggests two or three rather obvious corollary thoughts which I beg leave to present with no undue elaboration.

Dr. Schaefer seems to cry aloud, with a very bitter cry (in which we deeply sympathize), he having the commercial atmosphere of the West thick upon him. Those of us who, trained in the East, have not experienced this confusing effect upon scientific and ethical aspirations, thus exercised, will feel as keenly as he does, and deplore deeply, what seems to be an overmastering influence. True as is all he says, yet there are other results to be looked for from the conditions enumerated, and one is that keenness in competition compels our young medical men to strive for broader and deeper knowledge, and, not content with undergraduate teaching, to reach out for that special training which is only to be had by living in and doing the work of hospitals—first, by their spending years of earnest toil in dispensary services, examining and prescribing for the hordes there applying for advice, and finally seeking and getting, in proportion to their abilities, controlling positions on the working staff of those magnificent aggregations of clinical material and beneficent asylums, the large general and special hospitals. Thus, and thus only, can the highest scientific medical work be done; thus only can the highest qualities of knowledge and practical competency be perfected—in which the public is the chief gainer.

Again, in specialism, and in strict specialism only, can the most thorough knowledge be attained of the disorders

and treatment of particular organs. To be sure, the man of general, all-round attainments will forever be of the utmost value in the formation of just estimates of the larger and wider considerations of such accidents as environment and differing social planes, occupations, temperaments, and varying degrees of vitality and disease tendencies. But here, indeed, is a specialism of its own, and of the very highest type, too, demanding a breadth of mind and heart far in advance of the narrower pursuits of ophthalmology or gynecology. And it is through refinements such as these that the giants of our profession exert their best influences and gain highest rewards of honors, love and gold.

This striving and competing, too, beats down the men feeble in mind or conscience, or both, and they go elsewhere and mayhap descend to lower methods, more commercial and tradesman-like. But these are only the incidental secondary effects of modern influences very conspicuous indeed to the layman and caviller.

The real balance of power, however, is the *Public*. So soon as they learn (and this process seems well underway) to realize the advantages to them of correctly, or even fairly, estimating the comparative competencies of competing men and cease to be taken in by noisy chaffery or pseudo-sciences, then their salvation will be greatly enhanced. They estimate a lawyer far more correctly than a doctor; a clergyman least well.

I fear no such calamities as Dr. Schaefer threatens. The objectionable aspects of medical practice often enough conspicuously obscure those imperishable, underlying, ethical elements inherent in the medical profession.

Very truly yours,

J. MADISON TAYLOR, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 22, 1894.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York . .	1,956,000	720	240	12.32	22.20	.75	6.90	1.20
Chicago . . .	1,600,000	—	—	—	—	—	—	—
Philadelphia .	1,139,457	391	114	17.25	14.50	2.50	12.25	1.00
Brooklyn . .	1,013,000	369	124	13.77	15.06	.54	9.99	.66
St. Louis . . .	540,800	—	—	—	—	—	—	—
Boston	501,107	178	52	14.00	17.92	2.24	6.72	1.68
Baltimore . .	500,000	—	—	—	—	—	—	—
Washington .	285,000	89	19	3.36	7.84	2.24	—	—
Cincinnati . .	325,000	134	40	17.76	11.11	8.88	4.44	—
Cleveland . .	325,000	100	40	20.00	—	10.00	5.00	12.00
Pittsburg . . .	272,000	—	—	—	—	—	—	—
Milwaukee . .	265,000	—	—	—	—	—	—	—
Nashville . . .	87,754	24	6	8.32	8.32	—	—	4.16
Charleston . .	65,165	31	13	—	12.88	—	—	—
Portland . . .	40,000	—	—	—	—	—	—	—
Worcester . . .	100,410	35	16	22.80	15.40	2.85	15.40	2.85
Fall River . .	92,233	24	7	24.96	12.48	4.16	4.16	—
Lowell	90,613	33	13	18.18	3.08	3.08	—	6.06
Cambridge . .	79,007	23	11	26.10	4.35	—	17.40	4.35
Lynn	65,123	29	9	6.90	10.35	—	3.45	3.45
Springfield .	50,284	24	4	12.48	4.16	4.16	4.16	4.16
Lawrence . . .	49,900	—	—	—	—	—	—	—
New Bedford .	47,711	21	11	23.80	9.52	—	9.52	—
Holyoke	43,348	—	—	—	—	—	—	—
Brockton . . .	33,939	9	6	44.44	—	—	22.22	2.22
Salem	33,165	13	1	—	7.69	—	—	—
Haverhill . . .	32,925	6	—	—	—	—	—	—
Malden	30,209	13	3	7.69	30.76	—	7.69	—
Chelsea	29,806	12	3	8.33	16.66	—	8.33	—
Fitchburg . . .	29,373	5	3	—	—	—	—	—
Newton	28,837	2	2	14.28	—	14.28	—	—
Gloucester . .	27,293	—	—	—	—	—	—	—
Taunton	26,564	12	2	—	8.33	—	—	—
Waltham . . .	25,058	4	1	25.00	—	—	25.00	—
Quincy	19,642	10	2	30.00	—	—	20.00	—
Pittsfield . . .	18,802	5	0	20.00	20.00	20.00	—	—
Everett	16,585	4	2	50.00	—	25.00	25.00	—
Northampton .	16,331	8	1	12.50	12.50	—	—	—
Newburyport .	14,073	4	2	—	—	—	—	—
Amesbury . . .	10,920	2	0	—	—	—	—	—

Deaths reported 2,406; under five years of age 770; principal infectious diseases (small-pox, measles, diphtheria and croup,

diarrheal diseases, whooping-cough, erysipelas and fevers) 351, acute lung diseases 373, consumption 287, diphtheria and croup 178, typhoid fever 45, scarlet fever 38, diarrheal diseases 36, whooping-cough 16, erysipelas 10, measles 6, small-pox 3, malarial fever 3.

From diarrheal diseases New York 12, Philadelphia and Cincinnati 4 each, Providence, Fall River and New Bedford 3 each, Cleveland 2, Brooklyn, Washington and Worcester 1 each. From whooping-cough Brooklyn 6, New York and Boston 3 each, Cincinnati, Fall River, Cambridge and Quincy 1 each. From erysipelas New York 5, Boston 2, Brooklyn, Nashville and Lowell 1 each. From measles New York 4, Brooklyn and Cincinnati 1 each. From small-pox Philadelphia 2, New York 1. From malarial fever Brooklyn 2, New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,458,442, for the week ending December 15th, the death-rate was 19.7. Deaths reported 3,959; acute diseases of the respiratory organs (London) 358, measles 154, diphtheria 87, whooping-cough 57, fever 55, scarlet fever 35, diarrheal diseases 35, small-pox (Birmingham 3, Birkenhead and Halifax 1 each) 5.

The death-rate ranged from 11.8 in West Ham to 28.9 in Oldham; Birmingham 19.3, Bradford 25.1, Croydon 13.5, Gateshead 22.3, Hull 16.9, Leeds 25.9, Leicester 21.2, Liverpool 24.6, London 18.6, Manchester 20.3, Newcastle-on-Tyne 20.9, Nottingham 17.3, Portsmouth 19.2, Sheffield 21.4.

METEOROLOGICAL RECORD,

For the week ending December 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S...16	30.10	46	55	37	72	86	79	Calm.	S.	0	12	C.	F.
M...17	30.04	46	54	30	74	55	64	S.W.	W.	12	12	O.	C.
T...18	30.30	34	36	31	44	33	38	W.	W.	14	8	C.	C.
W...19	30.34	34	41	28	50	66	58	S.W.	S.W.	4	5	O.	C.
T...20	30.32	38	43	32	71	76	74	S.W.	S.E.	9	3	C.	C.
F...21	30.28	38	49	28	80	88	84	N.W.	S.	2	13	S.	F.
S...22	30.00	42	52	31	61	45	53	S.W.	N.W.	14	26	O.	C.
W...23	30.18	47	52	32	64								

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thristing; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 22, 1894, TO DECEMBER 28, 1894.

Leave of absence for one month is granted FIRST-LIEUT. A. N. STARK, assistant surgeon, to take effect upon his return to Fort Sam Houston, Texas.

CAPTAIN JAMES D. GLENNAN, assistant surgeon, is relieved from duty at Fort Sill, Oklahoma Territory, and ordered to Fort Snelling, Minnesota, for duty at that post.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, January 10th, at 8 o'clock, by Prof. J. C. White. Subject, "The Cataneous Features of Tuberculosis, Syphilis and Leprosy." Physicians are cordially invited.

SOCIETY NOTICES.

THE WARRIOR CLUB—A regular meeting of the Club will be held at 225 Marlborough Street, on Tuesday evening, January 8th, at 8 o'clock.

Dr. E. S. Jack: "Intestinal Obstruction."

Dr. A. C. Jolly: "Early Signs of Mental Disorder."

W. E. PAUL, M.D., Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held at the Medical Library, 19 Beylston Place, on Monday, January 7, 1895, at eight o'clock, P. M.

Dr. John Homans: "The Surgical Treatment of Uterine Fibroids."

Dr. E. O. Otis: "Some Methods of Chest Examinations Supplementary to Auscultation and Percussion."

Report of the Treasurer.

Election of officers.

JOHN T. BOWEN, M.D., Secretary.

RECENT DEATHS.

SILAS ATHERTON HOLMAN, M.D., of York Harbor, Me., died December 24th. He was a graduate of the Harvard Medical School, class of 1855, and served as a surgeon during the Civil War.

HORACE O. DUNBAR, of Athol, died December 27th, aged forty-five years. He was a graduate of the Medical Department of the University of the City of New York.

BOOKS AND PAMPHLETS RECEIVED.

New Instruments. By Seth Scott Bishop, M.D. Reprint. 1894.

An Address on Appendicitis. By J. William White, M.D. Reprint. 1894.

The Annual Statistics of Manufacturers of Massachusetts, Eighth Report, 1893.

Some Statistics of Diabetes Mellitus. By N. S. Davis, Jr., A.M., M.D. Reprint. 1894.

Some Meteorological Data. By Samuel A. Fisk, A.M., M.D., Denver, Col. Reprint. 1894.

Theatre Fire Catastrophes and their Prevention. By Wm. Paul Gerhard, C.E. Reprint.

Biennial Report of the Officers of the Brattleboro Retreat for the period ending June 30, 1894.

Twenty-fourth Annual Report of the Bureau of Statistics of Labor of Massachusetts, March, 1894.

Cauterization of the Nares and Accidents that may Follow. By E. Fletcher Ingals, A.M., M.D., Chicago. Reprint. 1894.

Symphysiotomy versus the Induction of Premature Labor. Uterine Fibroids. By Charles P. Noble, M.D., Philadelphia. Reprints. 1894.

Forty-second Annual Announcement of the Medical Department of the University of Vermont and State Agricultural College for the year 1895.

Military Medicine, Surgery and Hygiene; Notes on the Introduction of Tent Field Hospitals in War. By Col. B. J. D. Irwin, M.D. Reprint. 1894.

Sperminum-Poehl in chemischer, physiologischer und therapeutischer Beziehung. Von Dr. G. Bubis. St. Petersburg: Buchdruckerei von Wienecke. 1894.

Higher Education in Iowa. By Leonard F. Parker, Professor of History in Iowa College. Washington, D. C.: Bureau of Education, Circular of Information, No. 6. 1893.

Transactions of the Medical Society of the State of Pennsylvania at its Forty-fourth Annual Session held at Philadelphia, 1894. Vol. XXV. Philadelphia: Published by the Society. 1894.

Higher Education in Tennessee. By Lucius Salisbury Merriam, Ph.D., Instructor in Political Economy in Cornell University. Washington, D. C.: Bureau of Education, Circular of Information, No. 5. 1893.

The Pre-Tubercular and Pre-Bacillary Stages of Consumption. A Consideration of the Early Diagnostic Signs of Pulmonary Tuberculosis; A Plea for the Recognition of Premonitory Symptoms. By Charles Manly, A.M., M.D. Reprint. 1894.

Local Anesthetics and Cocaine Analgesia, their Uses and Limitations. By Thomas H. Manley, A.M., M.D., Member of the New York Academy of Medicine; the New York Pathological Society, etc. St. Louis: J. H. Chambers & Co. 1894.

Essentials of Chemistry and Toxicology for the Use of Students in Medicine. By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Physics in the University of New York, etc. Twelfth edition. New York: William Wood & Co. 1894.

Dissections Illustrated, A Graphic Handbook for Students of Human Anatomy. By C. Gordon Brodie, F.R.C.S. In four parts. Part III, The Head, Neck and Thorax, with twenty colored plates. New York and London: Whittaker & Co. 1894.

New York Letters on Orthopedic Surgery. The Scope of Orthopedic Surgery. Tubercular Abscesses and their Treatment. Old and Neglected Deformities following Infantile Spinal Paralysis. The Use of Traction in the Treatment of Joint Diseases. By Stewart Leroy McCurdy, A.M., M.D., Pittsburgh, Pa. Reprints. 1894.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Hygiene in the University of the City of New York, etc.; and Tracy C. Becker, A.B., LL.B., Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. Volume II. New York: William Wood & Co. 1894.

Lecture.

TUMOR OF THE CEREBELLUM, WITH BULIMIA AND RECURRENT APOPLECTIFORM SEIZURES.¹

BY J. T. ESKRIDGE, M.D., DENVER, COLO.,

Professor of Nervous and Mental Diseases and Medical Jurisprudence in the Medical Department of the University of Colorado; Neurologist to the Arapahoe County and St. Luke's Hospitals.

THE case of the patient who lies before us to-day in a stuporous and almost completely unconscious state presents many features of interest to which I wish to direct your attention. The history is as follows:

A. A., age twenty-six, male, married, born in Sweden, laborer by occupation, was admitted to the nervous wards of this hospital, in a stupid and confused condition, May 2, 1894. The stupor gradually deepened, and by noon the next day, the time of my first visit to the hospital after his admission, he was nearly comatose. His breathing was slow, and, as a rule, noiseless, but occasionally it was slightly stertorous with periods of intermission lasting ten or fifteen seconds. On the day of admission to the hospital, the temperature was 98°, pulse 100 and respiration 24. At the time of my first seeing him the temperature was 99° in each axilla, pulse 57, and respiration 16. He vomited on entering the hospital, and once during the next morning. The body showed evidences of considerable emaciation. There was slight stiffness of the posterior cervical muscles, with some retraction of the head. There was no apparent paralysis of any muscles. Whether there was any paresis, it was impossible to determine on account of the stupor. There was well-marked retraction of the abdomen. The knee-jerks were equal and decidedly increased. Ankle-clonus, plantar, cremaster and abdominal reflexes were absent. Reflexes of the extensor muscles of the forearms, biceps and triceps were slightly increased. Corneal reflexes, tested by touching the cornea with tip of finger: right, slight; left, scarcely perceptible. It was impossible to rouse him from the comatose condition by pricking his skin with the sharp points of an esthesiometer. Pricking the right leg caused slight movement of this leg, but irritating the left leg in the same manner gave rise to no response. Pressing firmly over the supra-orbital nerves produced no apparent effect. The pupils were reported by the resident physician to be small and equal in size on his admission to the hospital, but they had been widely dilated with atropine before I saw him. The ophthalmoscope revealed choked disk in each eye, and the nerves were best seen with +5 D. The vessels over the optic disks were covered by exudate, and considerable hemorrhagic extravasation in the retinae surrounding the disks was found. The veins were distended and tortuous; the arteries varied little from normal. Urine was normal in quantity, with a specific gravity of 1.015, and contained neither albumin nor sugar. One drachm of blue ointment was ordered to be rubbed in thrice daily.

May 5th, two days later, the patient had regained consciousness and was able to give the following account of himself: His family history, so far as he could remember, was negative. He had no illness during childhood. He denied syphilis, but admitted illicit intercourse and occasional indulgence in alcohol. His first illness was three years ago, when he suffered from some acute gastric disorder, attended by pain in the stomach and vomiting, lasting about three weeks. After this attack, he was well until July, 1893, when he began to suffer from nausea, vomiting and "sick-headache." Headache was not constant until five weeks ago, but it recurred from time to time, the pain, principally in the frontal and occipital regions, getting worse and more persistent. During the five weeks previous to his coming to the hospital, he had a constant distress in the head, with occasional attacks of vomiting. The vomiting did not seem to be connected with taking food, and

often occurred when the stomach was empty. Two weeks ago, his headache became so distressing, attended by frequent vomiting, that he was compelled to quit work and take to his bed. He was further incapacitated for work on account of difficulty in walking and standing, and increasing weakness.

On examination, May 5, 1894, he was able to stand with eyes open for a short time when the feet were placed close together, but his body swayed to the left and backwards. His gait on walking forwards was like that of a drunken man. His body swayed; his step was uncertain; and his feet were kept wide apart, but he did not raise them unduly high, neither did he seem to exert too great muscular effort as is observed in certain forms of ataxia. Walking backwards, even with the eyes open, was very difficult, and was performed with body leaning forwards, while he pushed the feet backwards. On closing the eyes and trying to stand with feet close together, or to walk forwards, he fell towards the left and backwards. He was unable to take a single step backwards while the eyes were closed, and an attempt to do so caused the body to plunge in the same direction towards which it swayed when he was trying to stand with closed eyes. Knee-jerks: right absent, both direct and reinforced; left direct, slight; reinforced, a little more pronounced. Ankle-clonus, plantar, cremaster and abdominal reflexes absent. Reflexes of extensors of forearms about normal; triceps lessened; biceps decidedly increased. Dynamometer: right, 96; left, 110. The tongue was protruded in the median line. The face was expressionless. There was no apparent paresis or paralysis of any muscles. The pupils were still widely dilated with atropine. All general sensory phenomena were apparently normal, with the possible exception of tactile sense on the tips of fingers, where it seemed less acute than is commonly found, as shown by the difficulty that he experienced in distinguishing two points of the esthesiometer; but this was attributed to his impaired mental vigor, as he could readily recognize the slightest contact of a feather on any portion of the body, including the finger tips. Hearing for watch: right, one-third of the normal distance; left, on contact. Hearing for tuning-fork better in the right ear. Smell and taste present, and about equally acute on the two sides. In the right eye V = counts fingers at ten feet; fields all narrowed, most on the nasal side; ophthalmoscopic changes were the same as observed two days before. In the left eye V = counts fingers at twelve feet; fields and changes in fundus and disc about the same as observed in the right eye. There was a well-marked internal squint of the left eye, with occasional twitching of the left internal rectus muscle. He was unable to turn the right eye outwards to the normal degree, and the external rectus of the left eye was weaker than that of the right. He failed in the attempt to turn either eye downwards, and the effort caused overaction of the left internal rectus. He succeeded in turning the eyes upwards, but only a little beyond the horizontal axis, and the effort to carry the eyes further upwards caused marked convergence of both eyes. All the external ocular muscles, except the internal recti were weakened. It was impossible to determine the condition of the intra-ocular muscles on account of the pupils having been dilated with atropine. The resident physician stated that the pupils were very small when the patient was brought to the hospital, and he had dilated them to make it possible for me, on my arrival, to make an ophthalmoscopic examination of the fundi of the eyes.

His headache soon lessened, vomiting ceased, appetite became ravenous, and he gained flesh. Soon after beginning the treatment, nearly all the eye muscles improved in power, but there remained an internal squint of the left eye. The pupils became very small as soon as the influence of the atropine had subsided, and dilated but little when the eyes were shaded. On June 5th, without any apparent cause, the temperature descended to 96.8° F. It had been normal, or only varied half a degree up to this time. June 16th, he had a severe headache and vomited once or twice; head pain complained of in frontal region. He

¹ A clinical lecture delivered at the Arapahoe County Hospital, November 3, 1894.

again became unconscious, and was for a few hours in a deeply comatose condition. The face was deeply congested and much darker than usual; respiration was intermittent, and pulse slow and labored. On the 18th he had regained consciousness; and at 9.30 P.M. he had a severe general convulsion, and remained in a profound stupor until 2 A.M. of the 19th. On the 20th he was totally blind, and suffered severely from headache. Again he became comatose; and remained so for two or three days, presenting symptoms similar to the previous attacks. June 25th he was conscious, and was able to see nearly as well as he could on admission; but vision gradually decreased, and by July 19th he was totally blind, and has remained so since. July 22d he had a severe convulsion at 5 P.M., lasting about ten minutes. The spasm was tonic in character, face very dark, head turned to right and somewhat retracted, pupils very small. July 25th hearing failing rapidly; by the latter part of August, he could hear only loud sounds, and was so deaf it was impossible to make him understand anything.

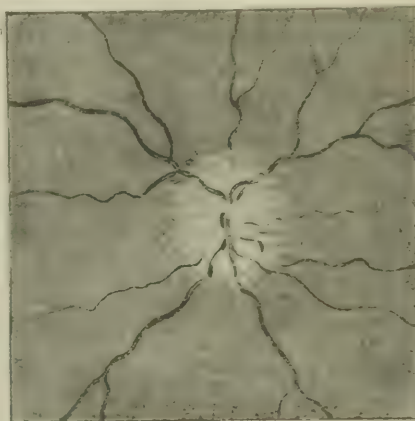
Bulimia, or excessive hunger, was a very prominent symptom from the early part of June to the middle of October. During this time it was the custom of the nurses to serve him with two or three times the quantity of food required for convalescents whose appetites could not be surpassed by laboring men in vigorous health. He would eat all that was given him, and complain to me at my visits that he was being starved. I have frequently seen the quantity of food served him, and observed him eat. He would consume, in a short space of time, ten or twelve large, thick slices of bread, with meat, butter and vegetables in proportion. He ate like a man half starved. Thirst has never been excessive. He gained greatly in weight notwithstanding occasional attacks of vomiting.

The mercurial inunctions on which he was placed soon after entering the hospital were continued alone for three or four weeks. He seemed to improve during the first two weeks, but after this improvement ceased. Early in June potassium iodide, in increasing doses, was given in addition to the inunctions. The mixed treatment was continued until he was getting 100 grains of potassium iodide thrice daily, but no benefit seemed to result. Then potassium iodide was given without mercury; but the result was negative, and he gradually lost ground. He has had no special medication during the last six weeks or more.

His morbid appetite began to lessen about two weeks ago. He still has attacks of vomiting, but does not complain of headache much. He has made no effort to stand for three months. He lies in a semi-comatose condition most of the time; and if he gets uncovered or one leg falls out of bed, he is indifferent and makes no effort to replace the covering or correct the position of his leg. Until two or three weeks ago, he notified the attendants when he desired the urinal or bed-pan, but since then, he has passed the contents of the bladder and bowels in bed without endeavoring to attract any attention. He had a severe convulsive seizure last night.

He is now deaf and blind. It is impossible to test the senses of smell and taste. Pricking a limb causes him to draw it up, and if the irritation is continued he will ask, "What is the matter, what do you want?" There is no paralysis of the muscles of the limbs. The functional integrity of the anal and visceral sphincters is preserved, and to the mental failure we must attribute his neglect of his state of cleanliness. The left side of the face seems paretic when he yawns, but the face is not drawn to the right when the muscles are at rest. The contour of the body is well preserved, and there is no emaciation or muscular wasting. The ophthalmoscope reveals the usual trophic changes that follow choked disk. There is well-marked convergence of the left eye, and moderate divergence of the right. The latter is observed to turn inwards at times on a line with the vertical axis, but the left never turns outward. The eyes are not observed to turn upwards or downwards. Whether he is able to move the eyes in these directions it is impossible to determine at this time. The pupils remain very small and do not dilate when shaded. There is no protrusion of the eye-balls.

The patient, whose history I have reported to you with results of examinations under two distinct circumstances, furnishes illustrations of difficulties in the problems of diagnosis. The first difficulty was encountered in trying to determine the nature of his trouble when I first saw him in a comatose state, and this, too, in the absence of any knowledge of his previous condition, or of the manner in which unconsciousness came on. The next was experienced in endeavoring



Appearance of fundi, November 3, 1894.

to localize, with the additional aid of the meagre history and the consciousness of the patient, the lesion that I had diagnosticated during the state of coma.

DIAGNOSIS DURING COMA.

If summoned to see a patient in a comatose condition, our first duty, after meeting any emergency that may seem obvious, is to make a diagnosis. Cardiac syncope; chloral, opium, alcohol and other poisons; uremia; epilepsy; hysteria; apoplectic attacks occurring from cerebral congestion or from the cerebral state found in some cases of paretic dementia, "simple apoplexy" in the aged; embolism; thrombosis; hemorrhage; abscess; tumor; and inflammatory conditions of the brain, give rise to symptoms somewhat similar. If we are ignorant of the history of the patient and the mode of the development of the comatose state, we may in some cases find it difficult or impossible to arrive at a satisfactory conclusion.

I hope soon to be able to illustrate by cases many of the difficulties encountered in arriving at a satisfactory diagnosis in the apoplectic state. Fortunately, the patient before us presented one prominent symptom that enabled us at once to exclude most of the causes of coma above enumerated. This symptom was choked disk. It illustrates the value of an ophthalmoscopic examination in all cases of unconsciousness. Excluding organic brain lesions, there are three conditions that may give rise to choked disk. These are lead-poisoning, profound anemia and kidney disease. Headache, optic neuritis, convulsions and delirium followed by coma may be caused by lead-poisoning; but other obtrusive symptoms of saturnism, such as the blue line of the gums, the peculiar appearance of the patient, are present. Nothing that indicated lead-poisoning, not even convulsions nor delirium, was present in this case. The very high degree of swelling of the optic disks found in our patient, rarely, if ever, occurs from lead. When optic neuritis is due to anemia, the swelling is very much less than was found

in the patient whose case is under consideration, and the symptoms of anemia are pronounced. While the patient at the time of his admission to the hospital was emaciated, yet he did not present an anemic appearance. Kidney disease was excluded by the absence of albumin and tube casts in the urine.

The organic diseases of the brain—besides the acute inflammatory conditions, with considerable exudate or watery effusion—that may cause choked disks are tumor, abscess, and sometimes embolism. A normal or subnormal temperature would justify the exclusion of the acute inflammatory processes of the brain or its membranes, with a very few exceptions, the consideration of which is unnecessary for us at the present to discuss. The swelling of the optic disks following embolism is not as great as was found in this patient; and no source of an embolus, such as a cardiac murmur or a blood state, was found. Besides, embolism that has existed sufficiently long to produce choked disk would be attended with softening and probably with paralysis.

The diagnosis is narrowed down to abscess or tumor of the brain. Even with a reliable history, it is not always easy, and sometimes it is impossible, to make a positive diagnosis between tumor and chronic abscess of the brain. In about three-fourths of the cases of abscess, a source of the suppuration, such as chronic ear disease, infective states of the bones of the nose or skull, or suppuration in the lungs or elsewhere, will be found. In this case, tumor of the brain was diagnosed on the presence of the enormous swelling found in the optic disks. It had attained a degree of intensity that is probably never reached in abscesses of the brain.

After the patient had regained consciousness and was able to give a fairly good history of his symptoms previous to his coming to the hospital, and after making a thorough examination under more favorable circumstances, nothing was found that leads me to change my diagnosis.

LOCALIZATION.

Accepting the conclusion that this man is suffering from the presence of a tumor in his brain, let us proceed to analyze his symptoms with the view to localizing the growth. Exact localization of brain lesions is possible only when certain regions, whose functions are pretty definitely known, are involved. These include the cortical motor areas, the cuneus or the median surface of the occipital lobe, a portion of the temporo-sphenoidal lobe, more especially the left side, the internal capsule, crus, pons, medulla, and the regions at the base of the brain that contain certain cranial nerves. Lesions in the frontal, parietal and outer portion of the occipital lobes, or in the centrum ovale or cerebellum are sometimes very difficult to localize. We must bear in mind that a large tumor may have its seat in a portion of the brain, destruction of which gives rise to no obtrusive symptoms, and by the pressure and other effects of the growth, adjacent regions whose functions are known, may be seriously affected, causing symptoms of a definite character and leading the diagnostician to err in localizing the morbid process in the portion of the brain which has been indirectly affected by it. I have known tumors situated in the frontal and parietal lobes, and in the centrum ovale to cause hemiparesis without any extension of the growth to the motor region.

In the case of the patient before us we can exclude the temporo-sphenoidal lobe, the visual centre of the occipital lobe, and the motor regions of the cortex, because the functions of these portions of the brain have not been affected as they would be were any of them the seat of a tumor. From the fact that this man's deafness is bilateral and the motor cranial nerves are not paralyzed, we may exclude the base of the cerebrum from being the seat of the growth. A tumor in one of the frontal or parietal lobes, or in the centrum ovale, would not give rise to bilateral deafness, and a growth in each hemisphere is too rare to merit consideration in this case. The probabilities are that the tumor in this man is situated in the neighborhood of the corpora quadrigemina or in the cerebellum. Lesions involving the former are usually attended by headache, vomiting, optic neuritis and ataxia—symptoms very prominent in this patient. A tumor in the centrum ovale of one hemisphere, by indirect pressure upon the corpora quadrigemina may cause a staggering gait that is almost identical with the titubation caused by a growth in the cerebellum, but the symptoms would be much more prominent on one side than on the other. A few months ago a man, about forty years old, died in this hospital from a tumor of the brain. During life he presented many symptoms, especially the gait, optic neuritis, occasional headache, etc., of a cerebellar growth. There was no unilateral symptom, but simply inability to stand during a number of months preceding his death, because of muscular rigidity and loss of the power of co-ordination. There were no paralysis, but a weakening of all the muscles of the limbs. He was blind, but hearing was not affected. On his admission to the hospital the gait and the tendency to fall to the left and backwards made me suspect a growth in the cerebellum; but as the disease advanced and the nerves whose nuclei of origin are in the floor of the fourth ventricle did not become affected, I was led to locate the lesion anterior to the pons. The autopsy revealed an enormous growth involving the posterior portion of the corpus callosum extending well into the centrum ovale of each hemisphere and exerting pressure directly on the corpora quadrigemina. The symptoms of a growth in these bodies would be bilateral in character, but for the tumor to extend sufficiently downwards to destroy the nuclei of origin of the auditory nerves, the nuclei of the third cranial nerves would be rendered functionless before such a result could in all probability take place. I think we are justified in locating the lesion in this case in the cerebellum, affecting its middle lobe or vermes, and probably extending a little further to the left side than to the right. I only suspect that the tumor has invaded the cerebellum a little more to the left of the median line than to the right, because the tendency has been, when he has been able to be on his feet to fall to the left and backwards, although numerous cases of tumor of the cerebellum are on record where the body has swayed from the side in which the growth was situated.

We will now consider the most prominent symptoms found in this patient's case, and see if they may be accounted for by a growth in the cerebellum. Headache, vomiting, optic neuritis, blindness, convulsions, unsteadiness of gait, and often deafness, are the usual symptoms of tumor of the cerebellum involving the middle lobe.

The recurrent attacks of coma attended with venous congestion of the face, slow pulse and respiration, may be accounted for by pressure on the lateral and occipital sinuses into which the veins of Galen empty. The latter receives the blood from the walls of the ventricles, the choroid plexuses and corpus callosum. Any sudden increase of pressure below the tentorium, as would likely result from a spreading tumor in the cerebellum, might give rise to attacks of coma, the circulation becoming re-established and consciousness returning as the parts adapt themselves to the changed conditions. Sometimes the congestion is so great that life can no longer be maintained, and sudden death may thus take place in growths of this portion of the brain.

The mental failure in this case, as occurs in many others of like nature, is also probably due to disturbed circulation.

The paresis of the left side of the face which has recently developed, slight difference in the knee-jerks of the two sides, with less acute sensory functions of the left side, may be explained by assuming that the tumor presses a little more on the left side of the pons than on the right.

How are we to explain the persistent small pupil in a man totally blind, the convergence of the left eye, slight divergence of the right and the limitation of the upward and downward movements of the eyes with a tendency to convergence of both eyes when he attempts to move the eyes upwards or downwards? Most of the nuclei which give origin to the nerve fibres that supply the muscles involved in these movements are situated beneath the floor of the aqueduct of Sylvius; and as we have seen that the veins from this portion of the brain are probably kept engorged from the interference with the circulation in these veins caused by pressure on the occipital and lateral sinuses, it is probable that these nuclei are in a constant state of irritation, "irritable weakness." In health, extreme convergence of the eyes is attended with contraction of the pupils. Each internal and external rectus of the eye is supplied by nerve fibres that are innervated by two separate and distinct nuclei, one acting when both internal recti contract and cause convergence of the eyes, the other when both eyes turn to the right or left. Or the mechanism may be explained by supposing one set of nuclei for each muscle, but so arranged that the internal recti may act in harmony with each other, or those of one internal rectus may act in conjunction with those of external rectus of the other eye. As the internal recti muscles are the most powerful muscles of the eye, convergence of the eyes would naturally be the result of ineffectual efforts to move the eyes upwards or downwards.

Bulimia may be caused by disease of the brain, stomach or some other organ. Increased thirst, with diabetes insipidus or mellitus, is more common in irritation of the floor of the fourth ventricle, than increased sensation of hunger, but as bulimia has been found in cases of diabetes mellitus, it is probable that there is a centre in the fourth ventricle, irritation of which gives rise to a morbid sensation of hunger. It must be remembered that this man has suffered from chronic gastric disorder attended with severe pain in the stomach. The autopsy may reveal adhesions of the stomach to adjacent structures in such a manner as to prevent the walls of the organ from collapsing when empty. Ord

cites two such cases, in both of which bulimia was a well-marked symptom.²

The prognosis of this patient's condition is utterly hopeless. The anti-syphilitic medication, which was resorted to in his case, has failed to arrest the progress of the disease, and surgical interference in tumor of the cerebellum, so far, has afforded but little beyond an ante-mortem examination of this portion of the brain, except in a few cases, in which pain has been relieved, and in two or three others, where life has been prolonged, the patient remaining blind.

SUBSEQUENT HISTORY.

The patient gradually became more stuporous; he had general convulsive movements on two or three occasions; irritable stomach, with vomiting of nearly everything taken into it, became a well-marked feature of the case; and finally he passed into a deep comatose condition, with pronounced cyanosis of the face, and died December 1, 1894, about four weeks after the lecture was delivered on his case.

Autopsy.—The body was placed in a cool place immediately after death and the examination was made by Dr. McClannahan and myself a few hours later. The brain and the organs in the abdominal cavity were the only parts investigated.

The external surface of the dura presented a normal appearance, but over the region of the cerebellum this membrane was quite tense and bulged on removal of the bone. On removing the brain from the base of the skull the infundibulum was torn across, leaving the pituitary body *in situ*. The canal in the infundibulum was greatly dilated, and through it three or four ounces of a straw-colored, watery fluid escaped from the ventricles. After exposing and examining the entire external surface of the brain, and the medial surfaces of the hemispheres of the cerebrum, no lesions were found on these parts. The vessels and nerves presented a normal appearance. On opening into the lateral ventricles they were found enormously distended but empty, as the fluid which they had contained escaped by the third ventricle and the infundibulum. No other evidence of disease was found in any part of the cerebrum. On exposing the upper surface of the cerebellum by removing the occipital lobes a growth was found in the middle lobe, principally in the anterior portion. On the left side of this lobe the tumor extended back to nearly the centre, but on the right side it affected only the anterior portion. The three peduncles of the cerebellum were involved by the tumor on the left side, and the middle and superior ones on the right. The growth projected forward of the cerebellum and infiltrated the structures that form the upper and lateral boundaries of the aqueduct of Sylvius and involved to a slight extent the corpora quadrigemina. Pressure was exerted on the floor of the fourth ventricle and on the floor of the aqueduct of Sylvius and on the veins of these parts and the adjacent sinuses, thus accounting for the accumulation of the fluid which was found in the lateral ventricles.

The organs in the abdominal cavity presented no abnormal condition. The stomach was carefully examined, but no cause for the condition of bulimia was found.

The cerebellar growth, which was soft and measured one and one-half inches from before backward and one inch at its widest part, was given to Dr. E. R. Axtell, pathologist to the hospital, and his report is as follows:

"To the naked eye the tumor mass is soft, and looks somewhat like brain tissue. It is more or less rounded, and is fairly sharply defined from the surrounding tissue which accompanies it. In color it is a dull, reddish pink, with no glistening white capsule nor bands of fibrous tissue running through it. Here and there in the mass are a few small red and brown spots looking like hemorrhagic areas.

"Sections of the tumor, made in all diameters, show that the mass is composed in part of small, round cells not

² British Medical Journal, June, 1889.

arranged in any special manner; here and there in the mass, but generally toward the area of normal tissue, the cells becoming definitely spindle-shaped, of large size, showing the formation of new connective tissue. The mass is nowhere exceedingly vascular, but small vessels can be seen forming in the spindle-celled area, and even in the mass of round cells.

"In the area of small, round cells there are a few patches of extravasated blood, but there is none in the area of spindle cells. The vessels about the mass contained blood, but gave no evidence of an endarteritis obliterans. Sections stained for the bacilli of tubercle failed to show any bacilli under a Leitz one-twelfth. No section showed any felted mass of fibrils, as is seen in a gliosarcoma. The spindle-cells infiltrated the adjoining tissue without any definite capsule being formed.

"Diagnosis: mixed sarcoma of the small round and large spindle-cell form."

Original Articles.

RAPE.¹

BY FRANCIS W. ANTHONY, M.D., BRADFORD, MASS.,
Surgeon to Haverhill City Hospital.

I SHALL ask your attention this afternoon to the subject of Rape—a medico-legal subject of so many branches and far-reaching roots that I can only hope to introduce it to your notice, trusting that its consideration may be not without value, even to the general practitioner.

It is difficult in preparing a paper of this sort from notes collected for several months in the intervals of a busy professional life, to credit all the authorities consulted; and, in imitation of our Newburyport friend who put at the close of his book *all* the punctuation marks, that the printer might distribute them as he saw fit, I wish here to acknowledge my obligation to Taylor, Briard, Tidy, Tardieu, Brouardel, Casper, Chaudé, Sajous and Wood; to R. von Kraft-Ebing and Chaddock; to Tyng, Metcalf, Pickering, Gray, Allen, Lathrop, Brown and Keller, requesting them to insert the quotation marks, if, in writing, I have omitted to place them. I wish also to acknowledge courtesies from Dr. F. W. Draper, medical examiner for Suffolk County; Dr. J. F. Croston, medical examiner for Essex County; Dr. E. S. Wood, expert of the Harvard Medical School, who kindly sent me the advance sheets of an article to be published this year on seminal stains; to Francis H. Pearl of the law firm of Abbott & Pearl, for the use of his medical library under his advice, and to District Attorney W. H. Moody, for privileges granted me.

The common form of definition declares rape to be the having of unlawful carnal knowledge by a man of a woman forcibly and against her will. The statutory term differs slightly, "Did not consent," being there used. A Massachusetts judge has decided that the two expressions are identical in meaning. A definition founded on the statutory term would be—"Rape is the having of unlawful carnal knowledge by a man of a woman, forcibly, where she does not consent," thus covering the case where a man by force has connection with a woman, the latter being asleep or drunk, said connection being therefore without her consent, though possibly by no means against her will.

The Public Statutes declare (Chap. 202, Sect. 27)

that "whoever ravishes and carnally knows a female of the age of ten years or more by force and against her will, or unlawfully and carnally knows and abuses a female child under the age of ten years, shall be punished by imprisonment in the State Prison for life, or for any term of years"; and in Sect. 28, "That whoever assaults a female with intent to commit rape, shall be punished by imprisonment in State Prison for life, or for any term of years, or by a fine not exceeding \$1,000, and imprisonment in jail not exceeding three years. Laws of 1888, Chap. 135, say, in substance, that an armed housebreaker whose intent is rape, whether assault is actually made or not, shall be punished by imprisonment in State Prison for life, or for any term of years not less than ten. In 1888 the age of consent was raised to fourteen; in 1893 this was again raised to sixteen.

In our country rape is also an offence against the common law.

Going back to periods remote—in the laws of Adelstone mentioned by Bracton, the crime of rape was punished by loss of life. As years went on this was considered too severe a punishment, and castration was substituted; while in the time of Henry VIII, this was replaced by loss of the eyes, unless the woman offended was single and so pleased by the experience that she elected the offender her husband, and the latter consented to assume the relation. In the time of Edward I, the age of consent was twelve years; the penalty for rape, two years imprisonment or a fine. When Elizabeth held sway, a man violating a female child under ten years of age was declared a felon, and compelled to suffer without allowance of clergy.

To-day, to constitute a rape the man must have physical capacity—although lack of this does not debar an indictment for attempt to rape—the will, in the eye of the law, being taken for the deed. In England and in North Carolina a boy under fourteen is conclusively presumed to be incapable, whatever the real facts. In general, in this country this establishes only a *prima facie* case, which actual testimony to the contrary may overthrow. Old age, even extreme old age, does not imply incapacity. In fact we shall see later that, in many instances, the fact of old age suggests the truthfulness of a charge of rape. Suffice it to say, for the present, that a man of ninety-two has been known to be the father of a child by his wife aged seventeen.

Absence of testicles in the scrotum is not a sufficient plea to set up against a charge of rape; for it is known that these cryptorchides are not only potent, they may be prolific.

As puberty in the male is not essential, so, also, the same is true in the female in case of rape. The offence may be committed against an unchaste woman or even a common prostitute, but want of chastity may, within certain recognized limits, be shown as rendering it more probable that the woman consented. Still, as decided by Morton (Judge) in the case of the Commonwealth *vs.* Thomas Harris: "In a prosecution for rape evidence of *particular* instances of unchastity on the part of the woman with persons other than the defendant is inadmissible, while her character may be impeached by *general* evidence of her reputation." An interesting question might arise in this connection: Are seminal stains found on the clothing of the woman the result of this rape, or of old cohabitation?

A husband cannot be found guilty of rape though he

¹ A paper read before the Haverhill Medical Club.

force his newly wedded wife to the consummation of the act without her consent and against her will; but if a husband be present abetting another man who forces said husband's wife, he is held the same as the principal in the offence. It was decided in the so-called "Methuen case," *Commonwealth vs. Peter Scannel*, that an indictment for rape need not allege that the defendant was over fourteen. The same decision practically was given in the case of the *Commonwealth vs. Patrick Fogerty* and others, in which case was also emphasized the principle that the husband assisting in a rape is chargeable as a principal. The audacity of defending a rape fiend on the ground *not* that the abused party *was* his wife, but that the indictment did not state that she was *not* his wife, strikes me as something tremendous, and I can only admire the calm tone of the judicial finding that ends with "Defendant's exceptions over-ruled" without adding a warrant for his lawyer for contempt of the capacity of the judge's mind.

A woman with less intellect than is required to make a contract may consent to carnal connection which, by the way, has been legally defined thus: "Carnal knowledge is sexual bodily connection," (*Commonwealth vs. Charles N. Squires*, 1867, Gray, J.). So that this carnal connection will not be rape; but if so idiotic as to be absolutely incapable of consent or dissent, and the man does not suppose he has her consent—note the loophole thus afforded—the connection is rape. From this it follows that the medical testimony as to the mental capacity of the woman in the case may affect the result of the trial; but if mental capacity is not shown, and even if rape be not proven, the defendant is not sure to escape; for it was decided in 1841, *Commonwealth vs. Simon Fischblatt*, that in an indictment for assault with intent to ravish, if "not guilty" be decided regarding the rape, "guilty of assault" may still be held, if force be proved.

Later will be considered the evidences of force from the physician's outlook.

The degree of force necessary to make an assault of this nature a rape, is interesting to note. Formerly emission was to be proved; later, penetration; but one decision maintains that an attempt to rape becomes a rape if the generative organs touch, for the outrage is not a threatened pregnancy or even the loss of the hymen, but the violence done the feelings.

It has been held in New York, that resistance on the part of the woman must be up to the point of being overpowered by actual force, by loss of strength to resist, from the number of persons making resistance dangerous or absolutely useless, or from dread or fear of death;—better judicial opinions do not endorse this view, but maintain that resistance must be made in good faith and not in mere pretence. In the case of the *Commonwealth vs. Michael McDonnell* (Pitman, J.), it was decided that the act must have been without consent on the woman's part; the defendant must have used sufficient force to have accomplished his purpose; that the degree of resistance was frequently essential in determining whether the want of consent was real, but that there was no rule of law requiring a jury to be satisfied that the woman, according to their measure of her strength, used all the physical force in opposition of which she was capable. The degree of resistance having then a distinct value in evidence, the methods of measuring this by a physician will be again referred to.

It was decided (*Commonwealth vs. Patrick Fogerty* and others) that an indictment for rape implies *force*, that is, it alleges that the defendant did, violently and against her will, feloniously ravish and carnally know the woman.

If the woman after the alleged offence excuses or forgives the defendant, still he can be convicted. This was decided in the case, *Commonwealth vs. Edward Slattery* (Allen, J.), in which it was shown that the defendant invited a young lady to ride, drove through some woods, got her to alight and ravished her; that then she re-entered the carriage, conversed on the way home, permitted him to assist her from the carriage; that on the way home she made no complaint, but did request marriage, and when this was refused, stated that if this refusal was persisted in she would "tell his folks." Despite the fact that to a degree she condoned the offence, it was held he could be convicted.

No rape can be maintained if consent is given before penetration or at least contact; but it must be borne in mind that consent given through fear is not consent.

The question has arisen how far ether and chloroform could be used and have the power of resistance overcome, the former drug having been used in a case in Pennsylvania, the latter in Ohio. It has been held that "If the woman had the capacity to hear, feel and remember, and a capacity to speak and forcibly resist, but the inclination to do so was lost, the will overcome by the action of the anesthetic either operating on the will faculty, the judgment and reflective faculties, or sexual emotions so that the mind was thereby incapable of fairly comprehending the nature and consequences of sexual intercourse, and the defendant, knowing these facts, had unlawful carnal knowledge of her forcibly, that would be a rape; and it would in such a case be wholly immaterial whether the entire mind was disordered and overthrown, or only such faculties thereof as are thereby rendered incapable of having just conceptions, and drawing therefrom correct conclusions in relation to the alleged rape."

The practical question may then arise to us as physicians, when, in the course of advancing anesthesia, is reached the point thus indicated? As we all know, the allegations of rape in dentists' offices are usually due to false ideas aroused by the anesthetic, but cases are on record where the dentist has been convicted.

Since hypnotism became better known and more practised, the question has been raised, Can a woman be ravished without her knowledge during hypnotic sleep? Brouardel says, "Only under favoring conditions." "If a man who is agreeable to the somnambulist offers suggestions to her which are acceptable or of an indifferent character and not offensive, she submits herself to them; but if the suggestions are revolting to her personal affections or her natural instincts, she opposes to them a resistance which is almost insuperable." Others think that a woman can be ravished during hypnotic sleep without the above-mentioned conditions. The question may be said to be an open one. French medical experts, as a rule, maintain that rape during hypnotic sleep is possible; but Taylor says that they forget "*Non omnes dormiunt quae clausos habent oculos.*"

There is dispute also whether, barring cases where unconsciousness exists from fear, natural infirmity, the use of narcotics, liquors, anesthetics or hypnotism, rape could be accomplished. Taylor says that, barring the

above conditions and setting aside infants, idiots, lunatics, weak, delicate or aged women, it does not appear probable that intercourse could be accomplished against the consent of a healthy adult.

The exceptions are so numerous and broad that the statement seems to have an equivalent in this one — a man attempting rape *might* find himself overmatched in strength.

That a woman can be raped in natural sleep seems almost incredible. Casper relates the case of a married woman who alleged that while asleep she had been raped. In her deposition she admitted that she was conscious that some one was lying upon her, and that she asked who it was, showing that she had some doubts whether her husband was the party addressed. It would seem as though, except possibly in the case of substitution for a bridegroom during the early days of the honeymoon, something unfamiliar in physique or gesture might be detected by a woman awakened from a sleep; that she should sleep through such an experience seems incredible. [Since writing the above, credible evidence has been presented to me that in a woman not a virgin rape might be possible during sleep.]

During syncope rape could undoubtedly be committed without the knowledge of the victim.

The frequency of rape or attempts at rape may surprise some of you. Statistics show that in France in 1851 the rapes or attempts to rape upon adults, were 242; upon children, 615; total, 857. In 1861, upon adults, 217; children, 695; total, 912. In 1875, upon adults, 140; children, 813; total, 953. From 1851 to 1875 inclusive, the year furnishing the largest number of assaults of this nature was 1866, when the figures read, upon adults, 160; upon children, 883; total, 1,043. The whole number of such cases on record in the period mentioned, 1851 to 1875, inclusive, is, upon adults, 4,360; upon children, 17,657; grand total, 22,017.

The time of year seems well fixed when these assaults are most numerous; for example, in a series of about 800 cases covering a period of three years, statistics show that in the quarter including May, June and July, 293 cases occurred; August, September and October, 205; February, March, April, 171; November, December, January, 139. Another series from 1858 to 1869 gives a similar result; a closer examination discloses that *May* is the month in which rapes are most frequent, and that this is true, not only in France, but the world over as far as can be ascertained.

As regards the age of the victim: in 632 French cases, Tardieu states that 9 were over twenty; between fifteen and twenty, 84; between thirteen and fifteen, 90; under thirteen, 435; age not stated, 14. Old age is, however, by no means exempt. The youngest case reported is one reported by Dr. Brady, and cited by Taylor, the victim being nine months; one is upon record upon a child of eighteen months, and another of two years.

In case of an alleged rape it may become the duty of the attending physician to note certain facts coming fully as much in the line of the work of the police, who may be untrained observers. It is safe to say that here, as in a case of murder, nothing is of too little value to note, preferably in writing. The time called and time of arrival should be noticed, and, for obvious reasons, an early opportunity taken to compare your watch with standard time. Your examination of the

garments of the victim, particularly of the shirt, under-petticoat and drawers should be thorough; if an opportunity is afforded, examine also the shirt and drawers of the male charged with the offence. Note the location and size of all stains, their odor, and degree of apparent freshness; all tears of garments, location and extent. If a bed figures in the alleged assault, examine its coverings or draperies, and note, not only stains as above, but tears or disarrangement; these, with the location of stains, may show the degree of resistance. On male attire the stains will of course be looked for more in front; on female attire either on front or back, sometimes on both. The importance of thorough examination was impressed upon me by District Attorney Moody, who reminded me of a case in New York or its immediate vicinity where a man was connected with an assault followed by murder, by the microscopic examination of the dirt under his finger-nails which disclosed vaginal epithelium.

The story of the victim is, of course, to be heard — simply as a story. She may be after blackmail; she may be self-deceived, insane or coached by others. If a child, the story of the mother or immediate relatives may be heard with the same caution. Mothers have been deceived by an innocent discharge, scrofulous, or due to oxyuris vermicularis, or masturbation. On the other hand, we must remember a child having such a discharge may be raped.

"Bearing in mind that medical evidence is seldom more than corroborative, but as important in false charges as true ones," says Taylor, "we examine the alleged victim for marks of violence about the genitals, stains of spermatic fluid which may be on the hair of the genitalia, stains on clothing as referred to above. If the case is alleged to be fresh, obtaining specimens of the vaginal mucus for further examination as to the presence of spermatozoa; if the case be of older date, collecting the same for examination in regard to the presence of the gonococcus. Labor was successful in colonizing and recognizing gonococci in pus stains found on the shirt of a man charged with rape, and on the chemise of his victim. Examine also for evidence of syphilis, remembering that both gonorrhea and syphilis may be innocently acquired.

On a child we might find evidences of inflammation due to violence, a muco-purulent discharge. If the assault was recent, blood or clots, a lacerated hymen, dilatation of the vagina, laceration of the vagina and adjacent parts.

In the case of an unmarried virginal adult evidence of inflammation from violence, muco-purulent discharge, destroyed or lacerated hymen, dilated vagina, and, if the attack was recent, bleeding-points with perhaps clots. In case penetration is alleged and the victim has not passed her urine since the assault, the first urine should be saved for microscopic examination.

This last precaution applies, of course, with still more force to married women, or unmarried women who have had previously sexual intercourse, where the only medical evidence of importance may be that of the microscope.

Any evidence of violence on other parts of the body, notably the throat, should be observed.

If an examination is made of the man charged with the offence, note any marks of violence, particularly scratch marks.

(To be continued.)

SOME CASES OF SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS.¹

BY WILLIAM C. HOLYOKE, M.D., BOSTON.

SCARLET fever, in recent years, seems to be of a milder type than it was when I began practice, more than twenty years ago. Its death-rate in this State is very much less now than it was then. Such variations in type have long been observed, and it is not impossible that severe forms of the disease may again visit us, although it is to be hoped that the continued good work of the health authorities will prevent any very destructive epidemic in the future. Still, this malady, in some form, is always with us; and in large cities it would seem almost impossible to eradicate it, fostered as it is by crowding, filth, ignorance and selfishness.

Besides the oversight of the health officers, the most hopeful means of limiting such diseases should be the influence exerted by the attending physicians. It is not sufficient that the individual patient be successfully treated, but the health of the community should always be considered, and the parents or others in charge of such cases should be taught how these diseases usually spread, and the best attainable means of prevention.

So far as we know, the virus of scarlet fever is, in most instances, taken into the system with the inspired air; but a number of cases have been reported from drinking infected milk, and we may assume that it is possible for it to gain entrance through any absorbing surface with which it can come in contact.

We are more practically concerned, however, with the origin and mode of dissemination of the virus, in order that we may deal with it at its source. It may be assumed that it is given off from all the surfaces of the body of the scarlet fever patient. The most productive source is the disquimating cuticle; and when this is thrown off in the dry state, and the fine particles are floating in the air, it is in a condition most favorable for reception into the system. In the moist state, as given off from the internal surfaces, it may not be such an immediate cause of danger; but we must believe that forcible expiration can dislodge contagious particles from the air-passages, which, either in the form of spray, or dried and pulverized sputum, may be virulent even at an early stage of the sickness. It is possible that the urine and feces, if not disinfected, may contaminate the sewage and become a remote cause of trouble.

The most important means of preventing the spread of scarlet fever is isolation of the patient and the avoidance of all means by which the germs may be conveyed away until after they are disinfected. It is believed that the virus is not carried far by the air alone, although apparent exceptions to this rule have been noted. It is usually conveyed by persons or materials that have been in the vicinity of, or in actual contact with the patient.

It is probable that scarlet fever, in most cases, is not very contagious during the first day or two; and if patients are separated as soon as the rash appears, those previously exposed will commonly escape. After this, however, it is certainly contagious as long as desquamation is going on; and although this may, in some cases, cease in three or four weeks, it usually continues longer, and sometimes more than ten weeks. As a routine practice I advise isolation for six weeks

from the beginning of the sickness, but sometimes find this period too short.

Our greatest difficulty is to secure proper isolation, especially amongst the poorer classes. During the height of the illness children are easily restrained, but when convalescence begins, and they beg for liberty, it is difficult to impress upon parents the duty of restraint in the interest of public health. Another source of danger is the use, during convalescence, of books and toys which are not afterwards destroyed, and which cannot be completely disinfected. There is evidently much carelessness in this particular.

I will now report a group of cases which may serve to illustrate some of the points just noticed. In the early part of the present year a number of cases of scarlet fever occurred in the home of the Boston Children's Friend Society, on Rutland Street. The home contained at that time about seventy children, of whom, as nearly as could be determined, fifty-five had never previously had the disease. The first case appeared on January 17, 1894; others followed, at first in rapid succession, then at intervals for more than three weeks, when, on February 10th there were twenty-two sick. After this there was a period of quiet for about six weeks when two others appeared, on March 27th and 31st; and finally another one on May 1st, making a total of twenty-five cases.

For a little while we were in doubt as to the origin of the trouble, but in a few days reached the only conclusion which seemed to give a reasonable explanation.

At Christmas some persons connected with one of the Sunday-schools in Newton Centre collected from their scholars a quantity of second-hand toys and picture books, which were presented to our home. According to the reports in the daily papers, scarlet fever was then prevalent in that town, so that it became necessary to close some of the schools. From recent inquiry it is learned that the increase of scarlet fever in the town of Newton, including Newton Centre, began in November, when more cases were reported than during any other of the five months of its prevalence. The toys and books, which filled a barrel, reached the home on Rutland Street, on January 2d, and were distributed to the children about eight or ten days later; and within another week the sickness began.

I have not attempted to trace the previous ownership of the toys. There would be manifest difficulty in doing so. But the facts that they were contributed by many persons in an infected district, and that a few days after their reception by the children the malady appeared, make a strong probability that some of them were infected with the germs of scarlet fever. As soon as the toys and books were suspected they were collected and destroyed.

As cases of the disease continued to appear long after the destruction of the toys, we naturally inquire whether the later cases resulted from the original cause, or from contact with the sick. In support of the first of these views we must remember that the toys and books had been in possession of the children about ten days. They had been widely scattered, and probably sufficiently handled to disengage many of the germs. It was impossible to fumigate the whole house, and it was not attempted except by burning sulphur in the playroom, where the toys were first distributed. Therefore, it was necessary to wait for the slow process of ventilation to remove the virus, which the cold weather rendered more difficult.

¹ Read before the Boston Society for Medical Observation, October 8, 1894.

As soon as the children were taken sick they were at once separated, and their bedding and clothing removed and disinfected. The rooms occupied by the sick and their attendants were in a remote part of the building, well situated to insure isolation; and, as far as possible, all communication was cut off from the rest of the house. The management was so careful and the separation so complete that I consider it impossible that any should have become infected from this source.

We may now inquire whether it is probable that the disease continued to spread from contact with those recently affected, before they were removed. In order to throw what light I can on this matter it will be necessary to examine the cases more in detail.

The children were divided into two classes, the so-called school-children, over five years of age; and the nursery children, ten in number, all under five years; I may say that the school was within the building.

The disease began with two children on January 17th, three on the 19th and three on the 20th. These eight cases occurred in the older or school children, and all were undoubtedly produced by the original cause. Then, at intervals, in the course of the next three weeks, eight more of the older children were taken sick. How these were infected may be a doubtful question. Some of them might have resulted from contact with incipient cases of the sickness, but I am inclined to believe that the original cause was still acting.

All the remaining cases happened in the nursery. The nursery children had received none of the suspected toys; and after the disease entered the home, they were kept closely in their room, and not allowed communication with the other children. But there was one exception to this. On January 24th one of these small children was allowed to leave the nursery for a few hours and mingle with the older ones in the school-room. Four days later he was taken sick. Eight days afterwards another one came down; and I may mention that this child was troubled with a cough. From three to five days after this four others became ill, and then there was a long period of rest.

Of the cases just mentioned, we need not discuss the first, in which there had been communication with the school-children. The second, occurring eight days later, is of doubtful origin; but there can be little question that the next four, following the second at intervals of three to five days, were infected by it. This seems more reasonable from considering the fact that the second child had a cough sufficient to dislodge contagious particles from the throat.

Three more cases remain to be noticed. Two of these appeared late in March, and had been joined about a week before by several convalescent children, one of whom was found to be desquamating, although seven weeks had elapsed since she was taken sick. The remaining case appeared on May 1st, and the only explanation I can give is the following: One of those who had been affected was a girl twelve years old, whose sickness was severe and followed by prolonged desquamation. This was evident for ten weeks, but at the end of seventy-four days she was given an antiseptic bath and set at liberty. Her hair was long and thick. On the day she left the sick-room she went into the nursery, where only two children remained who had not had the disease. She also combed her hair with the comb used by those children.

The visit was repeated a day or two later, and six days after her first visit one of the nursery children became sick.

Of the group of cases here reported the greater number may be regarded as due to circumstances largely beyond our control, but the last three could have been prevented by exercising more caution, although it may be said that the children who carried the infection were examined before leaving the sick-room by a prudent and experienced person. These cases, however, emphasize the need of careful supervision of convalescents, and tend to confirm the belief that many instances of scarlet fever result from neglect of this precaution, or inability to carry it out.

In the way of prophylactic treatment many internal remedies have been recommended, both to the well, to prevent the development of the disease, and to the sick, to prevent its spread. The most of these are such as have an antiseptic effect; and although we may be doubtful of their prophylactic influence on the general system, there can be little question that some of them have a very favorable effect on the mouth and fauces of the scarlet fever patient, and probably render the secretions of those parts less virulent. Of those that may be classed as mildly antiseptic I still use, in most cases, the old mixture containing chlorate of potash and tincture of chloride of iron, in small and frequent doses.

Since the most fruitful source of the germs is the desquamating cuticle, it is evident that the proper management of the skin is the most important part of the prophylactic treatment.

About twenty-five years ago Dr. Budd, of Bristol, England, reported excellent results from the application of olive oil, as an aid to isolation. He usually combined a little camphor with the oil, and the application was made freely and often, and continued until the patient was "well enough to take a warm bath." Then he was well scrubbed with antiseptic soap and water every other day until four baths had been taken, when the disinfection of the skin was regarded as complete.

Since that time most of the writers whose works I have examined mention the use of oil or ointments, either plain or containing antiseptics, but not all of them insist upon this measure as a matter of much importance; and as far as my observation extends, I do not think this method of treatment is used as commonly as its merits deserve.

Since the beginning of my practice I have always used olive oil as a remedial agent during the height of the sickness; but for some years past I have ordered it very freely throughout the whole period of illness and until desquamation has ceased, for the purpose of preventing the escape of the scales bearing the germs. There may be some advantage from combining antiseptics with it, or from using thicker ointment on the hands and feet when the patient is up; but I have been so well satisfied with the use of the plain olive oil that I still continue it, and its simplicity and ease of application are qualities that also recommend it. Much depends on its thorough and long-continued use; and as many of our patients are seen only a few times, it is necessary before ceasing attendance to give explicit directions for the future management of the case. The treatment can be best carried out if the patient remain in bed for a prolonged period; but whether in bed or up, much care must be used when

the clothing is removed. Nothing should be scattered about the floor, but all materials carefully gathered in a sheet and placed at once in the receptacle for disinfection. After getting up the hands should be well cleansed and constantly anointed, and I have known some mothers to keep the patient's hands wrapped in cotton cloths to prevent the scales from escaping.

Since adopting the measures here mentioned, my impression is that the disease is much less contagious than before. I have kept no records of cases; but those of recent date can be recalled, and I remember none in private practice, within the last year when it spread to any other person after my first visit, even when isolation was impossible. Such results may be, in part, accidental, but I will mention some of the cases to show the extent of exposure.

CASE I. Family containing five children between the ages of one and eleven years, none of whom were protected by previous attack. Two of these were taken sick at the same time, and at my first visit the rash was just appearing. In one the sickness was moderately severe, in the other very mild. It was impossible to keep the other children out of the sick-room; and the mother took care of them all. Three other susceptible children in the same house were occasional visitors, but none become affected.

CASE II. Family containing five children, who had never had the disease. Ages two to twelve years. One of these, age six years, had a moderately severe attack. Rash quite abundant. Patches on tonsils. He was kept in a separate room, but the other children were on the same floor, and the mother took care of all. No other case occurred in the family.

CASE III. Family of three children, who had never previously had the sickness. Ages six to ten years. The youngest had a severe attack with abundant rash. One of the others slept much of the time in the sick-room; and they were all taken care of by the same person. The two older ones remained well.

CASE IV. Family containing four young persons, who had never had the disease. The youngest, age eight years, became affected. Rash well-marked. Isolation was impossible. The others were frequently in the sick-room; and a woman living in the same house, mother of two small children, often visited the sick boy. No other case of the sickness occurred.

Other recent cases with a like result could be reported; but I have selected those in which there was the greatest exposure of susceptible persons.

It may be said that scarlet fever, at the present time, is of a mild type and not very contagious; but the group of cases first mentioned tends to show that under certain conditions the disease may be taken now as readily as ever.

REMARKS ON STAPEDECTOMY.

BY FREDERICK L. JACK, M.D., BOSTON, MASS.

THE interest in operations for the relief of deafness, vertigo and tinnitus has naturally centered during the last two years, upon mobilization or removal of the stapes. Until within a comparatively recent time the drum was attacked, then the various tendons, and finally the two larger ossicles themselves were removed for the purpose of relieving the distressing symptoms often attending diseases of the middle ear. As time

has gone on the pathology of the different portions of the ear has become better known, and it has become evident that the solution to the problem in many instances is at the further end of the chain, and efforts have been made in that direction. From our present knowledge it seems plausible to attribute the improvement in any individual case of removal of the membrana tympani, malleus or incus, in part or whole, chiefly to liberating or mobilizing the stapes.

In the last two years I have tried to remove this bone in sixty cases. As every rule has its exception, it seems that in my first series of sixteen cases reported in 1892, I hit upon many exceptions, and for the last year have been laboring with the rule.

It is very important before advising any operative interference to recognize as far as possible the changes in the sound-perceiving as well as in the sound-transmitting apparatus, for, as we know, changes in one part are apt to follow those in the other.

We know that with a perfectly open foramen ovalis and a normal sound-perceiving apparatus one is able to hear ordinary conversation with little or no difficulty. Much has been done to demonstrate the practicability of removing the stapes to free this foramen. The conditions which so frequently destroy the expected results are degeneration of the auditory nerve, bony fixation of the foot-plate, or along any part of the crura or head of the bone; rupture of the basal membrane with hemorrhage into the labyrinth at the time of extraction is an accident to be thought of. I have found in those cases operated upon early, by which I mean before a high degree of deafness has occurred, that there is much less resistance to removal of the stapes and that there is a better condition of the internal ear. The following case of double extraction, previously reported, is evidence of this. The case is also of value because of the long time which has elapsed since the operations.

CASE I. F. D., twenty years old. Progressive deafness in both middle ears from chronic non-suppurative inflammation of several years duration. Hearing in the right ear before operation was as follows: Hearing = R., $H_{\frac{60}{80}}$; whispering voice = $\frac{2}{3}$; moderate voice = $\frac{1}{2}$.

Operation on September 27, 1892. Tests of hearing one year and eight months afterwards as follows: Hearing = R., $H_{\frac{100}{100}}$; whispering voice = $\frac{2}{3}$; moderate voice = $\frac{3}{4}$; tuning fork, C. = a. c., 27". B. C., 36".

The hearing in the left ear before operation was as follows: Hearing = L., $H_{\frac{60}{80}}$; whispering voice = $\frac{2}{3}$; moderate voice = $\frac{3}{4}$; tuning fork, C. = a. c., 15".

The hearing power as recently tested, two years after stapedectomy, was as follows: Hearing = L., $H_{\frac{100}{100}}$; whispering voice = $\frac{3}{4}$; moderate voice = $\frac{3}{4}$; tuning fork, C. = a. c., 25". B. C., 28".

The relief afforded in this case for so long a time argues well for the future.

My results in so-called cases of sclerosis have been extremely discouraging, as appeared in last year's report. For in nearly every instance the bone has been found so firmly ankylosed, usually in the neighborhood of the foot-plate, that upon pressure a fracture of the crura has occurred, leaving the foot-plate firmly adherent. In fact, as most of us have seen in one of Professor Politzer's beautiful specimens, the vestibule itself may contain osseous growths.

In the hypertrophic form of inflammation as well as in the suppurative ears which have healed, we find as

¹ Read before the Boston Society for Medical Observation, October 8, 1894.

a rule that adhesions are fibrous and not bony. Here we have a condition better adapted for mobilization or removal of the bone. But in this class of cases again, unfortunately, we have changes in the internal ear which seem to go hand in hand sooner or later with many changes around the foot-plate. As it is impossible in any case to determine beforehand the amount of relief, it seems best from the present experience, as I suggested two years ago, to make an opening in the drum membrane in order to note pathological changes as a guide to surgical interference. By means of this exploratory opening access is furnished for a synchotomy, tenotomy, disarticulation of the incudo-stapedial joint, or removal of the incus itself, and mobilization of the stapes by means of a probe. Many of these operations can be done more successfully under cocaine with the aid which the patient is able to give, but stapedectomy should always be done under ether. If any of these measures give relief the removal of the stapes may not be necessary. In cases of chronic aural vertigo the removal of the pressure on the stapes has been found in many instances to relieve the dizziness. Let me briefly report one case which has stood the test of time.

CASE II. M. R., twenty-four years of age. There had been a chronic progressive disease in the right middle ear for two years. For the last year had been troubled a great deal with attacks of dizziness. The drum membrane was opaque, indrawn and the malleus retracted.

The hearing for the watch was: Hearing = R., H $\frac{18}{180}$; whispering voice = $\frac{1}{28}$; tuning fork, C. = a. c., 10'', B. C., 12''. König's rods, 25,000.

The operation was done under ether; triangular incision. The incudo-stapedial joint could not be seen; but by means of a curved knife the articulation was separated and the tendon of the stapedius divided. With a blunt hook the long process of the incus was brought down as far away from the head of the stapes as possible. It is now over one year and a half since the operation and there has been no return of the vertigo. There was practically no change in the hearing. In order to relieve the pressure in this case, disarticulation of the incudo-stapedial joint was all that was necessary. The stapes can be removed at a later operation if necessary.

In considering the results of a personal experience for the last two years, I can say—

(1) That the best results in hearing have been obtained in cases of early removal of the bone, and that this operation is of little use in cases of otitis media insidiosa (sclerosis).

(2) That cases of chronic aural vertigo have been permanently relieved by liberation of the stapes or by extraction of the bone itself.

(3) That in cases of non-suppurative disease of the middle ear, as well as the class of cases the result of a chronic suppurative process, surgical mobilization should first be tried before an attempt is made to remove the stapes.

(4) That most operations for mobilizing the stapes or freeing the oval window must be looked upon as largely experimental, and that in many cases a fracture of the crura occurs at the time of attempted extraction, leaving the base plate.

The *Southern Medical Review*, Houston, Texas, has published one issue, counted the cost, and is no more.

Clinical Department.

A CASE OF CONCEALED UTERINE HEMORRHAGE.

BY ALBERT H. TUTTLE, M.D., CAMBRIDGE, MASS.

I WAS called in consultation by Dr. Slayter, September 20th, to see a young woman, Mrs. M., a fourpara of about thirty years of age, who had been suffering from a sero-sanguinolent discharge from the vagina, of uterine origin, for over a week, and whose pallor and loss of strength indicated something unusual had taken place. Menstruation occurred last on the 25th of May, and was followed by the usual symptoms of pregnancy.

At the time of examination, about four months from the date of last menstruation, the uterus was symmetrically enlarged and at a level with the umbilicus; with a firmness that indicated a nearly solid body, and of a boggy consistency, resembling that of a mole structure. It was freely movable, not tender to the touch, and transmitted no sounds that could be recognized, either placental or fetal. There was no history of uterine pains of a labor-like character, or any symptom of the onset of labor. Vaginal examination showed a badly-lacerated, swollen cervix, with tight cicatricial constriction of the canal, the latter obviously having much to do with the patient's condition. Ballotement was negative. From the absence of signs of life and the peculiarly solid character of the uterus, the conclusion that the fetus was dead was easily reached, and advice was given to clean out the contents of the womb.

The following day, with the assistance of Drs. Slayter and Lockhart, the patient was etherized, the cervix drawn down with forceps, the canal dilated with Wathens's instrument and the fingers, and the contents of the uterus evacuated; nearly a quart of dark tarry-looking blood, with a four months' fetus, somewhat macerated, and the placenta were removed.

The dilatation of the cervix was effected with considerable difficulty, the former tear being slightly increased by the operation, and was not carried sufficiently to admit of the delivery, *in toto*, of the after-coming head. The head was crushed by a finger passed above it, in the uterus, and extracted by the aid of a strong pair of tenaculum forceps, inserted in the firmer structures of the skull, and gentle traction on the body of the fetus. Relaxation of the uterus followed the third stage of delivery, and was met by the intra-uterine injection of tincture of iodine. An uninterrupted recovery followed.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D.

SURGERY OF THE URETER.

FENGER,¹ at the end of a very valuable and interesting article on this subject, presents the following conclusions:

Catheterization of the ureters from the bladder for purposes of diagnosis of diseases of the kidneys has

¹ *Annals of Surgery*, September, 1894.

given valuable information affecting the decision for or against operation on the kidney. The procedure is reasonably practicable in the female.

In man, catheterization is practicable only through epicystotomy. The danger of this operation is steadily decreasing. Therefore this procedure is justifiable in selected cases.

Catheterization of the ureter from the bladder as a curative measure for the evacuation of hydro- or pyonephrosis has occasionally been performed successfully (Pawlik). It is more difficult and more uncertain than nephrotomy, and the attempt to find and remedy the stenosis of the ureter from the pelvis of the kidney.

Dilatation of strictures of the female ureter by elastic bougies or catheters has been tried from the bladder by Kelly with temporary success, and from the pelvis of the kidney by Alsberg successfully. Consequently this procedure is of use in isolated cases.

Permanent catheterization of the ureter from the bladder, a fistula, or an implanted ureter is often tolerated only for a limited time, and must be employed with caution for fear of causing ureteritis.

Uretero-lithotomy, longitudinal incision over a stone for its removal, is a safe operation by the extra-peritoneal method. The wound heals without stenosis. In extraperitoneal operations suturing is unnecessary. Drainage down to the wound is sufficient.

Intraperitoneal ureterotomy should be done only when access outside of the peritoneal cavity is impossible, and should be completed by careful suturing, covering with a peritoneal or omental flap and drainage.

Opening of the peritoneal cavity to locate the seat of the stone may occasionally be necessary, but when the diagnosis is once made, ureterotomy for the removal of the stone should be done through an extraperitoneal incision, and the abdomen closed.

In valve-formation or stricture of the ureter, causing pyo- or hydro-nephrosis, or a permanent renal fistula, nephrotomy should be followed by exploration of the ureter in its entire course from the kidney to the bladder.

Exploration of the ureter as to its permeability should be done from the renal wound by a long, flexible silver probe—a uterine probe—or an elastic bougie, either olive-pointed or not. If the bougie passes into the bladder, the examination is at an end. The size of bougie that will pass through a healthy ureter is from 9 to 12, French scale.

If the pelvic orifice of the ureter cannot be found from the renal wound, it should be sought for by opening the pelvis, pyelotomy, or by incising the ureter, ureterotomy.

A longitudinal incision, half an inch to an inch long, in the posterior wall of the pelvis, can be made while the kidney is lifted upon and against the twelfth rib. This procedure is easy if the pelvis is dilated, but may be impossible if the pelvis is of normal size.

Operation for valve-formation should be done through the wound in the pelvis. If the opening cannot be seen or found from the pelvis, ureterotomy should be performed immediately below the pelvis, a small incision should be made in the ureter, and a probe passed up into the pelvis. The valve should be split longitudinally, and the incised borders so treated as to prevent re-formation of the valve.

A stricture in the ureter, if not too extensive, can be treated by a plastic operation on the plan of the

Heinecke-Mikulicz operation for stenosis of the pylorus, namely, longitudinal division of the stricture and transverse union of the longitudinal wound. This method of operating for ureteral stricture seems to me preferable to resection of the strictured part of the ureter (Küster's operation) for the following reason: It is a more economical operation and preferable when the elongation of the ureter is not sufficient to permit the two cut ends of the ureter, after excision of the stricture not only to come in contact, but even to permit of closure by invagination without stretching.

Resection of the upper end of the ureter, and implantation of the distal end into the pelvis may be useful in rupture or division or stricture of the upper end of the ureter, as described by Küster.

In a similar case of stricture in the upper end of the ureter, especially if the ureter were not elongated or the kidney movable, I should prefer the plastic operation proposed by me, as it is easier of technique, and as it proved successful in my case of traumatic stricture in the ureter below the pelvic orifice.

The ureter is accessible through an extraperitoneal incision, a continuation of the oblique incision for lumbar nephrotomy, from the twelfth rib down along and one inch anterior to the ilium and along Poupart's ligament to about its middle. This incision gives access to the upper three-fourths of the ureter and down to within two or three inches above the bladder.

The vesical and lower pelvic portions of the ureter may be reached, as Cabot has pointed out, by means of a sacral operation, or Kraske's method modified by osteoplastic, temporary resection of the sacrum. In woman the vesical portion of the ureter is accessible through the vagina.

The vesical orifice of the ureter may be reached from within the bladder by suprapubic cystotomy in man or by dilatation of the urethra, suprapubic, or vaginal cystotomy in woman.

Uretero-uterine fistulas can be treated satisfactorily by plastic closure of the vagina or nephrectomy. Implantation of the ureter into the bladder is, under favorable circumstances, the operation of the future for this condition.

Uretero-vaginal fistulas and congenital urethral or vaginal terminations of the ureter should be treated by vaginal plastic operation for displacement of the proximal end of the ureter into the bladder. If these attempts fail, and the kidney is not infected, extra- or transperitoneal implantation into the bladder should be done, and finally, as a last resort, nephrectomy.

Complete transverse wounds in the continuity of the ureter should be treated uretero-ureterostomy, after Van Hook's method of lateral implantation if possible.

Complete transverse wounds of the upper end of the ureter should be treated by implantation of the ureter into the pelvis of the kidney, as devised by Küster.

Complete transverse wounds of the ureter near the bladder should be treated by implantation into that viscus either by splitting the ureter or by invagination.

Loss of substance of the ureter too extensive to permit of uretero-ureterostomy, or too high up to permit of implantation into the bladder, may be treated by implantation on the skin or into the bowel.

Implantation into the bowel is objectionable on account of the infection which is almost certain to follow sooner or later.

Implantation on the skin in the lumbar region or the

abdominal wall may have to be followed by secondary nephrectomy, which, however, is much less dangerous than the primary operation.

Implantation into the rectum should not be resorted to when implantation into the bladder is possible.

ON THE TREATMENT OF URINARY FISTULÆ BY SUTURE OR RESECTION OF THE URETHRA.

In cases of obstinate urinary fistulæ which do not yield to the usual methods of treatment, Southam² advises resection of a bit of the urethra and suture.

The points of importance to be observed are (1) sterilization of the urine by the external administration of boric acid or salol previous to operation, and bladder washes; (2) the separation of the walls of the urethra fully from the surrounding tissues at the seat of operation; (3) avoidance of the mucous membrane in suturing; (4) in closing the external wound pass the sutures deeply to include all the tissues down to the urethra; (5) to leave a catheter in the bladder, or to catheterize at regular intervals, and use bladder washes.

ANOTHER CASE OF PROSTATIC HYPERTROPHY SUCCESSFULLY TREATED BY CASTRATION.³

The patient was seventy years old, with prostatic hypertrophy and severe chronic cystitis. The prostate was as large as a man's fist. Frequent and painful urination, fever, loss of appetite, and sleeplessness, were present. Palliative treatment had but little influence. There were about 150 c. cm. of residual urine. Castration was performed, and the wound healed by first intention. Eight days later there was a perceptible decrease in the size of the prostate. At the end of fifteen days it had diminished one-third in size. In a little over two months it was of normal size. A few days after the operation urination became less frequent and painful. The bladder was washed out with antiseptic fluids, and at the end of three weeks the urine became normal. There was very marked atony of the bladder, which remained unchanged for fourteen days, after which the expulsive power of the bladder began to increase; and at the end of two months the patient, free from all bladder symptoms, could empty the bladder entirely without the use of a catheter.

SUPRAPUBIC PROSTATECTOMY.

A. W. Mayo Robinson,⁴ of Leeds, reports a series of twelve cases in which he has performed suprapubic prostatectomy during the interval including December, 1887, and January, 1894. The ages of the patients ranged from sixty-one to seventy-three years, three of them being of the latter age. Only one death was attributable to the operation. In this case the fatality was due to suppuration between the bladder and rectum caused by overdistention of the rectum by the colpeurynter. One patient died from senile asthenia some weeks after the operation, having fully recovered from it and having regained the power of voluntary urination by the urethra. The remaining ten were all restored to health, with natural powers of micturition.

The author recommends the following technique: Besides aseptizing the skin by a previous carbolic dressing, and washing out the bladder with boracic

lotion, he gives the patient five to ten grains of boracic acid and a little saccharine thrice daily for a few days before operation, so as to render the urine aseptic if possible. The rectal bag, by raising the prostate nearer to the manipulating finger, is of advantage; but it is important not to overdistend it, lest rupture of the rectum or inflammation of the meso-rectum ensue, for which reason he only has four or, at most, six ounces of water introduced. The bladder is distended with boracic lotion until it can be felt above the pubes, no fixed quantity being employed. In two of his cases the peritoneum was in touch with the pubes, and in one case it was so fixed to it that he had to deliberately open the serous membrane to reach the bladder, after which he carefully separated it and closed the peritoneal opening before incising the bladder, the patient being no worse for the complication.

In removing the obstruction he has found McGill's scissors or the cutting-ring forceps invented by Jessop to answer best for the sessile or peduncled enlargement of the middle lobe; and for the ring-like obstruction he has used the scissors, first at one side and then at the other, so as to cut out a V-shaped portion, making a clear channel from the vesical pouch straight into the urethra, down which the finger is passed to see that the passage is clear. If the lateral lobes are much enlarged, the finger can be insinuated within the capsule and the adnoid masses can be enucleated with very little difficulty. Lastly, all loose pieces of tissue are cut away, and the parts are left as smooth as possible. In order to disturb as little as possible the cellular surroundings of the bladder, the edges of the vesical opening are fixed temporarily to the margin of the wound by a suture on each side before any intra-vesical manipulations are commenced.

Suprapubic drainage was efficient in all cases, and it was not necessary to drain through the perineum. In the after-treatment boracic acid was given thrice daily, and the bladder was washed out once or twice daily by syringing a solution of boracic acid through from the urethra to the drainage opening. The drainage-tube was removed, if possible, on the third day, and the patient allowed to sit up within a few days of the operation. As a rule, recovery was attended with very little general disturbance or discomfort, and the urine began to be passed by the urethra soon after the patient was allowed to sit up.

He considers that the operation of suprapubic prostatectomy in properly selected cases is one attended with less danger than is usually thought, and that if thoroughly and completely performed it is capable of affording such relief as may be in many instances genuinely termed a cure, and that in a class of cases which until a few years ago were looked upon as incurable.

CASES OF EXCISION OF CONSIDERABLE PORTIONS OF THE URINARY BLADDER.

Dr. R. F. Wier,⁵ of New York, relates three cases in which he has removed considerable portions of the urinary bladder for the extirpation of neoplasms of its wall. In the first case, a man fifty-nine years of age, the cystoscope had revealed a tumor on the posterior wall. The rectum was distended by a colpeurynter and suprapubic section was done, the patient being in the Trendelenberg position. A single tumor,

² Lancet, July 7, 1894.

³ Mayer and Heinel: Centralblatt für die Krank der Harn und Sexual-Organ, August 23, 1894.

⁴ British Medical Journal, July 14, 1894; Annals of Surgery, November, 1894.

⁵ Medical Recorder, August 11, 1894; Annals of Surgery, November, 1894.

the size of a distal phalanx of the thumb, was found on the upper part of the posterior wall, somewhat to the right of the median line. To effectually get beyond it, the peritoneum was stripped off from the summit and the posterior surface for a space reaching from one seminal vesicle to the other and down nearly to the prostate. In so doing, at one point a rent was made in the peritoneum, which was at once sewn up with silk sutures and caused no after inconvenience. A triangular portion of the posterior wall of the bladder, about two and a half inches on each of its sides, including the tumor, but going widely from its base, was finally removed. Proper suture of the lower angle of this incision was found impracticable, and so no attempt to close any portion of it was made, but the space between the bladder and the peritoneum was packed with iodoform gauze, and the bladder itself was filled with iodoform gauze packed around a rubber catheter passed to the bottom of the organ. The patient did well. His wound had very nearly closed, when he was attacked by erysipelas, which, after four days, terminated in death, seven weeks after the operation. At the autopsy it was seen that the suprapubic wound had very nearly healed, the gap in the posterior wall of the bladder had closed over by a smooth cicatricial surface.

The second case, a man, fifty-five years of age, was the subject of a carcinoma of the summit of the bladder, which also involved the overlying soft parts in the suprapubic region, presenting superficially above the pubis as a tumor of the skin about the size of an English walnut, with an indurated area surrounding its base about two inches in diameter. The cystoscope revealed a tumor projecting into the bladder on its postero-superior wall. Enlarged superficial inguinal glands existed on both sides. The external growth was circumscribed by incision, and separated from the surrounding soft tissues down to its attachment to the bladder. The peritoneum was then peeled off by a blunt dissector from the posterior wall of the bladder down to the prostate, and on each side as far as the seminal vesicles. This whole exposed portion of the bladder was then excised, including a papillomatous growth in its centre, as well as the growth rising out from the summit of the bladder, the section through the bladder walls passing at least from one-half to three-quarters of an inch beyond the growth in all directions. The bladder was sewn up without difficulty from the bottom with interrupted catgut sutures, passed through all its coats; in one or two places on its summit these were reinforced by silkworm-gut sutures, only through the muscular coat. A small opening was left towards the pubis, through which a double rubber drain-tube was inserted. The wound in the abdominal wall was packed with iodoform gauze. The patient did well after the operation, leaving the hospital eight weeks later, all healed, holding his water from three to four hours. The capacity of the bladder was from four to five ounces. Two weeks after the operation on the bladder, the glands in each groin were also extirpated.

BOVINE TUBERCULOSIS IN NEW YORK STATE.
—The New York State Board of Health devotes an entire volume of its fourteenth Annual Report to a review of the work done by the State with reference to bovine tuberculosis.

New Instruments.

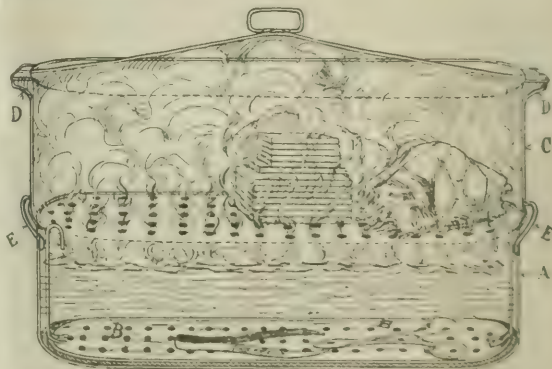
FISH-BOILER PORTABLE STERILIZER.

BY W. L. BURRAGE, M.D., BOSTON.

A STERILIZER of moderate price, that is not too large or too heavy to be easily carried about, that is capable of boiling instruments in soda solution, and at the same time steaming enough towels and dressings for any ordinary surgical operation is shown in the accompanying cut.

Many of the sterilizers on the market are complicated, bulky and expensive. Most of them will steam instruments; but few, if any, have conveniences for boiling them in soda solution. Perhaps it is unnecessary to state that the advantages of boiling instruments in soda, the method in use in the Syms Operating Theatre, Roosevelt Hospital, and in many of the leading hospitals, are, first, that the instruments are not rusted, and the edges of the knives and scissors are not spoiled; and, second, that while the sterilization is perfect, the process occupies from five to ten minutes only.

The house dishpan used by some operators, is not clean, and does not well hold long instruments; and, besides, the soda discolours the tin, to say nothing of the annoyance of pouring out the water and handling the instruments when hot.



There is nothing especially original about the sterilizer I describe. I was on the point of having one made a year or so ago, when on mentioning it to a friend, he said that he himself was having one made on the same plan. His has given perfect satisfaction, and so has mine. I offer it to the profession, hoping that it may prove of value to others. When ready for use, the sterilizer consists of the granite-ware kettle (A), eighteen inches long, seven inches wide, and five and a quarter inches high, in which is the tray (B), with a handle at either end. The granite-ware cannot be corroded by the soda solution, and is, therefore, superior to tin. The kettle will hold any reasonable number of instruments. The remaining portion of the sterilizer is the steamer (C), which is nineteen inches long, eight inches wide, and seven inches high, and fits the top of the boiler. It is like any covered vegetable-steamer used in the kitchen, except that it has a small projection at either end (D) to hold the handles (E) of the boiler (A) when it is packed inside of steamer (C) for transportation.

The boiler may be bought of any kitchen-furnishing dealer, and any tinsmith can make the steamer. The weight of the sterilizer is about eight pounds, depend-

ing on the quality of the tin. It may be carried in a common canvas extension-case, such as may be bought at any trunk store. In length it just fits into the twenty-two inch size. In width, it is several inches narrower. The space between the case and the apparatus may be utilized for gauze, extra instruments, etc.

To operate, first remove the tray and fill the kettle half-full of water and put it on the stove. Place the towels, sponges, ligatures, and dressings in the steamer and put it on the boiler. After the water has boiled half or three-quarters of an hour, and ten minutes before the contents of the sterilizer will be needed, remove the steamer and put a small half-cupful of washing-soda crystals in the water of the kettle, and lower into it the tray on which the instruments have been previously placed.

Just before the patient is brought in the steamer is carried to the operating-table and the cover taken off by an assistant. At the same time the instruments are removed by the operator, who lifts up the now sterile handles of the tray and sets it on a sterilized towel, or in a pan of boiled water. Thus the instruments are ready for use without unnecessary handling.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL OBSERVATION.

J. G. MUMFORD, M.D., SECRETARY.

MEETING of October 8, 1894.

DR. WILLIAM C. HOLYOKE read a paper entitled,

SOME CASES OF SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS.¹

DR. FREDERICK L. JACK read

REMARKS ON STAPEDECTOMY.²

DR. G. A. LELAND said: The paper which has just been read bears a more than passing interest, since it has to do with an operation which is comparatively new in the annals of otological surgery, and may be regarded as a venture into a new field. Whether the operation will make for itself a permanent place in surgical procedures I suppose is a question that is not yet satisfactorily settled. We hear reports of cases in which it has been of great benefit; we also hear of cases where it has been of no benefit, or even where it has made the patient more or less worse, and, therefore, it must stand or fall according to whether it is able to produce more good or evil. It is, however, an attempt to do something for a considerable class of patients who have heretofore been condemned to a life of deafness unless perchance some accident should happen to relieve them, as has been the case in rare instances. Here in Boston we have occasion to be proud of this operation also, because it has been brought before the profession of the whole world in a definite, forcible way by one of our own number, namely, the reader of the paper, Dr. Jack. Others have perhaps thought of it before, and perhaps some others have attempted it, while still others have doubtless stumbled upon it in an accidental sort of way; but since these have not considered it of sufficient importance at the time to

pursue the investigation further or to advocate it before the profession, that it might be tried, we must all agree that to Dr. Jack belongs all the credit of the initiation and promulgation of the operation.

As we have seen, it is an operation which is done among, perhaps, the most delicate structures of the human body outside of the brain cavity; and since the parts are so small it might rank in delicacy even with the operations upon the brain itself. It is also being performed in regions accessible with difficulty where the nature of the lesion it is often impossible to predict, and where the diagnosis always requires the careful consideration of the finest of fine points. Hence it is to be hoped that the operation, if it does nothing more startling will, at least, as Dr. Jack has said on a previous occasion, lead to finer and more accurate diagnoses where the study of pathological conditions because of the lamentable dearth of anatomical material must necessitate long and tedious observation.

At the risk of being presumptuous, I might venture to utter a caution here, lest too much weight be given to favorable cases already operated upon, which, as the reader has said, have not extended back more than two years. Diseases of the ear are so insidious, cicatricial processes are so slow in their proliferation and in their ultimate hardening down, that it may not be improbable that the hearing may again be shut out, especially in cases where a previous suppurative process has obtained.

It is also probably true that only those cases should be operated upon which have been proved irremediable by every other means. This procedure should be the last resort, since it is evident that where the ossicular chain has been broken and the essential bone removed, no hope can be entertained from any further treatment by any means at present known. And this leads me still further to opine, that those ears should not be operated upon in which there is left a serviceable amount of hearing, since we are not yet sure enough of results to predict success; and even the small but exceedingly precious amount of residual hearing which may be only sufficient to keep a patient from a life of silence, should not be risked unless we are sure to be able to confer a benefit. Witness Dr. Blake's report of twenty-two cases in which a notable decrease of hearing followed extraction of the stapes. And this brings us back to what was said in the beginning, that if the operation after it has been perfected shall show that it injures more than it benefits, it will fall into disuse and merit only a place, albeit a useful one, in history.

Recent Literature.

Operative Surgery. By Th. Kocher, M.D., Professor at the University and Director of the Surgical Clinic at the Berne University. 8vo, 288 pages, 163 illustrations, extra muslin. Wm. Wood & Co. 1894.

This is intended to be a book with which an operator may rapidly review operative technique. The descriptions are of operations which its author has thoroughly tested and found most efficient. His well-known skill and reputation as a surgeon are recommendations which should satisfy all. The book is what it claims to be, and is well written. The arrangement of the subject is excellent; the illustrations

¹ See 32 page of the Journal.

² See 34 page of the Journal.

well chosen; the description of operative detail clear, concise and correct. The article on "the selection of the direction of the incision" is a new feature in this class of text-book, and contains some valuable information. The list of operations described is unusual. The writer depends largely upon his plates as aids to his descriptions of anatomical detail. His style is one so intensely practical that only the important facts are presented. This makes the book best suited to the requirements of those having advanced knowledge and considerable experience in surgical work. It discusses much atypical work and could be used to advantage by a student chiefly as a supplement to the customary text-books which describe typical and routine methods. As such it is very valuable.

The work of the publisher is especially satisfactory as to paper, type, illustrations and convenient form.

The Principles of Bacteriology. A practical manual for students and physicians by A. C. ABBOTT, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania. Philadelphia: Lea Brothers & Co. 1894.

While this book is more especially designed for the use of those who desire to obtain a first-hand knowledge of bacteria by practical work in the laboratory, yet the needs of others who wish only a theoretical acquaintance with the principles of bacteriology have also been borne in mind by the author. All the important methods of bacteriological investigations are clearly described, the difficulties of the beginner being carefully anticipated.

An especially valuable feature of the work is that it presents most of the time-saving and simplifying improvements on the original German technique which American bacteriologists have contributed to the science. We regret to note, however, that the rapid and thoroughly satisfactory method of preparing blood-serum culture tubes, which has been in use in Boston and elsewhere for some time, has not been given a place. The great and growing importance of cultures in the diagnosis of diphtheria in now everywhere appreciated, and the large quantities of this rapidly prepared culture media now used proves its utility, so that a full description of the method of its preparation is eminently desirable in a work of this kind.

The book is now in its second edition, and bids fair to hold its deserved success. It has been considerably enlarged and greatly improved by the insertion of additional chapters and original drawings.

A Primer of Psychology and Mental Diseases. By C. H. BURR, M.D., Medical Superintendent of the Eastern Michigan Asylum, etc. Pp. 104. Detroit, Mich.: George S. Davis. 1894.

This little manual is designed for the instruction of asylum nurses, and is well adapted for that purpose. If chapters on psychology and the different forms of insanity are indispensable for thorough instruction in nursing in cases of mental disease, they could hardly be clearer or more condensed than those which comprise three-quarters of this book.

The practical part, however, is the chapter on the management of cases of insanity. It finds place in the remaining quarter of the volume and to our mind might well have been amplified at the expense of the preceding chapters, with advantage to nurses and attendants; as it is full of useful suggestions and sound advice.

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BRIGHT'S DISEASE OF A PRIMARILY INFECTIOUS NATURE.

AMONG the acquisitions to medical knowledge of the last fifteen years is the demonstration of the unity of Bright's disease. Although the terms "interstitial nephritis," "parenchymatous nephritis," are still necessary in the interest of precision, they do not represent two fundamentally different pathological processes, but only modalities of one, affecting both the connective-tissue stroma and the secretory substance — sometimes one, sometimes the other, predominantly — but always with marked tendency to produce the fibroid, contracted kidney as the ultimate phase.

Gaucher has described a nephritis caused by incomplete oxidation of azotized extractives, and Da Costa has demonstrated an albuminuria in which uric acid (or uric with oxalic) seems to be the causal agent.

The old and prevalent notion, so forcibly stated by Christison and Rayer, that alcoholism is the most common cause of chronic nephritis with albuminuria (three-fourths or four-fifths of all cases, according to Christison) has not been confirmed by more recent investigations; and, if we may trust the Report of the British Investigating Committee upon Alcoholism, we must believe that "there is little connection between chronic Bright's disease and alcoholism." Other observers do not agree with so sweeping a statement; but no one disputes the agency of lead-poisoning in producing fibroid and atrophic changes of a grave and irremediable nature. The action of cold, and especially of damp cold, in engendering nephritis is contested by no one; at the same time, it is now agreed that fewer cases of both acute and chronic Bright's disease are due to this cause than were once supposed. Lecorché and Talamon even affirm that chronic nephritis due to cold alone is a rarity.¹

The *modus operandi* of nephritic disease caused by autointoxication — by poisons introduced into the economy with food, or formed in the alimentary canal by morbid fermentations, or even fabricated by the cells

¹ Traité de l'albuminurie, etc., p. 443.

of the organism (*leucomaines*) — has been well elucidated by Bouchard and others. The kidney is the principal channel of elimination, and is itself often morbidly impressed by these agents and becomes inflamed.

The predominant rôle of infectious agents in the etiology of Bright's disease (especially of the acute form) has been within a few years brought to light. All are agreed as to the secondary infections of the kidney. The kidney becomes inflamed by the passage through it of the microbes of scarlatina, pneumonia, typhoid fever, or some other infectious disease from which the organism is suffering, or by the toxic products of microbic activity. This has been well shown by Maragliano² in relation to nephritis in cases of acute pneumonia; by Weinbaum³ concerning the lesions of puerperal nephritis; by Openheim in reference to acute nephritis after varicella;⁴ by Ashby and Hilton-Thompson and others, in connection with acute nephritis following diphtheria;⁵ by Kompe⁶ in reference to nephritis accompanying typhoid fever; and by numerous other observers in relation to the above and other infectious diseases (especially scarlatina) with sequent or complicating nephritic inflammations. The microbes of many of these infectious maladies have been detected in properly stained sections of the kidney. Thus, the pneumonia-diplococcus has been found in sections of the inflamed kidney by Neuwerk, Bozzolo, Weichselbaum, and Netter; Netter has found it in the urine. Faulhaber⁷ has found the typhoid bacillus in stained sections in four cases of nephritis following typhoid fever, and the streptococcus of erysipelas has been observed by numerous bacteriologists in sections of inflamed kidney complicating that disease.

In this connection, it is interesting to note the painstaking researches of Mannaberg upon the relation of acute nephritis and the streptococci found in experimentally induced bacterial endocarditis. In eleven cases of acute Bright's disease in man the urine was found to contain streptococci; he cultivated the streptococcus, and inoculated dogs and puppies, producing an intense renal inflammation, and in the puppies an ulcerative endocarditis as well.⁸ The cocci do not appear to select the kidneys as a special culture field, but in passing out through this emunctory, they inflame the glomeruli and tubes. Mannaberg looks upon these micro-organisms as the special pathogenic cause of the cases of acute Bright's disease which he reports, and states that cases belonging to this category appear to generally run a brief but quite severe course, very often terminating favorably. He remarks that the older views as to the origin of Bright's disease from exposure to cold and dampness are constantly being more and more restricted, and there are constantly being added factors of causation which have previously scarcely been conjectured.

All this is a natural outcome of the increase of our knowledge of the relation of animal tissues and functions to micro-organisms.

That there is a primary acute bacillary nephritis is also in accordance with the researches of Letzerich,⁹ who has observed a number of cases of renal inflammation due to a characteristic bacillus from cultures of which he has been able to reproduce the nephritis in rabbits. But to Bamberger belongs the credit of first calling attention to this primarily infectious form, which has since been studied by Aufrecht, Litten, Babes and Perret, lastly by Fiessinger. The individuals are struck down in apparent health, and present from the onset symptoms of gastro-intestinal disorder, with fever, which is sometimes intense. The liver and spleen are enlarged; the principal nervous symptoms are headache, restlessness, delirium, modification of the pupils, prostration.¹⁰ In two patients Litten observed stiffness and contracture of the nucha. The skin may become the seat of various exanthems, and there are often ecchymoses and hemorrhages. The urine is scanty and loaded with albumin. The infiltration of the integument is constant; the anasarca is generally, though far from invariably, limited to the lower extremities. The cases recorded by Babes and Perret, like those of Litten and Fiessinger, were not very grave ones; those which proved fatal terminating in four to six days of "convulsive or comatose uremia."

Fiessinger¹¹ has made many interesting observations on this form of Bright's disease. His first case gave the signal of invasion to an epidemic of acute Bright's disease in a canton of Yonnax, in which fourteen persons in a village of five hundred came down with this disease. Only one died; the others got well in a period of time varying between six days and three weeks after having presented the ordinary symptoms of the malady in question. Eighteen months afterwards he witnessed another epidemic of acute Bright's disease in another locality, where, after a few benign cases, the disease broke out in a very virulent form. He believes in the contagiousness of the malady. In one family, a young girl was taken sick with the disease, and in less than a week her brother who had been much with her came down with symptoms of a severe character; angina, puffiness of the face, albuminuria, suppurative parotitis were incidents of the infection. Three weeks afterwards a young girl occupying the adjoining room became affected in a similar manner.

Fiessinger further relates a number of similar incidents which, he thinks, point to contagious transmission. The mother of a family was taken sick with acute Bright's disease. A daughter who had been away, came home during the mother's sickness, and fifteen days after became nephritic, with anasarca, vomiting and albuminuria. A middle-aged man occupying the same house, was taken down with Bright's

² *Riforma Medica*, Naples, October 3, 1889.

³ *Zeit. f. Klin. Med.*, October, 1887.

⁴ *Berlin Klin. Woch.*, December 26, 1887.

⁵ *British Medical Journal*, April 20, 1893.

⁶ *Münch. Med. Woch.*, March 24, 1890.

⁷ *Traité de Méd.*, t. v., p. 666.

⁸ Quoted from Sajous' *Annual*, 1892, vol. 1, L. 2.

⁹ *Loc. cit.*

¹⁰ *Semaine Médicale*, May 12, 1894.

¹¹ *Loc. cit.*, 1894, p. 221.

disease of hemorrhagic type, with anuria, extreme oppression, cephalalgia. Six months later his little girl contracted the same disease. These facts seem to point to something more than mere coincidence. Fernet relates similar cases;¹² Lecorché and Talamon record ten observations where the disease attacked simultaneously or successively several members of the same family, living together.¹³

Fernet thinks that primary infectious nephritis is seldom chronic. The nature of the germ is still unknown. Cultures of the blood have always remained sterile. Fiessinger made careful cultures of the urine in a typical case. He obtained colonies of the *staphylococcus albus*.

Mircoli has observed fourteen cases of primitive microbic nephritis in children, aged from three to ten years. All died. The autopsy disclosed in the vessels of the cortical substance and in the pyramids, masses of elongated corpuscles surrounded by a whitish capsule, arranged two by two or in series of six. It will be remembered that Mannaberg found only the streptococcus. Babes, in the urine of a patient believed to be affected with this disease, found numerous stubbed rods with rounded ends; the vessels of the kidneys contained similar rods; and there was cloudy swelling of the epithelium. These data are very uncertain. Every experimenter describes a different microbe.

Fiessinger, impressed by this fact, affirms that the clinical teachings are clearer than the bacteriological. "In one case we witness a suppurative parotitis after contagion in a nephritic patient; we note elsewhere cases of acute Bright's disease with hematuria, in the same ward with patients suffering from streptococcus-erysipelas and parais. These facts, added to the observations of Mannaberg who cultivated the streptococcus found in the urine of eleven nephritic patients (vide supra), warrant the belief that at least in certain epidemics of acute Bright's disease the streptococcus is the pathogenic agent. I do not pretend that this hypothesis covers all the facts, and I deem it probable that there are various micro-organisms competent to produce this affection, just as ulcerative endocarditis, infectious angina, etc., may have a multiple microbic origin."

He reports, in all, thirty-four cases, with the following results: Recovery in less than a month, 28; recovery in two months, 2; acute, terminating in chronic disease, 2; deaths, 2. In several of these cases the infection was so attenuated—manifesting itself only by puffiness of the face and a little albumin in the urine—that a few days of the milk-diet treatment were followed by complete recovery. As diagnostic criteria, he insists on the character of epidemicity, and the, generally, short duration and mildness of the infectious nephritis. That some forms are very grave need not be repeated; these are classed under the head of hyperacute primary bacterial nephritis.

¹² *Mal de Bright d'origine infectieuse, Semaine Médicale*, 1888, p. 310.

¹³ Cited by Fiessinger.

SUCCESSFUL LAPAROTOMIES FOR PERFORATING TYPHOID AND PERFORATING GASTRIC ULCERS.

ABOUT three years ago Dr. Van Hook, of Chicago, reported¹ a successful case of laparotomy for intestinal perforation in typhoid fever, upon which there was editorial comment in the *JOURNAL*, November 26, 1891. Since then, in 1894, Netschagaw, of St. Petersburg, has reported a successful case of resection of bowel after perforating typhoid ulcer; and to-day we are glad to note another successful case reported² by Dr. Robert Abbe, of New York.

In van Hook's case the operation was performed nine hours and a half after the occurrence of the perforation; in Abbe's case the operation was performed nearly three days after the perforation. Abbe's case was apparently in all respects a much less favorable one for surgical interference, to judge from his statement of the conditions.

"The patient was in too low a state to be removed to a hospital, so the most complete arrangements possible were made to do a thorough operation at the house. A median incision below the navel exposed distended coils of deeply congested and greatly inflamed intestine, smeared with sticky lymph. The pelvis and lower abdomen were filled with a collection of foul, purulent, and fetid intestinal extravasation. This was feebly confined by matted coils of intestines, loosely glued together, that broke apart on being touched, but which, being recognized, enabled me to introduce clean laparotomy sponges under the upper abdominal wall, where a few coils were seen which showed more recent inflammation. Two pints of foul, purulent fluid and thick lymph were cleaned out, and the abdomen irrigated with warm and weak sublimate solution, 1 to 20,000, followed by plain warm-water irrigation.

"Search now revealed the cause. The lower part of the ileum showed many thick oval patches in its wall—their long axes parallel to that of the gut, and easily identified by touch as the gut was passed through the fingers, and shown also by increased subperitoneal hyperemia. One such inflamed Peyer's patch showed a gangrenous perforation a quarter of an inch in diameter, from which intestinal contents were seen to pump out. This was promptly closed by interrupted silk sutures, over which two layers of Halsted mattress stitches were placed, these being found to be the only suture that would hold in the tender and inflamed intestinal coat. A large abdominal tamponade of iodoform gauze was placed within the abdomen and pelvis, and no attempt made to close the wound. A hot black coffee and whiskey enema assisted greatly in preventing shock; the patient was put back to bed in three-quarters of an hour from the beginning of etherization.

"She passed a good night, and had a stronger pulse next morning. Pulse, 132; temperature, 102.5° F.; tympanites less. At the end of forty-eight hours after operation, as she was in good condition, except for tympanites, I removed the tamponade, reapplied a loose one, and gave five grains of calomel. This produced numerous loose movements and she felt much better. Temperature, 101.5° F.; pulse, 120. A little fluid feces leaked from the wound after the calomel action, showing that the perforation had slightly opened. This continued for two weeks, when it ceased, and the abdominal wound pursued the usual course, closing in rapidly

¹ *Medical News*, November 21, 1891, p. 591.

² *Medical Record*, January 5, 1895, p. 1.

by granulations, and has left a narrow and firm scar. After the third day her appetite improved and a rapid convalescence ensued."

Three years ago twelve laparotomies for undoubted intestinal perforation in typhoid fever had been reported, with one recovery (van Hook's case). Abbe adds five (including his own and Netschagaw's) to this list, with two recoveries. All five of these cases occurred in 1894. The statistics at present stand, seventeen cases with three recoveries. Probably some fatal cases have never been reported.

Dr. Newton, of Chicago, has reported one case, where operation was refused, but in which an abscess of the pelvis was opened in the perineum a fortnight after the occurrence of the symptoms, and the patient recovered.

In the same issue of the *Medical Record* containing Dr. Abbe's case, Dr. A. V. Atherton, of Toronto, reports three cases of perforation of the stomach from ulcer. In one of these there was spontaneous recovery, and death three years later, apparently from a second perforation; in another case an operation was done followed by recovery. In this case the operation was done about fifteen hours after the occurrence of perforation. The statistics of operation in cases of perforation of the stomach by ulcer were given in the *JOURNAL*, November 15, 1894, p. 495, though two unsuccessful cases—one by Weir, of New York, and one by Mouisset, of Lyons—were omitted. The importance of early operation, within the first fifteen hours, was then emphasized, and this Dr. Atherton reiterates in reviewing his cases.

Dr. Abbe justly says that perforation, in whatever part of the gastro-intestinal tract it may occur, is still perforation. He does not see why there should be one procedure for appendicitis and another for typhoid fever, and he thinks operative treatment for the treatment of typhoid perforation will be popularized and perfected, as it has been for appendiceal perforation. The chief discouragements hitherto to a greater readiness to insist upon operation have been the low condition of typhoid patients and the unfavorable condition of the intestinal wall. Experience, however, begins to teach that to modern surgery these are not insuperable obstacles; though we still fear that a degenerated heart muscle, accompanying collapse, and the condition of the gut wall will militate against a large percentage of successful cases. The strongest argument in favor of interference under such circumstances must continue to be the fatality of non-interference. Early operation after waiting for recovery from the first collapse and an open abdominal wound are generally advised.

MEDICAL NOTES.

POSTPONEMENT OF THE DERMATOLOGICAL CONGRESS.—Dr. Geo. T. Jackson informs us that the Third International Dermatological Congress will not be held this year, as proposed. It is possible that it may not be held until 1897.

HONORS TO DR. ROUX.—Dr. Pierre Paul Emil Roux has been promoted to the ranks of Commander in the Legion of Honor, for "Exceptional services rendered to science and humanity."

INFLUENZA IN THE CHANNEL SQUADRON.—According to the *Medical Press* an outbreak of influenza has occurred in the British Channel Squadron. The two warships mainly infected are the *Royal Sovereign* and *Endymion*, upon board of which about ninety cases are at present under treatment. In consequence of the outbreak the squadron was to spend Christmas at Gibraltar.

THE TRANSMISSION OF CHOLERA BY FLIES.—Dr. McCrae thinks that in the epidemic of cholera which took place last year in Gaya Jail, in India, the contagion took place through the agency of flies. Positive proofs of the transfer of the bacilli by flies in this epidemic have not yet been obtained, but the experiments of Haffkine are suggestive. Jars of sterilized milk were left exposed to the air, and consequently to the flies, which were numerous in the jail; within a short time Haffkine was able to demonstrate the presence of comma bacilli in the milk. As fully explained in an editorial in the *JOURNAL* for February 16, 1894, the possibility of the transmission of cholera by flies has been proved, and their agency in the spread of the New York cholera epidemic was shown to be probable.

THE RELATIONS OF ANTITOXIN TO THE COMPLICATIONS OF DIPHTHERIA.—In No. 51 of the *Deutsche Med. Wochenschrift*, Treymann describes a case of acute hemorrhagic nephritis occurring in a case of diphtheria treated by Behring's antitoxin. The attack, which occurred after an injection given on account of a slight recrudescence of the disease after the worst was over, leads Treymann to conclude, that inasmuch as ordinarily the nephritis of diphtheria occurs at the height of the disease, this attack must have been due to the antitoxin treatment. In order to disarm the unjust criticism which would with certainty be made of the treatment on account of this case, Schwalbe publishes in the same journal an account of an acute hemorrhagic nephritis occurring (also during convalescence) in a case of diphtheria not treated by antitoxin. He (Schwalbe) remarks that in the nephritis of diphtheria, in contradistinction to that of scarlet fever, blood is seldom present in the urine, a fact which would be almost certain to result in a hemorrhagic nephritis being ascribed to the new remedy. He, therefore, very justly concludes that he ought to publish his case in which the disease occurred independently of serum treatment!

A FATAL CASE OF POISONING BY QUASSIA.—Ferdinand Venn, M.D., of Chicago, in a letter to Dr. H. C. Wood published in the *University Medical Magazine* for this month, reports a case of fatal poisoning from a decoction of two ounces of quassia injected into the rectum of a child for the treatment of seat worms. The rectum was not perforated by the

nozzle of the syringe. According to Dr. Wood, this is the only case on record of poisoning by this drug, although the experiments of Hoppe have shown that the active principle is a poison in frogs, especially affecting the nerve trunks and muscles. Fifteen milligrammes of it have caused disagreeable symptoms in man, among them being evidences of toxic gastro-enteritis.

KOCHER'S METHOD FOR THE REDUCTION OF OLD DISLOCATIONS OF THE HUMERUS.—Morton, in the *Philadelphia Polyclinic*, December 15, 1894, reports three cases in which the attempt to reduce subcoracoid dislocations of the humerus of long standing by Kocher's method has resulted in fracture of the surgical neck. He therefore concludes that by this method special strain is brought upon the surgical neck of the bone, and that while it is the method of election in fresh cases, in cases of long standing other methods should be given preference.

SUCCESSFUL OPERATIONS FOR DOUBLE ANEURISM.—Quenu presented at the Academy of Medicine in Paris, on November 4, 1894, a patient thirty-six years old, upon whom he had successfully performed extirpation of an aneurism of the right external iliac artery on December 5, 1893. The aneurism occupied the whole right iliac fossa, and was as large as the head of a child at term. Sixteen days later an aneurism of the left femoral artery in the inguinal region was extirpated in the same patient. Recovery was uneventful, and at the time the patient was shown, he had been for a month following his occupation, as a clown at the Nouveau Cirque.

A REORGANIZED "SCIENCE."—The weekly journal, *Science*, is to be published the present year under the direction of an editorial committee in which each of the sciences is represented by a man of science who is at the head of his department. Among the members of the committee are Prof. H. P. Bowditch of Harvard University (physiology), and Dr. J. S. Billings of Washington (hygiene).

BOSTON AND NEW ENGLAND.

SUPPORT FOR THE INDEX MEDICUS.—The Boston Society for Medical Improvement, at its annual meeting January 7th, appropriated a certain sum from its reserve funds for the support of the *Index Medicus*, on condition that similar steps should be taken by other societies and institutions in Boston and other cities, which are or ought to be interested in securing the continued publication of this valuable periodical.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, January 9, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 97, scarlet fever 52, measles 71, typhoid fever 6.

BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL.—Under the will of the late Henry Saltonstall, the Massachusetts General Hospital re-

ceives, at the death of his widow, \$10,000, and a further sum, in common with Harvard College and the Institute of Technology from the residue of the estate.

THE FREE HOSPITAL FOR WOMEN.—The new Free Hospital for Women on Cumberland Road, Brookline, was dedicated on January 1st, and opened for the reception of patients on the following day. The new, commodious and thoroughly equipped building forms a marked contrast to the inconvenient and contracted quarters on East Springfield Street, where the excellent work of the institution has been carried on for nineteen years.

THE NORTHAMPTON LUNATIC HOSPITAL.—The thirty-ninth annual report of the trustees of this institution shows that during the year ending September 30, 1894, 652 cases were treated. The daily average of patients in the house was 494.11. Thirty cases were discharged as recovered, 14 much improved, 28 as improved, 36 as not improved. The report states that the number of acute cases increases each year, and with this increase comes increased work in caring for them, and the necessity for more attendants. A new dormitory has been completed during the year, an excellent system of ventilation installed, and various other improvements made, including heating apparatus, elevators, apparatus for the laundry, etc. The trustees express "their satisfaction with the superintendent and his assistants for their faithful and efficient service in the care of the patients and the successful management of the institution."

CLOSE OF THE INVESTIGATION OF BOSTON PUBLIC INSTITUTIONS.—The readers of the *JOURNAL* have without doubt followed the accounts of the investigation of the Boston Public Institutions, which has been dragging its slow length along throughout the summer and autumn, in the daily papers. The close of the investigation will be hailed with relief. The report of the majority of the committee on the care and management of public institutions was accepted by the Board of Aldermen by a vote of eleven to one, the one dissenting vote being cast by the framer of the minority report. In the main the majority report inclined to ascribe the evils which had been brought out in the course of the investigation to the system of management, and not to those in charge of the various institutions, and advocated changes in the system, rather than in the *personnel* of the management. The minority report, on the other hand, recommends an entire change in the make-up of the Board of Commissioners of Public Institutions, as well as the removal of the entire force which is at present in charge of the institutions down the harbor. It is noteworthy that the abuses brought out by this investigation, and the changes deemed necessary, were, as was to be expected, in the main the same as were brought out in the report of the committee previously appointed by the mayor to visit the institutions and report as to their condition and management.

NEW YORK.

THE NEW YORK COUNTY MEDICAL ASSOCIATION. — At the meeting of the New York County Medical Association, held December 17th, a resolution was adopted protesting against the appointment by Governor-elect Morton of a homeopathic practitioner to supersede Dr. Joseph D. Bryant in the position of Surgeon-General of the State. At the same meeting Dr. A. G. Am Ende read a paper on the "Treatment of Diphtheria," in which he reported some remarkably good results from the local use of boroglyceride and the systematic internal administration of quinine in solution. Out of one hundred cases treated by him in the last three or four years, there were but four deaths, and in these, he claimed, the circumstances were such when the patients were first seen as to render a fatal result almost inevitable. Cases that were promptly treated, he said, seldom lasted over five days, and were generally convalescent before that. The boroglyceride was applied hourly to the fauces by means of a small camel's hair brush. The nasal passages were very rarely invaded by the diphtheritic process, but where this was the case he employed a douche of chlorate of potassium and boric acid.

THE APPROPRIATION FOR THE BOARD OF HEALTH. — The Board of Estimate and Apportionment has fixed the appropriation for the Board of Health for the year 1895 at \$451,880, and in this amount is included \$30,000 for the purpose of producing antitoxin. The appropriation for the Department of Charities and Correction was \$2,467,521, and among the items included are \$10,000 for vapor and sulphur baths in Bellevue Hospital and \$35,000 for the employment of more attendants in the city asylums for the insane.

DEATH OF THE OLDEST NEGRO WOMAN IN AMERICA. — Millie Jefferson, believed to have been the oldest negro woman in America, died at the residence of her great-grandson in New York on December 17th. The date of her birth, March 30, 1785, is definitely known; so that at the time of her death she was one hundred and nine years, eight months and sixteen days old. She was born on the plantation of Thomas Jefferson in Virginia and married the body-servant of that distinguished statesman. Three of her nine children survive her and there are fifty-seven grandchildren and twenty-six great-grandchildren living. After the Civil War she moved from Virginia to Louisiana, and had resided in New York only for the last eight years.

A TEST OF NEW YORK ANTITOXIN. — During the past week the first antitoxin prepared under the auspices of the Board of Health has been put to practical use, and Drs. Biggs and Park have expressed themselves as satisfied with its qualities. It is now being employed in the treatment of diphtheria patients at both the Willard Parker and Riverside Hospitals.

A DECREASE IN THE DEATH-RATE. — During the year 1894 there were reported 41,412 deaths in the city. Of these, 17,622 were in children under five years of age, and 26,149 were among the tenement-

house population. This is a considerable decrease from the preceding year, and the diminution in the death-rate is specially marked in the tenement-house districts.

OYSTERS AND TYPHOID FEVER. — At a meeting of the State Fish and Game Commission held in Albany January 4th, the State Oyster Inspector presented a report in which he stated that he had fully investigated the subject of the possibility of oysters becoming contaminated with typhoid fever germs while undergoing the "floating process," and that he had found but one stream, situated on Staten Island, where such danger existed. He was ordered by the Commissioners to demand a discontinuance of the use of this stream.

THE NEW HEALTH OFFICER OF THE PORT OF NEW YORK. — The profession is generally well pleased with the appointment by Governor Morton of Dr. Alvah H. Doty to the position of Health Officer of the Port of New York, to succeed Dr. Jenkins. For many years Dr. Doty has been in the service of the Board of Health and he has won distinction by the excellent work which he has done in all the different positions that he has held. He was born in Albany and studied medicine in the Bellevue Hospital College, New York, from which he was graduated with high honors in 1878. He soon afterwards became attached to the Health Department; and after serving in various capacities was promoted in 1892 to the head of the Bureau of Contagious Diseases. He is also surgeon of the Ninth Regiment of the National Guard.

DEATH OF DR. GOLDTHWAITE. — Dr. Henry Goldthwaite, for the past sixteen years the resident physician of the Fifth Avenue Hotel, and one of the most highly esteemed practitioners in the city, died of apoplexy on January 3d. He was born in Mobile, Alabama, April 13, 1842, and was graduated at Princeton in 1860. At the beginning of the late war he entered the Confederate service as a private, and eventually rose to the rank of Major. After the war he engaged in the banking business and for a time had charge of the Southern interest of the firm of Brown Brothers. He then decided to study medicine, and in 1876 was graduated from the Bellevue Hospital Medical College, New York. For a number of years he was in the corps of instructors at Bellevue, and up to the time of his death was one of the visiting physicians at Charity Hospital on Blackwell's Island. A widow and one son and daughter survive him.

Miscellany.

THE NEW YORK MEDICAL COLLEGE.

"A SHORT Sketch of the New York Medical College, with its Charter and Complete List of the Officers and Graduates," is the title of an interesting pamphlet prepared in 1883 by the late Edwin Hamilton Davis, M.D., and found among his papers. It is published for the following excellent reasons:

"The college, in 1858-9, had the misfortune to lose thirty odd diplomas, under the following circumstances: the class had been examined, the diplomas ordered and properly signed by the faculty, and awaiting the insertion of the names of the graduates, when, a few nights before the Commencement, a violent storm occurred which blew off a sky-light and deluged the closet where the parchments were kept. A new set was ordered and the damaged ones were carelessly left uncanceled.

"Some months after this occurrence, the janitor of the college was dismissed, and with him disappeared the wrinkled diplomas. It was discovered afterwards, that he had disposed of many of them in this country, and a few in London, as two have been sent from the latter place to our city authorities for certification. The late law requiring physicians to register their diplomas has brought to light quite a number here. These facts show how important it is to place in the hands of the profession a complete and authentic list of its graduates. Another reason for this publication is, that since the college closed in 1864, its alumni feel somewhat as orphans, and desire to have something to show that their *alma mater* was a veritable institution, and highly respected."

The college obtained its charter from the New York Legislature in 1850, in the interest of higher medical education. The institution struggled along for ten years without sufficient patronage, although upon its faculty were the names of many men of high standing in the profession. Fearing still greater losses owing to the withdrawal of Southern students occasioned by the war, the faculty, nine in number, resigned. On April 21st, the school was reorganized with a new faculty. During the next three years there were numerous changes in the faculty; and finally, in 1864, the college building was sold, and the school discontinued.

"A MEDICAL MAN AS PARTNER."

The *Australasian Medical Gazette* publishes the following:

TO THE EDITORS OF THE AUSTRALASIAN MEDICAL GAZETTE. SIRS,—Being a curious sort of character, I answered the following advertisement: "Wanted, a Medical Man as PARTNER, to tour the colonies, good paying proposition. Address, Bohemian, Herald Office," which appeared in the *Sydney Morning Herald* of October 6th, with the result that I obtained the answer which I thought would be interesting to your readers. Trusting that no man will disgrace our noble profession by accepting such an appointment, I am, etc.,

EAGLE EYES.

[ANSWER.]

6 FISHER'S RESERVE, PALACE STREET,
PETERSHAM, October 8, 1894.

DEAR SIR,—Re proposition to tour the colonies. My proposition is to make a tour of the colonies, so that pleasure and profit will result therefrom. "Briefly," the *modus operandi* is to hire a Hall in each town we visit, and advertise a course of medical lectures on the "Social Evil," "Population Question," etc., etc. One lecture showing the fallacy of the "Malthusian Theory," and the injury of the cheeks advocated by Mrs. Besant, and introducing superior methods of preventing large families, etc., etc. These are burning questions with the masses and information concerning them would be eagerly sought. Another lecture, on the "Cause and Cure of Contagious Diseases," describ-

ing the latest scientific methods of curing such disease, also how to positively prevent contagion, etc. I will undertake to deliver these lectures in a clear, logical, and humorous manner, and advertise from the platform the necessity of securing skilled advice for various ailments at a nominal cost, etc. You could attend to the patients, etc., at stated hours during the day. Now, if you think favorably of my proposition, let me know and I will meet you by appointment and we can arrange the details. I am sure there is plenty of money to be made if taken in hand and worked properly. But if you are circumscribed by ancient notions of medical "ethics" and such like nonsense you will let custom dominate your reason and miss the opportunity. Further particulars when we meet.

Yours faithfully,

BOHEMIAN.

UNUSUAL MALFORMATIONS OF THE BRAIN.

At the meeting of the Association of American Anatomists in New York on the 29th of December, in connection with the general subject of "The Significance of Anomalies," Prof. B. G. Wilder showed three remarkable specimens from the collection of Cornell University.

(1) An adult human brain with a complete interruption of the central fissure. The total number of such cases recorded does not exceed twenty.

(2) A sheep's brain lacking the callosum or great cerebral commissure. Several human brains with this defect have been described, but the only other cases in animals are three cats, all in the Cornell Museum.

(3) A three months' human fetus where the left olfactory bulb, commonly rudimentary, is half as long as the cerebrum, as in most of the lower animals, and contains a considerable cavity. It has long been a belief of Professor Wilder that the olfactory apparatus is primary and of great morphologic importance; that the recognition of food by the smell was once more essential than reflection upon its qualities. The specimen in question, believed to be unique, suggests the possibility of reversion toward a far-off ancestral type.

THE IMMUNITY CONFERRED BY AN ATTACK OF INFECTIOUS DISEASE.

MAISELIS,¹ has published important statistics bearing on the subject of the length of the periods of immunity conferred by attacks of infectious disease. This well-known principle, which is the basic principle of the work of Jenner, Pasteur, Koch, Behring, and of all the workers in the field of serum therapeutics, has been misstated by various writers on medicine, some of whom affirm that the survival from one attack of an infectious disease confers life-long immunity. Gregory,² for instance, says: "The immunity against a second attack of an infectious disease is one of the most universal and important principles in pathology. It is applicable not only to variola, measles, etc., but to all diseases which are due to a poisonous influence or miasm." Samuel³ says: "By the survival of a single attack of an infectious disease, immunity is generally conferred for the remainder of life." The same opinion has been expressed by Hebra, Hensch, Thomas,

¹ Virchow's Archiv, vol. cxxxvii, No. 3.

² Vorlesungen über die Ausschlagentheorie.

³ Eulenberg's Real Encyclopedia, second edition, vol. x.

with regard to the acute exanthemata; by Griesinger, Murchinson, Zuelzer, as to typhoid fever; Audouard as to Asiatic cholera.

On account of the great theoretical and practical interest of the question, Maiselis has collected from literature the following authenticated cases of repeated attacks of infectious diseases in the same patient:

SMALL-POX.—Two attacks, 526 cases; three attacks, 9; seven attacks, 1; total, 536.

SCARLET FEVER.—Two attacks, 144 cases; three attacks, 7; four attacks, 1; eight attacks, 1; seventeen attacks, 1; total, 154.

MEASLES.—Two attacks, 103 cases; three attacks, 3; total, 106.

TYPHOID FEVER.—Two attacks, 203 cases; three attacks, 5; four attacks, 1; total, 209.

ASIATIC CHOLERA.—Two attacks, 29 cases; three attacks, 3; four attacks, 2; total, 34.

In order to avoid the danger of including cases in which relapse might have been mistaken for a second attack, only those cases have been included in the preceding tables where the interval between the attacks was sufficiently long to preclude the possibility of the second or third attacks being relapses.

Considering the fact that all cases of second attacks of infectious disease are not recognized, and that the deeply-rooted belief in immunity among the laity, as well as among physicians, often renders the diagnosis of a second attack difficult to establish, one is led to believe that repeated attacks of infectious diseases may not belong to the rarities in medicine. This consideration also tends to establish the analogy between the immunity conferred by natural and artificial processes. The quantitative principle of immunity suggested by Ehrlich and systematically elaborated by Behring applies also to the natural processes of immunization.

It seems probable that so many difficulties would surround an exact determination of the period of immunity conferred by a given attack of infectious disease, that no exact statement of the safety period could be applied to particular cases. If a child is taken with scarlet fever, we have no means of estimating the amount of toxin absorbed, or the length of time the so-called natural antitoxin of the disease is present in effective quantity. The period of immunity conferred by the injection of given quantities of the artificial antitoxin of approximately known strength, is a matter of doubt and study; and the estimated length of the period of immunity, as defined by Behring himself, has lately been changed. If the period of immunity is so difficult to compute in a case where we can approximately calculate the amount of antitoxin injected, how much more difficult will it be to calculate that conferred by the absorption of an unknown amount of toxin, and consequent antitoxin production?

Correspondence.

CANCER OF THE UPPER LIP, ETC. CORRECTION.

DENVER, COLO., January 2, 1895.

MR. EDITOR:—Permit me, if you please, to correct the JOURNAL's error in the heading of my very brief note on page 640 of the issue of December 27th. It should read: "Fairly Extensive Cancer of the Upper Lip; Excision; Freedom from Recurrence at End of Three Years." And line 26 should be made: "a fair margin of healthy tissue" etc.

Very truly yours,

CHARLES A. POWERS, M.D.

METEOROLOGICAL RECORD.

For the week ending December 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...23	30.40	20	23	17	58	68	63	N.W.	N.W.	15	13	C. C.
M...24	30.36	20	30	11	75	77	76	N.W.	S.	6	8	O. O.
T...25	29.91	38	48	28	92	73	82	S.W.	W.	8	17	O. C.
W...26	30.44	22	26	18	51	47	49	N.	N.E.	6	9	C. O.
T...27	29.76	33	44	22	100	58	79	N.E.	W.	42	30	F. 1.19
F...28	30.05	14	20	9	69	61	65	W.	N.W.	14	15	O. F.
S...29	29.92	12	17	8	56	48	52	N.W.	W.	16	17	O. C.
☞	30.12	29	16				66					2.51

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 29, 1894.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York . .	1,956,000	670	248	15.00	17.55	1.05	8.10	1.80
Chicago . . .	1,600,000	—	—	—	—	—	—	—
Philadelphia . .	1,139,457	404	125	15.50	12.75	1.75	13.75	.75
Brooklyn . . .	1,043,000	397	—	13.75	19.75	1.00	1.75	—
St. Louis . . .	540,800	—	—	—	—	—	—	—
Boston	501,107	215	59	11.75	15.51	.47	8.93	1.41
Baltimore . . .	500,000	—	—	—	—	—	—	—
Washington . .	285,000	—	—	—	—	—	—	—
Cincinnati . . .	325,000	—	—	—	—	—	—	—
Cleveland . . .	325,000	93	40	20.33	—	3.21	—	14.98
Pittsburgh . . .	272,000	84	31	13.09	19.04	8.33	1.19	1.19
Milwaukee . . .	265,000	—	—	—	—	—	—	—
Nashville . . .	87,754	32	13	18.78	12.52	3.13	6.26	9.39
Charleston . . .	65,165	43	16	4.66	4.66	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester . . .	100,410	29	13	6.90	10.35	—	6.90	—
Fall River . . .	92,233	30	15	16.66	13.33	—	6.66	3.33
Lowell	90,613	31	8	6.46	8.69	—	8.23	—
Cambridge . . .	79,607	22	6	13.65	9.10	—	9.10	4.55
Lynn	65,123	21	—	4.76	14.28	—	4.76	—
Springfield . .	50,284	16	3	25.00	12.50	12.50	12.50	—
Lawrence . . .	49,900	—	—	—	—	—	—	—
New Bedford . .	47,741	16	11	12.50	6.25	—	—	—
Holyoke	43,348	12	7	25.00	50.00	—	—	—
Brookton	33,939	10	4	10.00	—	—	10.00	—
Salem	33,155	12	3	16.66	8.33	—	—	8.33
Haverhill . . .	32,925	12	1	—	8.33	—	—	—
Malden	30,209	14	1	14.28	—	7.14	7.14	—
Chelsea	29,806	6	1	16.66	16.66	—	16.66	—
Fitchburg . . .	29,383	5	1	20.00	—	20.00	—	—
Newton	28,837	3	0	—	—	—	—	—
Gloucester . . .	27,293	—	—	—	—	—	—	—
Taunton	26,954	10	0	20.00	—	—	—	—
Waltham	22,058	8	3	12.50	—	—	12.50	—
Quincy	19,642	—	—	—	—	—	—	—
Pittsfield	18,802	2	0	—	50.00	—	—	—
Everett	16,585	5	2	—	20.00	—	—	—
Northampton . .	16,331	3	1	—	66.66	—	—	—
Newburyport . .	14,073	3	1	—	66.66	—	—	—
Amesbury	10,920	3	0	—	—	—	—	—

Deaths reported 2,186: under five years of age 631; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 318, acute lung diseases 341, consumption 273, diphtheria and croup 183, scarlet fever 38, typhoid fever 35, diarrheal diseases 29, whooping-cough 11, measles 9, erysipelas 4, malarial fever 4, small-pox 3, cerebro-spinal meningitis 2.

From diarrheal diseases New York 9, Philadelphia and Holyoke 3 each, Brooklyn, Cleveland, Pittsburgh, Fall River and New Bedford 2 each, Providence, Charleston, Lowell and Salem 1 each. From whooping-cough New York 8, Brooklyn 2, Philadelphia 1. From measles New York 5, Philadelphia, Brooklyn, Pittsburgh and Providence 1 each. From erysipelas New York 3, Boston 1. From malarial fever Brooklyn 2, New York and Charleston 1 each. From small-pox Philadelphia 2, Brooklyn 1. From cerebro-spinal meningitis New York and Boston 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,458,442, for the week ending December 22d, the death-rate was 18.2. Deaths reported 3,649; acute diseases of the respiratory organs (London) 325, measles 139, whooping-cough 70, diphtheria 60, fever 48, diarrhea 40, scarlet fever 32, small-pox (London, Birmingham and Liverpool 1 each) 3.

The death-rate ranged from 11.3 in Plymouth to 26.7 in Preston; Birmingham 18.0, Bradford 19.1, Croydon 14.0, Hull 19.4, Leeds 21.7, Leicester 14.9, Liverpool 22.6, London 17.4, Manchester 22.2, Newcastle-on-Tyne 18.3, Nottingham 15.6, Sheffield 16.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 29, 1894, TO JANUARY 4, 1895.

The leave of absence on surgeon's certificate of disability granted MAJOR WASHINGTON MATTHEWS, surgeon, is extended four months on surgeon's certificate of disability.

The order assigning CAPTAIN JAMES D. GLENNAN, assistant surgeon, to duty at Fort Snelling, Minnesota, is revoked.

The order assigning FIRST-LIEUT. HENRY A. SHAW, assistant surgeon, to duty at Fort Niobrara, Nebraska, upon the abandonment of Fort McKinney, Wyoming, is so amended as to direct him to report for temporary duty at Camp Merritt, Montana, and upon the completion thereof to proceed to Fort Snelling, Minnesota, for duty at that post.

Leave of absence for one month, on surgeon's certificate of disability, with permission to leave the limits of the Department is granted FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon.

Leave of absence for one month, to take effect about December 24, 1894, is granted MAJOR ROBERT H. WHITE, surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 5, 1895.

MICHAEL BRADLEY, medical director, detached from duty as a member of the Naval Examining and Medical Boards.

B. H. KIDDER, medical director, ordered as member of the Naval Examining and Medical Boards.

J. B. BARKER, surgeon, ordered to special duty in connection with the investigation of the Ford Theatre disaster.

LEWIS H. STONE, passed assistant surgeon, promoted from assistant surgeon.

F. J. B. CERDEIRO, passed assistant surgeon, ordered to study the subject and make a report to the Department of the therapeutic value of antitoxin in the treatment of diphtheria and croup.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING DECEMBER 31, 1894.

PURVIANCE, GEORGE, surgeon. Relieved from command of service at Philadelphia, Pa., and detailed as medical inspector of immigrants at that port. December 18, 1894.

MEAD, F. W., surgeon. Directed to proceed to New York, N. Y., for temporary duty. December 27, 1894. To rejoin station (Washington, D. C.). December 29, 1894.

CARTER, H. R., surgeon. Granted leave of absence for twenty-four days, in lieu of leave granted November 20, 1894. December 21, 1894.

PECKHAM, C. T., passed assistant surgeon. To inspect unserviceable property at San Francisco Marine-Hospital. December 26, 1894.

KALLOCH, P. C., passed assistant surgeon. To report at Bureau for special temporary duty. December 29, 1894.

BRATTON, W. D., passed assistant surgeon. Placed on "Waiting Orders," to date from January 1, 1895. December 26, 1894.

MAGRUDER, G. M., passed assistant surgeon. Granted leave of absence for ten days. December 22, 1894. Leave of absence extended five days. December 31, 1894.

PERRY, T. B., passed assistant surgeon. To proceed to New York, N. Y., for temporary duty. December 28, 1894.

COBB, J. O., passed assistant surgeon. Granted leave of absence for three days. December 28, 1894.

PERRY, J. C., passed assistant surgeon. To proceed to Philadelphia, Pa., and assume temporary command of Service. December 18, 1894.

NYDEGGER, J. A., assistant surgeon. Granted leave of absence for three days. December 18, 1894.

BLUE, RUPERT, assistant surgeon. To proceed to San Francisco, Cal., for duty. December 18, 1894. Granted leave of absence for six days. December 24, 1894. To proceed to Cincinnati, O., for temporary duty. December 28, 1894.

PROCHAZKA, EMIL, assistant surgeon. Granted leave of absence for twenty-five days. December 17, 1894.

CUMMING, H. S., assistant surgeon. Leave of absence granted. November 27, 1894. Cancelled. December 20, 1894. Granted leave of absence for seven days. December 31, 1894.

JEFFERSON MEDICAL COLLEGE.

CLASS OF 1879.

Many members of the Class of 1879 Jefferson Medical College of Philadelphia are desirous of having a class reunion on the occasion of the fifteenth anniversary of their graduation. Owing to changes, comparatively few addresses are known and therefore this means is resorted to, with the hope that every member of the class of 1879 who reads this notice will communicate at once with the class President, Dr. Philip R. Koons, Mechanicsburg, Cumberland County, Pennsylvania.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, January 17th, at 8 o'clock, by Prof. H. C. Ernst. Subject, "Tuberculosis." Physicians are cordially invited.

SOCIETY NOTICES.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT. — The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday evening, January 16th, at 8 o'clock.

Dr. G. G. Sears: "Remarks upon 200 Cases of Phthisis, Recently Seen."

Dr. F. H. Osgood: "Tuberculosis Among our Neat Cattle."

JOHN L. AMES, M.D., Secretary.

MASSACHUSETTS MEDICAL SOCIETY, MIDDLESEX SOUTH DISTRICT. — A meeting for medical improvement will be held at the Medical Library, 19 Boylston Place, Boston, Thursday, January 17, 1895, at 4 o'clock P. M.

Papers: "Causes of Sudden Death," Dr. T. M. Durrell. Discussion opened by Drs. F. W. Draper, W. D. Snow and J. A. Mead.

"Treatment of Diphtheria," Dr. F. G. Curtis. Discussion opened by Drs. J. L. Hildreth and E. R. Cutler.

Members of the Massachusetts Medical Society of other Districts cordially invited to be present.

ALBERT AUGUST, M.D., Secretary.

RECENT DEATHS.

JONATHAN WHEELER BEMIS, M.D., M.M.S.S., died in Cambridge, January 6, 1895, aged eighty-four years.

DAVID WORTHINGTON MINOR, M.D., M.M.S.S., died in Ware, Mass., January 2, 1895, aged seventy-four years.

DR. WILLIAM GRAY DISBROW, a graduate of the class of 1857 in the Harvard Medical School, died at Dalhousie, New Brunswick, on December 12th. He was born in St. John in 1830.

MR. THOMAS LEACH, medical inspector, U. S. N. (retired), died at his home in Newmarket, N. H., December 30th, aged fifty-eight years eight months. Mr. Leach served on the *Monongahela* during the Rebellion.

BOOKS AND PAMPHLETS RECEIVED.

The Fourteenth Annual Report of the New York State Board of Health. Two volumes and maps. Albany: Published by the State. 1894.

Transactions of the Colorado State Medical Society, Twenty-fourth Annual Convention, By-Laws and List of Members. Denver, June, 1894.

The Twenty-seventh Biennial Report of the Trustees, Superintendent and Treasurer of the Illinois Institution for the Education of the Deaf and Dumb at Jacksonville. Springfield, Ill. 1894.

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Original Articles.

THE IMPORTANCE OF BACTERIOLOGICAL INVESTIGATIONS IN CASES OF DIPHTHERIA.¹

BY J. H. MCCOLLOM, M.D.

In September, 1893, a series of observations in cases of suspected diphtheria was commenced at the Bacteriological Laboratory of Harvard Medical School. From September, 1893, to October, 1894, 500 cases were examined, and of this number 133 proved to be diphtheria, or 26.6 per cent. These observations have been essentially different from any attempted, thus far, in this country; for they have been dealing not with the well-marked characteristic cases of diphtheria, but with the mild and doubtful cases in which a diagnosis is impossible without a bacteriological examination.

It is now generally conceded that the presence of the Klebs-Löffler bacillus is positive proof of the existence of diphtheria, and that persons in whose throats this organism is found are sources of danger to the community, and that they continue to be sources of danger so long as this organism continues to exist. Much has been said regarding the existence of the pseudo-diphtheria bacillus; and an attempt has been made by some observers to throw discredit upon the important discovery of Klebs and of Löffler. While it is perfectly possible that in certain rare instances a bacillus of a non-virulent type morphologically similar to the diphtheria bacillus may be found in persons with normal throats, still this occurrence is so exceptionally rare that it does not have any very important bearing on the accuracy of bacteriological diagnosis. It has also been claimed by some members of the profession that the inoculation of the tubes was extremely difficult, and that for this reason this method of diagnosis was not of practical use. In reply to this, it may be said that of the 800 tubes inoculated, there were only six cases in which there were no growths. This would seem a sufficient answer to the statement that this method of diagnosis is not of practical use. Any one who has had any experience in diphtheria knows perfectly well, that in a family of four or five children, one or two may have perfectly characteristic attacks of the disease, while the remaining children, without having any constitutional disturbance, without having any membrane in the throat, may have a slight seropurulent discharge from the nose which has nothing of itself characteristic of diphtheria, and in which a diagnosis of diphtheria could not possibly be made without a bacteriological examination. Many such cases have been examined during the past year, and in a large percentage of them diphtheria bacilli were found, the virulence of which was proved by their action on guinea-pigs. The occurrence of diphtheria during an attack of scarlet fever has been considerably overestimated by the profession. In these investigations 36 cases of scarlet fever in which there were marked throat symptoms were examined, and in nine of them diphtheria bacilli were found. The number of cases of measles, with marked throat symptoms, examined, is too small from which to form any satisfactory conclusions. In these investigations the average length of time in which the diphtheria bacillus was found present, has been $15\frac{1}{2}$ days. In one instance the diphtheria bacillus was found to exist 72 days, but

in this particular case it is a question whether or not there was a re-infection.

A short history of a few of the cases examined may be of interest.

In Case 15 the physician gives the following history: A boy, five years of age, complained of slight sore throat, and had a small white spot on one tonsil. The boy was not especially ill, and this small white patch on the tonsil disappeared in three days. A culture taken on the first day of the illness, however, contained large numbers of diphtheria bacilli.

Case 23 was that of a boy who had a slight discharge from the nose. There was absolutely no constitutional disturbance, but bacilli of diphtheria were found in the culture.

Case 35 was that of a young lady with a temperature of 104° , pulse 120, having had a chill at the onset of the disease; in fact, the case presented all the clinical appearances of an attack of follicular tonsillitis, but a bacteriological investigation proved the presence of the bacillus of diphtheria. As this case occurred in a family in which there were several small children, if the patient had not been promptly isolated, the results would have been disastrous. In this particular case, it is of interest to note that the bacilli remained in the throat for about four weeks, and also that they retained their virulence, which was proved by the inoculation of guinea-pigs.

Case 38 is of interest from the fact that although there was some redness of the fauces and marked constitutional disturbance, there was no membrane to be seen, but the patient died forty-eight hours after the culture was made in which the diphtheria bacillus was found, with the symptoms of laryngeal stenosis.

In Case 48 the patient had an undoubted attack of diphtheria a month before the cultures were made. At the time of the culture, although the patient was in comparatively good health, there was a slight nasal discharge from which the culture was made. The diphtheria bacillus was found; and in order to settle the question of the virulence or non-virulence of the bacillus, a guinea-pig was inoculated with about two cubic centimetres of a bouillon culture twenty-four hours old. The guinea-pig died at the end of twenty-four hours, and the autopsy showed marked edema of the internal organs. The bacilli of diphtheria were found at the point of inoculation.

The history of Case 51 is as follows: Mrs. B., age forty-seven, had diphtheria three times, the last time about twenty-eight years ago. On November 15th, returning home from a concert, where she perspired very freely, felt chilly, and on the next day had a slight attack of acute coryza, which on the following day was quite marked and accompanied by malaise, headache of a dull character, chiefly frontal, and there was also very slight pain on swallowing. On November 17th there was no membrane to be seen, nor was there any marked congestion of the throat. There was an indistinct swelling about the size of a bean at the angle of the jaw at the left side. On the right tonsil there was a suspicious-looking thin film, covering nearly the whole of the tonsil. On the left tonsil there were several minute points about the size of a pin's head. The film upon the right tonsil, to which allusion has been made, was easily removed. Temperature was 102° , pulse 96. In short, the history of this case and the appearance of the throat would seem to justify a diagnosis of follicular tonsillitis. Cultures,

¹ Read before the Boston Society for Medical Improvement, November 12, 1894.

however, made from this throat, showed the presence of the bacillus of diphtheria. In this case the bacilli continued in the throat for 19 days.

Case 64 is of interest from the fact that on the second day after exposure to diphtheria, before the appearance of any membrane and before there was any marked constitutional disturbance, bacilli of diphtheria were found. Forty-eight hours after the culture was made a membrane appeared.

Case 85 is that of a child eight years old, who had no membrane in her throat, but the culture was taken from a follicular plug. Bacilli of diphtheria were found. The child died eight days after the culture was taken, of laryngeal stenosis, intubation having been performed for the relief of this symptom three days previous.

Cases 88, 89, 90 and 91 are of interest from the fact that the local symptoms were very mild. Diphtheria bacilli were found, and the subsequent history of the cases justified the bacteriological diagnosis of diphtheria.

Case 109 is of interest from the fact that there was a very slight amount of membrane in the throat, and no constitutional disturbance. Bacilli of diphtheria were found in the culture, and disappeared at the end of two weeks.

In Case 116 a soft, yellow membrane, covering the whole of the left tonsil, friable on the surface but adherent at the base, was seen. Temperature 101°, constitutional disturbance moderate. The bacillus of diphtheria was found in the culture.

Case 119 was that of a girl four years old, who had very slight constitutional disturbance. In this case the diphtheria bacillus continued for about two weeks.

Case 128 is that of a young man who had a mild attack of sore throat, who was not ill, but who was in a situation where he must have communicated diphtheria to many people, if the disease had not been recognized by means of a bacteriological examination. The virulence of the bacillus was demonstrated, in this case, by its effect on guinea-pigs.

Case 135 is that of a child who had no throat symptoms, but did have a slight muco-purulent discharge from the nose. A culture taken from the throat was negative. A culture taken from the nose, however, was almost a pure culture of the diphtheria bacillus. In this case the child was not ill. He would have been a source of great danger if he had not been isolated.

Case 138 is worthy of mention because, although there was a slight membrane in the throat, this membrane did not present to the eye the characteristic appearance of a diphtheritic membrane. A culture, however, made from this throat revealed the presence of the diphtheria bacillus.

Case 147 is that of an extremely mild case of sore throat, in which a positive diagnosis without a bacteriological investigation was impossible. Cultures from the throat revealed the diphtheria bacillus.

Case 156. E. R., two and one-half years of age, had a slight sore throat, and also had a suspicious-looking membrane on the arm at the site of a recent vaccination. Very little constitutional disturbance. No membrane in the throat. Cultures made from the throat contained no bacilli; but the culture made from this suspicious-looking place on the arm contained the bacilli of diphtheria.

Case 171 is that of a boy four years of age, in

whose throat, twenty-four hours after removal of the tonsils, a membrane appeared; and it became a matter of great importance to decide upon the nature of this membrane. Cultures taken from it proved that it was not of a diphtheritic nature.

Case 180 is a case of purely nasal diphtheria, no membrane having been seen at any time in the throat. There was a profuse nasal discharge, from which almost a pure culture of the diphtheria bacillus was made.

The history of Case 182 has a typical clinical history of acute follicular tonsillitis. Five or six small spots were seen in the throat, but no extensive membrane was found. A culture, however, from this throat contained the diphtheria bacillus.

Cases 202 and 204 are of interest as illustrating the point that diphtheria can be diagnosed by bacteriological investigations before the appearance of any membrane or before there is much constitutional disturbance. In these two cases, as it was known that the patients, adult women, had been exposed to diphtheria, cultures were made from their throats, and the presence of the diphtheria bacillus detected forty-eight hours before the appearance of any membrane.

Case 267 illustrates the importance of a bacteriological investigation where there is a profuse nasal discharge without any constitutional disturbance.

It is unnecessary, however, to cite any more cases.

One very important and interesting point showing the value of a bacteriological examination in cases of diphtheria is the history of 18 cases of nasal diphtheria in which there was very little constitutional disturbance, and in which there was no membrane to be seen. Without a bacteriological examination these cases could not have been recognized as diphtheria. Cultures, however, made from the nasal discharge, proved the presence of the diphtheria bacillus, the virulence of which was tested by its effect upon guinea-pigs.

The following quotation from the report of Dr. W. H. Park, Inspector of Diphtheria to the New York Board of Health of New York City, illustrates the importance of cultures in all cases of a profuse nasal discharge in children. He says:

"A child was admitted into a hospital ward in an anemic condition and with a chronic coryza. Five days later four children in his neighborhood developed diphtheria. Two of these died. In seeking the cause of the diphtheria, suspicion was directed to the child by a slight nasal discharge. Bacteriological examination showed this secretion contained many diphtheria bacilli. On further examination it was found that the child came from a family in which, three weeks before, there had been a case of diphtheria.

"In a family of eight children one child sickened with diphtheria, and a second child, a baby, was sent to a neighbor. The next day cultures showed this baby, as well as two of the other children, all of whom were apparently healthy, were infected with diphtheria bacilli. The three apparently healthy but infected children, as well as the sick one, were at once quarantined, but already one of the family to which the baby had been sent had contracted diphtheria from it."

The cultures from 70 non-diphtheritic throats were examined in order to investigate as to the frequency of the, so-called, pseudo-diphtheria bacillus. Seventeen of the patients were suffering from chronic

diseases of the throat, 15 from uterine disease and the remainder from surgical and medical diseases. In no instance was an organism found that would be likely after a careful examination to be mistaken for the diphtheria bacillus. In these investigations a certain number of bacilli were found, but they were either long slender bacilli, or short stout ones, having no morphological resemblance to the diphtheria bacillus.

In a "Report of the Present State of Knowledge respecting the Etiology and Prevention of Diphtheria," presented on behalf of the English Committee to the Eighth International Congress of Hygiene and Demography at Buda-Pesth, Edward Seaton, M.D., F.R.C.P., says:

"Finally, it must be said that progress in medical preventive work generally (which must obviously include experimental research work) is retarded in a considerable degree by the popular or general conception of the scope of 'hygiene.' This in England has come to have far too narrow a signification. The term hygiene is almost always used to apply to structural works (for example, water-supply and drainage), materials, etc., which, however important they may be as necessary for the prevention of some (so-called) preventable diseases, are apparently useless for the prevention of others, which are also entitled to be called preventable. It will be impossible to combat diphtheria, influenza and other diseases which can only be properly termed preventable when the public and governments understand the necessity for the systematic encouragement of scientific observation and research bearing on the public health, and the furtherance of medical preventive work generally."

In a "Report on the Etiology and Prevention of Diphtheria," presented on behalf of the German Committee to the Eighth International Congress of Hygiene and Demography at Buda-Pesth, F. Löffler, M.D., says:

"(1) The productive agent of diphtheria is the diphtheria bacillus. Dispute as to the etiological definition of this bacillus exists no longer. We can, therefore, henceforth indicate as diphtheria such forms of disease as are infested with the bacillus.

"(2) Not infrequently cases appear in the early stages to the clinical observer as true diphtheria, which, however, are caused by other organisms, as streptococci, staphylococci, pneumococci, and in light or graver form may be mistaken for diphtheria. But the differential diagnosis can be effected through bacteriological research. Statistical compilation on the epidemic spread of diphtheria, as well as on the character of diphtheritic epidemics, cannot represent an exact definition so long as the bacteriological investigation of cases suspected of diphtheria fails to mark a division between true diphtheria bacillus and cases merely resembling diphtheria.

"(3) Diphtheria epidemics show a various character, as do many other epidemics of infectious disease. The course of the epidemics is often very light, but also much more severe, indicated by the high figure of the death-rate, the rapid infection of the larynx and the nose, and by severe heart and kidney affections, and consecutive paralyses. But also in the same epidemic instances of severe and light forms of disease frequently alternate irregularly.

"(4) The variation, of course, will be determined by several factors: (a) By difference in the number

and the virulence of the diphtheria bacilli; the causes of the latter are not yet absolutely known. (b) By concomitant bacteria, and indeed as much by pathogenic as saprophytic. The processes of infection with regard to the diseased mucous membranes in the passages and in the nose appear to influence the course of the disease unfavorably, in part by increasing the virulence of the bacilli, in part by weakening the body through absorption of decomposition product. (c) By individual tendencies not yet thoroughly recognized.

"(5) The diphtheria bacilli can appear in the passages, especially of the nose, of separate individuals without causing indications of sickness, which it first induces when it has actually established itself. Lesions of the mucous membranes, small eruptions, catarrhal changes, are favorable to its residence. In brief, meteorological conditions giving admission by the first approach to catarrh (especially cold, damp weather), appear to favor the sickening from this cause. But this influence has to be more closely observed.

"(6) Diphtheria is most rapidly communicated by direct contact between sick and well, through spitting, coughing, sneezing, kissing, and grasping of the hands, whereby the hands come into contact with flesh secretion; also freely through utensils which the sufferer has fouled with his secretions; by beverages, food, eating and drinking vessels, cast-off washing clothes and other articles, as pocket-handkerchiefs, playthings, even long after their actual infection.

"(7) The sick is infectious so long as he has bacilli upon the mucous membranes. The bacilli usually disappear with, or soon after the disappearance of the local signs, but they may be detected still lively and virulent in the passages or nose for weeks and even months.

"(8) On inorganic matters condensed and excluded from light the bacilli can maintain themselves for a period of months; accumulations of dirt, dark and close dwellings favor thus the preservation of bacilli and the extension of disease.

"(9) As a specially noticeable vehicle for the extension of disease is to be noted, the crowding together of susceptible individuals, especially in families of many children. But other gatherings of people, apart from children, where separate persons do not come into such proximity as the members of a family, may offer facility for the extension of infection, as schools, barracks and the like.

"(10) The diphtheria bacillus is so far not identified with certainty as the cause of other diseases similar to diphtheria or of other spontaneous disease of lower animals. The possibility of the conveyance of true diphtheria from sick animals to human beings is thus outside our present knowledge. It is desirable that the governmental investigating committee should combine with research regarding diphtheria coming under their notice the similar diseases of animals, and also the communication from animal to human beings of diseases resembling diphtheria.

"(11) As prophylactic means are to be considered: (a) Care for cleansing, keeping dry, sufficient ventilation and lighting of the dwelling; (b) careful cleansing of the mouth and nose, gargling with weak solutions of common salt and carbonate of soda, thorough brushing of the teeth, extraction of bad teeth, attention to the deeper cavities of the tonsils, and removal

of hypertrophied tonsils; (c) cold douching of the throat in times of diphtheria prevalence.

"(12) Every case suspected as diphtheria must, when possible, be bacteriologically investigated. The physicians must have easy access to the required materials for carrying on the culture, for example, in the chemists' shops. The investigation has to be carried on by specialists, as in the case or cases of suspected cholera.

"(13) All cases proved bacteriologically to be true diphtheria, as well as all cases suspected as diphtheria which have not been bacteriologically investigated, must be dealt with under police regulations.

"(14) Every diphtheria case must be isolated, either in a separate room of the dwelling or in an isolation ward. In order to restrict as much as possible the spread of the bacilli by the sick, a local anti-bacillar treatment must be employed with a view to prophylaxis against the early stages of the disease.

"(15) One of the most effective means against the spread of diphtheria is the protective inoculation, with antitoxin, of susceptible individuals in the neighborhood of the patient, especially of children.

"(16) In every case of diphtheria, disinfection is imperative. This is needed for all utensils for the sick, as well as for the sick themselves and the sick-room.

"(17) Convalescents from diphtheria must not mix freely with others, till bacteriological investigation has proved the absence of the bacilli."

Dr. William H. Welsh, in a paper entitled "Bacteriological Investigation of Diphtheria in the United States," read at the Eighth International Congress of Hygiene and Demography, held at Buda-Pesth in September, 1894, says, "In 752 cases of diphtheria in New York the diphtheria bacilli disappeared within three days after the complete disappearance of the exudate." He also says, and this is a very important point: "A bacillus in no way distinguishable in morphology or in culture, including the formation of acid in bouillon, from the usual diphtheria bacillus, but devoid of virulence, exists. The virulence was tested by injecting into half-grown guinea-pigs one-half to one per cent. of their weight of forty-eight-hour bouillon cultures. This bacillus, although it has been called by some investigators the pseudo-diphtheria bacillus, should not be so designated. It is the genuine diphtheria bacillus devoid of virulence. It was met with in a comparatively small number of cases, out of a large number examined.

"Exceptionally it may occur together with the virulent diphtheria bacillus in diphtheria, and occasionally it takes the place of the virulent bacillus during or after recovery from diphtheria. In several instances it was found in healthy throats. The name pseudo-diphtheria bacillus should be confined to bacilli which, although resembling the diphtheria bacillus, differ from it not only by absence of virulence, but also by cultural peculiarities, the most important of the latter being greater luxuriance of growth on agar and the preservation of the alkaline reaction of bouillon cultures. The pseudo-diphtheria bacillus may render bouillon cultures acid in forty-eight hours when grown anaerobically. The pseudo-diphtheria bacillus in this sense was found in a number of cases, but not frequently. It is probably of different species from the genuine diphtheria bacillus, and is without diagnostic importance."

So far, there have been no investigations to prove that this non-virulent form may not, under suitable conditions, become extremely virulent; and until this point is firmly established it is the part of wisdom to consider this non-virulent form as a probable source of danger.

From the opinion of the authors quoted, and from the results of the 500 cases of suspected diphtheria investigated at the Bacteriological Laboratory, it is evident, that, to accomplish anything in diminishing the frequency of this disease, it is of paramount importance —

First, That in suspected cases of sore throat, or in cases where there is a profuse nasal discharge, a bacteriological investigation should be made.

Second, That in any case of diphtheria the patient should not be removed from isolation until there have been two negative cultures from the throat and from the nose.

Third, That the pseudo-diphtheria bacillus, so called, is not insufficiently frequent to cause any great error in diagnosis.

REMARKS ON DIPHTHERIA.¹

BY H. C. ERNST, M.D.

BEFORE there can be had a proper appreciation of the work that is to be presented here this evening, there must be a statement of facts in regard to diphtheria that are now too well supported by experimental evidence to permit any hesitation in their acceptance. There have been certain points in regard to this disease that have been well known for some time, points that later evidence has but brought more distinctly into view. The first and most important, the one that had to be first determined in order to any further intelligent study of the disease, was its cause; and this has been known for years to be a specific bacillus, commonly given the hybrid name of Klebs-Löffler, but properly called the bacillus of diphtheria. Seen first by Klebs in diphtheritic processes in 1883, isolated and described by Löffler in 1884, this peculiar and specific micro-organism has been the subject of many painstaking researches since that time; and the results that have come from these researches have been but confirmatory of the claims first made for it — that it is the actual cause of the process with which it is associated, and that without its presence diphtheria does not exist. This much has been settled for some time; so much so, in fact, that more than two years ago, in writing an article upon diphtheria, I had no hesitation in making the statement that doubtful cases of the disease could only be determined by means of the cultural diagnosis. This opinion was held by others engaged in similar lines of work; but in the study of the subject and of the best cultural characteristics by which this bacillus might be most easily and definitely separated from others similar to it, certain elements of confusion seemed to arise that threatened to obscure the desired precision of results.

The first of these was the presence, recognized by Löffler himself, of the so-called "pseudo-diphtheritic bacillus," a bacterium possessing apparently precisely similar characteristics to the true bacillus of diphtheria, with the extremely important exception that it manifested no pathogenic properties upon inoculation into

¹ Read before the Boston Society for Medical Improvement, November 12, 1894.

guinea-pigs. Evidently this is a crucial point; for any weight that might be attached to a bacteriological diagnosis of diphtheria would be small, if there were any probability that confusion could arise from such a source. For if one were likely to find a harmless bacillus in healthy throats that could not be distinguished from the true bacillus of diphtheria, except by the long process of culture and then of inoculation, the diagnosis of diphtheria by this means would be useless because of the long time it would take. All the best investigations, however, tend to confirm the opinion advanced soon after its first isolation, that the so-called "pseudo-diphtheria bacillus" is not a separate and distinct variety, but that it is merely a non-virulent condition of the true diphtheria bacillus. In any case, whether this be so or not, its occurrence is not nearly as frequent as has been supposed; and as a factor in confusing the bacteriological diagnosis of diphtheria it may safely be neglected, as the evidence to be presented later will show.

Another point that has been urged against the cultural diagnosis of diphtheria is that there are many anginas that are like diphtheria in their clinical course, and that the worst of these are often more severe than the milder forms of diphtheria; they are also undoubtedly infectious in their nature. So, it has been said, what difference does it make whether these processes are produced by the bacillus of diphtheria, or a virulent streptococcus or micrococcus? Of course, the simple statement of such an objection should be its own best refutation; but if that is not enough, it should be recognized that an exact etiology is the foundation of all rational medicine, and in this particular instance that it is of the utmost importance, as the work with the antitoxin of diphtheria shows. For here it makes no difference if the clinical symptoms are exactly the same, the antitoxin is valuable *only* in diphtheria, and is negative or positively hurtful in non-diphtheritic processes. The etiology of those processes similar to diphtheria is a problem aside from that of diphtheria; in this latter we are concerned with the diphtheria bacillus only, and we must determine its presence by the only means known to us.

These two points, then, appeared to be settled, that diphtheria is produced by the diphtheria bacillus, and that examination by culture is the only means of determining whether a given process is the result of its activity or not.

This being true, cumulative evidence was one thing that could be furnished by such an investigation as has been carried on by Dr. McCollom; but other, and, under the circumstances, perhaps more important points were to be determined as well.

Up to the time of the beginning of this research, practically all of the work done upon diphtheria had been carried on in hospital wards, and upon cases that were sufficiently severe to be sent to an institution for treatment. Certainly, in this community, this means that very little information could be gained from these cases in regard to the milder forms of the disease; for the rich do not send their cases to the hospital at all, and the poor do not, until the threatening symptoms force them to take the step. This being so, it was evident that if an attempt were to be made to study *mild* cases of the disease, material must be sought out of the hospital wards. For practical purposes, evidence upon these mild cases was needed; for it was necessary to demonstrate the fact that many ap-

parently mild sore throats occur which are as truly diphtheria as are the most malignant and fatal ones, and that these mild, oftentimes unsuspected, diphtherias may easily be the source from which other and much more malignant and even fatal cases may arise.

To gather information of this kind, one is obliged to turn to the profession at large, for very few, if any, medical men see in their own practice sufficient material of the kind needed to be of value for evidence of this sort. This was done by publishing, a little over a year ago, a letter in the *Boston Medical and Surgical Journal*, stating that information was desired upon this point, and that material would be furnished, instructions given, and cultures made at the laboratory at the Medical School. The response to this letter has been very large, and up to the date of this meeting, there have been submitted for cultural examination almost eight hundred specimens. Most of the work upon these has been completed by Dr. McCollom in person, with, however, valuable assistance from Dr. Burr in obtaining nutrient-materials and completing the examinations when Dr. McCollom's other duties called him away, especially at the time of the small-pox epidemic last winter.

It was thought best, in the beginning, to use the platinum needle rather than the cotton "swab" for securing the material, and to have the nutrient-media inoculated at the bedside; and our experience has amply confirmed the wisdom of the choice. The method is a little more troublesome in the first instance, but the results are more accurate and satisfactory in every way. In the first place, the chances of an excess of material being taken up are diminished, and in the second, the material is at once spread out along the three tracks of the needle, so that an approximation to a plate-culture is obtained, and thus the chances of obscuring the colonies of the diphtheria bacillus by overgrowth are diminished. The main objection to the use of the platinum needle sunk in a glass-rod is the liability of the latter to fracture; but this fault has been done away with by using a metal handle for the platinum wire.

No word of praise is too great for the manner in which Dr. McCollom has carried out the details of the work, which certainly would not have been completed without his persistency and devotion.

TWO CASES OF SUDDEN DEATH IN CHILDBED.¹

BY H. W. BROUGHTON, M.D.

I AM led to report these cases, first, because they are *fatal* cases. I believe that just such should be recorded, even at the risk of exposing one's errors in diagnosis and treatment, if such exist. Secondly, I report them because of their rarity, for fortunately sudden death in childbed is rare. Moreover, both of these cases present certain features that are more or less unique, at least as far as I have been able to discover after perusing a number of published reports. This is especially true of the second case. Finally, it is a privilege that I appreciate, to be able to address such a Society as this, and to feel that my deficiencies will be criticised in a kindly spirit. I am frank to say that I bespeak your forbearance, especially with regard to the first case. This was one of the earlier cases of

¹ Read, by invitation, before the Obstetrical Society of Boston, November 10, 1894.

my medical career, and I wish it had fallen into abler hands than mine were at that time. In fifteen years practice these are the only fatal obstetric cases that I have attended, although I have seen several others in the care of other physicians.

CASE I. Uremic poisoning, with ante-partum concealed hemorrhage, post-partum hemorrhage, eclampsia; death.

Mrs. S., age forty, born in Cambridge. Her mother died at sixty-six of "Bright's Disease"; v-para; several still-born. The mother was very "full blooded," and always before her labors had a tendency to "convulsions," which was relieved by "bleeding." Patient unusually well; married at twenty-two. Had in succession four living children, and then six miscarriages—some at eighth month, others early, at second and third. No known cause for miscarriages. There was no evidence of syphilis. I attended her in the last two. Convalescence was slow, and anemia persisted. She was a woman of large frame, muscles soft and flabby.

Her last pregnancy was uneventful, except that she was anemic and debilitated. At term I was sent for at 10 A. M., and found her in pain. Pain was rather constant, low in front and back, not severe. She was flowing slightly. Blood appeared watery and thin. Although the membranes were firm and unruptured, the os was dilated to the size of a silver dollar, with thick edges. Head could be felt presenting. In two hours I saw her again. She appeared quite pale and weak, and felt somewhat faint. Os fully dilated, membranes still unruptured. A small amount of thin, bloody fluid had continued to flow, and there were two or three clots in the vagina as large as my fist. Suspicious of trouble, I ruptured the membranes, meanwhile giving stimulants by mouth. The head at once engaged; pains became intermittent and natural; and aided by firm pressure over the fundus, a small child was expelled with celerity. The baby was dead, face purple, epidermis easily detached; had evidently been dead for a considerable time. The placenta was at once expressed, accompanied by three or four large clots, each the size of my two fists, and some fluid blood, which was thin and watery. The placenta was very small, friable and more or less degenerated. Uterus contracted well. Ergot was given, and brandy subcutaneously. Patient was very weak, faint and pale, with weak pulse. Heaters were applied, and the head lowered. Brandy and carbonate of ammonia were again given subcutaneously. She gradually rallied, became warmer, and felt a little better. Took nourishment well; pulse improved. Several hours later there was a sudden, single, quite profuse gush of blood, which was immediately controlled by the nurse, who applied pressure over the fundus, and gave ergot. The flow was sufficient to drench napkins and sheets. At 10 P. M. patient complained of great weakness and faintness; body a little warmer. Nurse reported that napkin was wet with urine, but that none could be saved. The only urine that I saw was just before delivery; this was dark-colored, but mixed with discharges, and unfit for examination.

Brandy and ammonia were freely given, subcutaneously and by mouth, with nourishment. Pulse continued weak. There was no edema of face or ankles at this time, and I considered the case one of shock from the hemorrhage, ante-partum and post-partum. The very thin, fluid character of the blood I have al-

ready mentioned. I remained through the night. In the morning she was still pale and weak; but there was a little more color about the lips, and she said that she "felt better and stronger." As I concluded afterwards, I believe that at this time there was a slight puffiness about the eyes, but it did not impress me then. The flowing was very slight, consisting of a thin, watery discharge. I left her for a time, feeling that she had rallied sufficiently to justify some hope. At noon I saw her again, and was shocked at the change. The face was very greatly swollen, especially about the eyes and cheeks. The nurse noticed the swelling about 10 A. M., but did not know its import. The bladder was empty. No urine had been passed since the night before. The patient said, "Why do I feel so very weak." She complained of a "choking" sensation in the throat and at the pit of the stomach, which she thought was "wind." The extremities were cold. She asked the nurse to arrange the pillows a little, when suddenly she became ashy pale, and there were marked convulsive movements of the whole face, which lasted for a moment, when she ceased breathing, twenty-four hours after delivery. Body not convulsed at all.

CASE II. Placenta previa, with concealed hemorrhage; death.

Mrs. K. was a reasonably healthy, young German woman, thirty-one years old, of healthy stock. During the past five years she had had four children, and was now pregnant with the fifth since the last of March, 1894. I attended her in three previous labors. They were normal, and she made fair convalescence. In this last pregnancy she failed to notify me of her condition, as she had always done, and had no medical advice. This was unfortunate, for she was not at all well, complaining much of debility, and looking poorly, as her friends report. She "felt life" at the usual time. Fetal movements continued until within two weeks of her last illness, which occurred September 24, 1894, at about the sixth month of pregnancy. This was on Monday. On the Thursday previous she took a long walk, and on Sunday walked to church, and was hardly able to get home, from exhaustion. Sunday night, on "taking off her corsets," she felt pain in the lower part of her abdomen. It felt "as if everything were dropping out." Abdomen "very hard and large." She vomited once or twice. Thought her trouble might be due to "pears" that she had eaten. Pain was continuous all night, although "not very severe." During Monday morning the pain continued, and was a little worse. She could not stir in bed. But they were not alarmed; the husband went to his work. Neither nurse nor physician was notified. She vomited again Monday A. M. About 1 P. M. the pain became much worse; described as a "steady, constant" pain, agonizing in character. She said that she "never suffered so much with all her children." I was called to attend her, and saw her about 2 P. M. The nurse who preceded me by a quarter of an hour, said that she "looked very sick"; with cold extremities "way up to elbows and knees"; ears were "purple" and feet "prickly." Nurse thought that she was going to "have a convulsion." I found the patient in great distress, looking very pale, and with an agonized expression. Pulse weak and quick. Still I have seen the same picture in simple miscarriage. There was nothing objectively to positively alarm one. But her abdomen was hard and tender. She could

hardly move upon the bed, and she complained of a "constant pressing" pain in her back and through the uterine region. This aroused suspicion. There was a slight flow. Os was found to be hard and rigid, admitting only the tip of my finger. I at once etherized, and proceeded to dilate and empty the uterus as soon as possible. I sent for assistance; and soon Dr. J. C. Stedman arrived and gave me, through this most trying case, valuable help. A vaginal antiseptic douche was given (1-3,000 bichloride), and dilatation begun. It was no easy matter to introduce my forefinger through the os; but in time I succeeded. It was grasped firmly by the cervix. Slowly I got the second finger in, when I thought I felt the placenta previa, immediately over the os. I mentioned this to Dr. Stedman. Dark, venous blood now began to flow around my fingers. With three fingers introduced, I could distinctly feel the placental tissue. Blood was flowing freely, dark in color. At length, after fifteen or twenty minutes, I got my whole hand in. The placenta was found to be distinctly previa, lying right over the internal os. It was small and wholly detached, lying loose in the uterine cavity, with a bag of membranes, and a mass of clots above. I pushed through the mass of placenta, clots and membranes, and for a moment the child eluded my search. But I soon found it, lying transversely at the very fundus. I seized a foot, and extracted it promptly, without difficulty. It was ten inches long, and dead, of a dark-blue color. The placenta, and a hatful of clots and fluid blood—perhaps two quarts, followed. The uterus was immediately washed out with hot vinegar and then with bichloride solution (1-5,000). It contracted at once. The woman was nearly collapsed, but came out of her ether. In the next half-hour we administered six subcutaneous injections of whiskey, in one drachm doses; ten minims of tincture of digitalis subcutaneously; and two injections of carbonate of ammonia, five grains each, and also one-sixtieth of a grain of strychnia; all subcutaneously. By mouth, one drachm of ergot, whiskey and water freely, coffee strong. Also whiskey and water by rectum. Heaters were applied everywhere about her. Her head was lowered, and the foot of the bed raised. Her hands and limbs were chafed. We fanned her. But all to no avail. She died in half an hour after delivery, from shock and loss of blood.

In briefly reviewing these cases I will simply allude to some of the salient points. In Case I we have a patient whose mother's puerperal career was not without significance, she having had several still-born children, and undergoing venesection before delivery to avert anticipated eclampsia. The patient herself was exhausted by a long series of miscarriages, and late in life, at forty, became pregnant. Nothing is known of the state of her kidneys before delivery; but her urine may have been albuminous, and uremia may have occasioned the death of the child, which had evidently been dead for some time. The hydremic condition of the blood, as evident to the eye, would perhaps strengthen this view. Labor was ushered in not by the normal intermittent uterine contractions, but with a steady, though not severe pain, and with increasing pallor, faintness and debility. Clots were also found in the vagina, which signs are somewhat tardily recognized as diagnostic of concealed hemorrhage. The membranes were ruptured, and the child quickly escaped under the influence of normal pains assisted by

pressure over the fundus. This was followed by large clots, and considerable fluid blood and a small degenerated placenta. The patient was in semi-collapse, but rallied a little under free stimulation, when she was again reduced by a profuse gush of blood escaping from the uterus, several hours after delivery. She again slowly rallied through the night, and appeared in the morning, perceptibly though slightly, improved in strength and general condition. Slight edema of face may have been present at this time, but was not observed. By 10 A. M. the nurse noticed that her face was distinctly swollen; and at noon, when I saw her, the edema was extreme. The bladder was found to be empty, a small amount of urine having been passed only once since delivery. Suddenly she complained of weakness and faintness, and her face became ashy pale; she had a slight though distinct convulsion, involving the muscles of the face, and lasting for a moment, when respiration ceased, and she was dead—twenty-four hours after delivery.

With regard to the diagnosis of this case, I should be glad for your judgment. It has seemed to me most probable that uremia was the underlying pathological condition, for the following reasons: The anemic and enfeebled condition of the patient predisposed to it. The dead child, without other known cause, the concealed hemorrhage, the hydremic condition of the blood, the almost complete suppression of the urine after delivery, and finally the edema, with the slight eclamptic attack at the end, all seemed to me to point clearly in that direction. Of course, it is perfectly possible that the death of the child, and the concealed hemorrhage may have come from other causes, and the uremia developed after the birth of the child. As I have said, the other hypothesis seems perhaps the more tenable.

As to the management of the case, it was unfortunate that the patient was not watched during the pregnancy, and the urine examined from time to time. I have most scrupulously since that case, for years, advised that patients report their pregnant condition very early, and send urine for examination, at least once a month. The concealed hemorrhage ought to have been suspected at least, at the first visit. The absence or diminution in the amount of urine after delivery ought to have been ascertained earlier. Here I was deceived by the statement of the nurse, who reported the napkin wet with urine.

In Case II a healthy young German woman was reduced by five pregnancies in five years. During the last one she was more debilitated than usual, but failed to put herself early under medical care, as she had wisely done in her previous pregnancies. Two weeks before her last illness fetal movements ceased, and at the sixth month, after being utterly fatigued by a long walk, she was seized at bedtime with a steady, persistent pain, and a slight flow and vomiting. She was not seen by a physician until the afternoon of the next day, when she was found in great distress from a concealed hemorrhage. The os was rigid; but it was thought wise to ignore the risk of laceration and to rapidly dilate under ether. This was accomplished with difficulty, and the placenta found to be entirely previa, free and wholly detached. The uterus was promptly emptied of perhaps two quarts of clotted and fluid blood, with the fetus and placenta. The woman came out of her ether, but was in collapse and died in half an hour in spite of stimulation.

I have been at a loss just how to class this case. It was evidently a placenta previa; but the concealed hemorrhage seems to me a very unusual feature. It can hardly be spoken of as an "accidental concealed hemorrhage," as that latter condition seems to be defined as the result of the separation of a normally implanted placenta. Moreover, I have supposed that the term "unavoidable hemorrhage" was applied to the ordinary external hemorrhage of placenta previa. In one sense this was accidental; at least it does not seem to have been caused by uterine contractions, and dilatation of the os. The complete detachment of the placenta seems to me another remarkable feature.

As to the treatment adopted, it seemed to me the only course to pursue in spite of the danger of laceration, and rupture of the uterus. If there are any cases of concealed hemorrhage where delay is justifiable this did not seem to my mind to be one. There were two measures that I did not apply to the state of collapse. I allude first to the use of electricity, and second to the subcutaneous injection of a warm saline solution. As to electricity, it may, I suppose, be of service; but the difficulty is that one's battery is never at hand. As to the use of a saline injection, I should be glad for an opinion. I wish I had tried it, although I read of several cases where it was of no avail.

RAPE.¹

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(Concluded from No. 2, p. 31.)

To consider fully the evidences of rape, it would be necessary to review the normal anatomy of the female genital organs with which I will assume you to be familiar. It is well, however, to bear in mind the various ways that a hymen may appear. Tardieu in his "Attentats aux Mœurs," has collected quite a variety of forms, remarking that there is no universal type. He shows the hymen closed, having a narrow slit, diaphragm with upper opening, diaphragm with central opening, semilunar, annular with irregular edges, with punctate orifice, with double orifice, with double bilateral orifices, with double unequal orifices, with central orifice and two upper parts terminating in a cul-de-sac. Anatomical conditions may be a source of error. Dalbeau describes a vulvar canal just about the fourchette ascribed to indecent assault by a penis too large in a vagina the size of a penholder; Brouardel says perhaps this was true in the case referred to, but such a malformation runs in families, and cites cases to prove his statement. The absence of hymen in an unmarried female is no proof of rape, since it may have been congenitally absent, may have ulcerated away from irritating discharge or scrofulous disease, been destroyed in treatment of vaginal discharge or in medical examination; been destroyed by the female herself or removed by some one else according to her will and with her consent. The presence of the hymen, on the other hand, is no sure proof of virginity, nor that rape has not been committed. It has already been stated that a rape can be committed without the penis reaching the hymen — moreover a woman whom I saw professionally had been married thirteen years to a potent husband and had an unbroken hymen mus-

cular in tissue and guarded by vaginismus; she might have been raped every week, and yet furnished good evidence for the defence. A hymen has been known to persist until the second delivery, as stated by Stolz in the *Annales d'Hygiène*, 1873. "Virgines intactæ"!! have frequently required the assistance of accoucheurs and in due time have been delivered of children.

The most important duty that falls to the hand of the physician in a case of alleged rape is the examination of stains which may be seminal.

Suspicious articles received by him should have been sealed and marked for identification. His first duty is to note the time received and the condition of the seal. Having further marked them for his own identification, they should not go out of his direct control until produced, if necessary, in court.

A seminal stain may be simple or mixed with blood, animal fluids or extraneous matter as vaginal mucus, feces, urine, etc.: its color is a shade of gray or yellow, the albuminous matter causes a stiffened feel, the outline is irregular. If fresh, a characteristic odor is present; this is often brought out by moistening and slightly heating, even when the stain is old, and naturally then without odor. The color is best brought out by transmitted light, or, in my experience, by holding the stain a little below the level of the eye in a strong, direct light that thus falls upon it at an angle. This color is more of a gray-brown than the stain of albumen, becoming if the stain is warmed, a characteristic pale-yellow.

There are no reliable chemical tests of the stain. If there is doubt whether the stain be simply albuminous or seminal, Lassaigue recommends that it be moistened with a solution of lead oxide in liq. potassæ at 68° F. when, if albuminous, that is, if it contains sulphur, it turns yellow; while if seminal no change occurs, unless, as sometimes happens, the semen be diluted with an albuminous secretion. Pure seminal stains give no blue reaction with the guaiacum test. These tests are only of value on clean, white material. Tidy says to determine if a given stain be seminal, digest it in a watch-glass with a few drops of water for about ten minutes; then place the glass in a good light on a piece of white paper, and add to the solution one drop of nitric acid on a glass rod. If seminal the stain will turn yellow, but there will be no precipitate.

To prepare the stain for microscopic examination, the method advised by C. Robin in the *Annales d'Hygiène*, 1857," and endorsed by Tardieu, is as follows: "A portion of stained cloth is soaked in distilled water feebly alkaline at the ordinary temperature, by holding it by an unstained portion allowing the stain to be in the water. Capillary attraction draws up the water; in a time averaging from three to twelve hours the stain has become smaller and bloated, so that with the point of the scalpel some can be removed and placed upon a glass slide." Tidy recommends that the stain be steeped from thirty-six to forty-eight hours in an ammoniacal solution of carmine; then unravel the fibres of the cloth and examine each one separately in glycerine under a microscope of 500 diameters. Vegetable fibrillæ are not tinted by carmine, while the heads of spermatozoa become a full red.

Wood, in an article to be soon published, recommends that, using great care, the stain be moistened with water or a solution of salt and glycerine; that then it be gently scraped or squeezed. Sometimes better results can be obtained by staining with a solu-

¹ A paper read before the Haverhill Medical Club.

tion of iodine or eosin, while a trace of hydrate of ammonia diminishes turbidity.

For about three years I have employed odd moments in this line of investigation. I find that, in my hands, the best results are obtained by placing the stain over a watch-glass and moistening it with a lukewarm solution of distilled water rendered slightly alkaline by the addition of a few drops of hydrate of ammonia. I take care that the smallest amount of water is used consistent with a little more than saturating the stain. Allowing this to remain a few hours with the stain uppermost, I reverse its position for a half hour, gently moving it in the water. A few drops are then taken up in a new pipette and transferred to a new glass slide. If careful and repeated examination fails to show spermatozoa, I gently squeeze the stain in the water and try again. A long, patient search is often rewarded. Care must be taken to use the minimum of force in squeezing the stain.

A pure seminal stain may contain beside spermatozoa, cells and spherical bodies of the seminal passages, pavement epithelial cells of the urethra and cells of the urethral ducts and glands, lozenge-shaped crystals of phosphate of magnesia, granular masses, leucocytes or globules of spherical mucus.

The spermatozoa may be whole or broken. The whole have tadpole-shaped ovoid heads and long tails, and can be mistaken for nothing else. Their length is from $\frac{1}{800}$ to $\frac{1}{500}$ of an inch, occasionally they are not over $\frac{1}{1000}$ of an inch, while the head is about the length of a normal blood corpuscle, $\frac{1}{300}$ of an inch. Tailless spermatozoa have been described by Dr. H. Gibbes in the *Quarterly Journal of Microscopic Science*, July, 1880.

The presence of spermatozoa is proof positive of the presence of seminal fluid at the spot from which the substance examined is taken, but how gotten there it does not behoove the medical expert to say. In my investigations I am at present at work on a question which I cannot now answer definitely, but which I suggest as an interesting one with some practical legal value, if solved — How far is the size of the spermatozoa, more particularly the length, dependent on the time since the emission preceding the one from which the stain is produced? It seems to me to have, possibly, some ratio.

In the identification of spermatozoa in case of rape Ungar softens the stained material in distilled water to which he has added hydrochloric acid in the proportion of one drop to forty cubic centimetres of water. He has succeeded in obtaining a double staining of the zoöspers by means of eosine and hematoxylin, of carmine and eosine, vesurine and eosine or methylgreen and hydrochloric acid.

The failure to find spermatozoa does not show positively that the stain is not seminal. The fact may be simply that they are not found while still present; moreover, Caspar insists on temporary absence, variation in quantity, and even existence of spermatozoa in the same individual under varying influence, particularly venereal excess. Spermatozoa may be absent in a boy who is still capable of assault, or in an old man, though they probably exist here after the power of erection has gone, or in very advanced years with the power of erection and emission present, as shown by the record of the case previously referred to where a child was born by a woman aged seventeen to her husband aged ninety-two; in which case the "other man"

was not suspected. Adult males with old disease of the testis or double gonorrheal epididymitis may have no spermatozoa.

The vaginal mucus should, when possible be examined after a case of rape. Live spermatozoa have been found in the vagina of a little girl fourteen days after she was raped. Their activity is stimulated by alkalies, diminished by weak acids. Temperature above 120° kills in a short time, so that the prolonged hot douche after a rape would be rational treatment.

The only thing liable to be mistaken for spermatozoa are the trichomonas vaginæ described by M. Donné as found in the vaginal mucus of an unclean patient; the heads of these are, however, three times as large as those of spermatozoa. They appear to be granular internally, and several ciliæ are apparent. The spermatozoa, on the contrary, are structureless, and have no ciliæ.

Minute ovoid granulations might be mistaken for the heads of spermatozoa, and, possibly, minute fragments of linen fibre for their tails. Some fungi are also said to resemble those tails, but are clumsier and refract light differently. It is safe *not* to give a *positive* opinion except on the presence of whole spermatozoa.

After months of practice, with increasing skill in manipulation and power of observation, I was able to detect spermatozoa in stains of a month's duration, and felt quite elated. Imagine my feelings to learn from an article by Dr. Wood, previously referred to, that Bayard had detected them after six years and Ritter the same, while Rawson had found them after eighteen years.

In examining a supposed seminal stain in a case of rape, watch should be kept for all other objects appearing in the field, especially for fibres of cloth, hair, pus, blood corpuscles, as these may help to fix the crime on the guilty party.

We should bear in mind, also, that a supposed seminal stain is quite possible to have been caused by vaginal mucus, leucorrhæa, gonorrhæa, lochia, urethral fistula, nasal mucus, meconium, saliva, or foreign matter purposely put in the position found. The stains of vaginal mucus are more apt to be of a yellow or yellowish-green color; those of pus of a green or greenish yellow; all lack the starchy feel of seminal stains.

Everything used in the examination should be new, and so treated that by no possibility can carelessness be charged to the observer. It goes without saying that the duty of the medical expert is to state what he *finds* positively; when it comes to inferences to be drawn from things found, he treads on different ground and needs to use caution. He can often state that, *admitting certain premises*, a certain conclusion must follow, or that a conclusion suggested is not inconsistent with facts found, when a more positive statement might weaken his evidence by having a portion of it discredited; the average jurymen not being any too able to distinguish the difference in value between testimony on matters of fact and matters of opinion.

It should be constantly borne in mind that the medical expert is not the prosecuting officer. He should approach the matter with an unbiased mind, by whichever side he may be employed; if the party accused be guilty, he is convicted on the chain made by the links of evidence of which the medical evidence is but a single link, albeit an important one.

I wish to allude to one other matter here. Rape by

a female upon a male, though unknown to English law, is not unknown to French law. It consists of forcible connection by a female with a male, the latter usually a child, and has been followed by conviction.

In considering the question of rape from the psychological point of view, the first thing to establish clearly in one's mind is the normal process of the awakening and growth of sexual desire. Von Kraft-Ebing thus ably summarizes it: "The psycho-physiological process comprehended under the idea of sexual instinct is comprised of (1) concepts awakened centrally or peripherally, (2) the pleasurable feelings associated with them. The longing for sexual satisfaction (*libido sexualis*) arises from them. This desire grows stronger constantly in proportion as the excitation of the cerebral spheres accentuates the feelings of pleasure by appropriate concepts and activity of the imagination; and the pleasurable sensations are increased to lustful feeling by exaltation of the erection centre and the consequent hyperemia of the genitals (entrance of liquor prostaticus into the urethra, etc.). If circumstances are favorable . . . desire is complied with; if the conditions are unfavorable, inhibitory concepts occur, overcoming the sexual longing and preventing the sexual act." This is to my mind the most complete and at the same time compact statement of the psychological and physiological laws governing the matter under consideration that it has been my fortune to read. It will bear careful study, for upon variations from these laws is based all the pathology of morbid sexual conditions.

Most of what immediately follows is taken from or based upon von Kraft-Ebing.

Rape may be caused by physical defects, moral deterioration, each or both, their interdependence being perhaps much greater than is commonly supposed. It is caused by a temporary powerful excitation of sexual desire induced by excess in alcohol or by some other condition. At first it seems improbable that a man morally intact would commit rape; but the question arises, May not his seeming moral defects be entirely due to a perversion of his brain, and hence cause the exclusion of morality as an element in the consideration of his case? For immorality of necessity presupposes and requires a *mens sana* to be capable of balancing right and wrong and executing deliberate choice with freedom of will. "Lambroso (*Goldammer's Arch.*) thinks that the majority of men who rape are degenerate, particularly when the act is done by old men on children." "For we must remember that a reawakened, perverse, abnormally intense and uncontrollable sexual desire is known to be one of the manifestations of senile dementia." Other causes that often lead to rape are mania, satyriasis and epilepsy. Murder may follow rape; rape may follow murder; murder out of lust is technically called lust murder.

There is a presumption of lust murder when the genitalia of a person found dead are more injured than would be caused by a brutal attempt at coitus. This presumption is strengthened when the body has been opened and the intestines or genitalia are wanting. Lust murders dependent on psychopathic conditions are never committed with accomplices.

In examining an accused person we should consider whether there be a tendency to *cunnilingus irrunare* on boys or girls, *prædicatio puellarum*, *coitus inter fe-*

mora, exhibition, etc., as going to show a degenerate condition. We must bear in mind that the accused may be a "sane man who by satiety of normal sexual indulgence, lasciviousness and brutality, perhaps also by intoxication, has forgotten that he is human."

The most difficult task seems to me to determine where the line of irresponsibility ends and that of responsibility begins. "Education, cultivation, self-control, constitution, organic influences, alcohol, are all factors to be considered."

To my mind a pathological condition, even of a portion of the brain, does not of necessity imply that punishment is injurious to the accused or useless in preventing repetitions of the act. Hysteria has no doubt a pathological basis in the nervous system; and yet, I have seen pain inflicted by me enable its victim to master it. A pathological condition may be strong enough to produce a decided tendency, but the inhibitory concept of punishment to follow is sufficiently strong to overcome this tendency. There doubtless is a point where irresponsibility begins; but to determine this point each case must be taken by itself, and all circumstances, personal, hereditary, physical, mental and moral carefully considered.

The principal cerebral neuroses enumerated by von Ebing as affecting rape are: (1) paradoxia, the sexual excitant occurring independently of the period of the physiological processes in the generative organs; (2) hyperesthesia or satyriasis, abnormally increased impressionability of the *vita sexualis* to organic psychical and sensory stimuli — this may be central as in nymphomania and satyriasis, or peripheral or organic; (3) paresthesia, excitability of the sexual functions to inadequate stimuli — the domain of psycho-pathology.

Examples quoted of paradoxia are the sexual instinct in childhood — due in the male, for instance, to phymosis, balanitis; in both sexes oxyuris in the rectum — and the consequences of masturbation or a neuropathic constitutional condition. A case in the female subject is quoted in Marc's "*Die Geisteskrankheiten*" (von Adeler). Another instance of paradoxia is the reawakening of the sexual instinct in old age, senile dementia, attempts of the aged upon children — "The intellect may lead to conceive, but the moral sense is missing." "Hyperesthesia may be caused by pruritus, eczema, cantharides, neurosis, hysteria; it may be intermittent or periodic. The diagnosis of paresthesia depends on the investigation of the whole personality of the individual and the original impress leading to the act to distinguish perversion (disease) from perversity (will)."

"The cruelty of rape is but an exaggeration of the aggressive character given by Nature to man to cause the surrender of a woman in spite of obstacles whose overcoming gives him greater pleasure." It is the prize sought for, and gained by difficulties passed, whose possession makes its owner swell with pride. This instinct carried to excess, causes anthropophagy, as exemplified, perhaps, in the Whitechapel cases. The desire to inflict pain and to use violence is termed sadism; its counterpart is mesachism, the desire to suffer and to be subjected to violence. "These are the fundamental forms of psycho-sexual perversion, which may make their appearance at any point in the domain of sexual alienation."

I have endeavored in this paper to set forth enough of the — to me — interesting matters arising in connection with a question which at first sight seems sim-

ple in the extreme, as shall cause you, if ever called upon to deal with a case of rape, to do at the same time justice to the victim and, none the less, justice to the accused. The manner in which such an apparently simple subject leads one through the domains of law, of psychology and of medicine, with their allied branches, is but another proof of the fact we are having impressed upon us every day — the profession we have chosen and which we love is one that, while it renders the task difficult by occupying our time in other and important ways, demands of each none the less imperatively a continual research in every direction, that we may fit ourselves thoroughly for the solemn duties of our lives. And herein lies the charm; work as we will, study as we will, the field is still broad, and never can we say, even if our time is devoted to a special branch alone, we are masters of every detail.

Clinical Department.

A MECHANICAL TREATMENT OF ECZEMA IN YOUNG CHILDREN.

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AUTHORITIES in dermatology will doubtless agree that the application of ointments and pastes is only the beginning of the treatment of eczema. Whatever the type or distribution of the disease, after a wise choice of medicaments comes the greatest difficulty, the prevention of scratching. No matter how carefully the hands and feet may be tied, the child will occasionally get free. The greatest danger is at night when constant watching is not practicable. Tight bands at the wrists and ankles are objectionable, and



they must be tight to hold the child. Let a child feel that he is held so that he cannot move, and a desperate resistance at once begins which will usually end in an aggravation of the disease. In spite of obvious defects, the "pillow-case method" has been considered the best up to the present time. The child is put into a pillow-case and the open end is gathered about his neck. The legs are abducted and sewed in by means of seams on each side, close to the legs. The arms are placed a little way from the body and treated in the same way. The edges of the pillow-case are then pinned to the mattress of the bed. The arms and legs of the child are thus allowed a certain amount of

harmless motion, but he must lie flat on the bed and the back is sure to perspire in hot weather. In this method, also, the head is free and the child may rub his ears on the pillow. It is a matter of common observation that eczema of the ears is hard to cure, and this is largely because the child harrows up the skin by rubbing on the pillows at night.

The original suggestion for a new treatment, which I will call the hammock method, was made by one of the Sisters in charge of the wards at the Children's Hospital. Take a stout piece of duck a little longer than the child, and about two-thirds of a yard wide; turn up an inch at each end, and stitch it down for the admission of a straight piece of iron as wide as the cloth, and stout enough to support the weight of the child. These iron rods are the spreaders, and should have a ring at each end for cords, which are pulled tight and fastened to the posts at the head and foot of the bed. We now have a duck hammock stretched tightly over the bed, with a good air-space between it and the mattress. Four many-tailed bandages long enough to include the whole arm or leg are sewed to the hammock in the lines which would be taken by the arms and legs when slightly abducted. The child is placed upon his back on the hammock, ointments are applied on soft cloths, and the arms and legs secured by smoothly tying the many tails. In the canvas on each side of the head a square window is cut, leaving the head supported by a strip perhaps four inches wide. A turn of bandage over the forehead and under this narrow strip prevents the head from being raised. The head can be turned from side to side with considerable freedom, but if the windows in the hammock have been properly placed, the ear finds nothing to rub against and will remain uninjured no matter how violent the twisting of the neck. To complete the apparatus, a small bell is tied to the side of the hammock, so that any unusual struggle for freedom will attract the attention of the nurse.

A sufficient trial of this apparatus has been made at the Children's Hospital to warrant the claim of the following advantages:

- (1) Comfort. There are no tight bands, the many tails giving firm but uniform pressure throughout the length of the limb. No part is overheated. The child does not feel restraint, because a good deal of harmless motion is allowed by the play of the hammock.
- (2) The danger of scratching is reduced to a minimum, and the ears are especially protected.
- (3) Applications are easily made and changed.
- (4) Simplicity and cheapness of construction.

Medical Progress.

REPORT ON DISEASES IN CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

GASTRO-INTESTINAL SEPSIS.¹

THE works of Widerhofer, Parrot, Epstein, von Hofsten and others have established the fact that the varieties of acute enteritis occurring in the nursing infant, differ when observed in hospitals and in private practice.

¹ H. Fischl: *Jahrb für Kinderheilk*, 1894, xxxvii, p. 288; abstracted in *Revue Mens. des Maladies de l'Enfance*, November, 1894, tome xii.

Fischl, who has studied the lesions in these cases for a number of years, has been impressed by observing clinically, apparently mild cases which have caused severe lesions of the mucous membranes, and, on the other hand, cases of the utmost severity, in which the lesions were very slight. These apparent contradictions have been explained by the bacteriological examinations. The works of Epstein, Cholmogoroff, Gartner, Gaston, Neumann, von Puteren and others have thrown much light upon the different places of entrance of infection in the new-born.

Epstein has shown that in certain cases the infection can be disguised in the form of an acute enteritis, a fact which is not generally known.

Fischl has examined histologically and bacteriologically 21 cases in Epstein's clinic in which the diagnoses of atrophy, debility, septicemia and gastro-enteritis, the latter in 11 cases, have been made during life. Eleven cases were simply examined microscopically, and in these the organ chiefly invaded by the organisms was the lung. In the remaining 10 cases the examination was completed by the bacteriological examination of the blood taken from the heart, and the other organs were subjected to trituration, and cultures made from the triturates. In these cases he found that when the cultures taken from the lungs gave positive results, the cultures made from the other organs gave the same results. In seven of these cases he found the *staphylococcus pyogenes albus*. Four of these seven cases had the symptoms of acute gastro-enteritis; the other three had the symptoms of septicemia. In only two cases could he find a suppurative omphalitis. In the remaining cases he only found at the autopsy the lesions of acute gastro-enteritis. The *staphylococci* were very virulent. In a case characterized by the appearance during life of numerous abscesses in the lungs, the cultures showed the *staphylococcus albus* and *aureus*. Finally, in the last two cases examined bacteriologically, he found the *streptococcus pyogenes* once alone, and the other time associated with the *coli bacillus*, the latter were localized in the spleen and were not virulent.

The researches in question have shown the existence of micro-organisms, pyogenic and virulent, in the organs of individuals who have succumbed in some cases to acute gastro-enteritis and in others to septicemia. This fact, according to the author, shows that at least a certain number of the cases of acute gastro-enteritis which one observes in hospitals are only a manifestation of acute septicemia.

The anatomical lesions which one finds in the various organs are the following: In the lungs the lesions can present themselves in three forms. Most frequently one finds foci which have been incorrectly designated as inflammatory. In these cases the process consists in a degeneration of the alveola epithelium, causing them to swell and their nuclei to stain imperfectly. After this they are desquamated, and fill the alveoli in such a way as to simulate an inflammatory process. In other cases, in addition to the desquamation of the epithelium, one finds the edges of the alveoli infiltrated with leucocytes which often invade the walls of the bronchioles and advance under the epithelium, as in syphilitic interstitial pneumonia. That which bears witness in these cases to the septic origin of the lesions is the frequency of hemorrhages of which the foci are sometimes sub-pleural, sometimes inter- or intra-alveolar. The micro-organisms are

sometimes found at the limits of the lesions as veritable agents of propagation, sometimes in the centres of abscesses and sometimes in the walls of the bronchi, or in the centres of alveoli. They are rarely found in the blood-vessels, but they often fill the lymphatics.

The gastro-enteric tract presents the lesions of gastro-enteritis; but often in spite of the severe clinical symptoms one finds only an intense hyperemia which is perhaps the result of the action of the toxins on the vaso-motor nerves. The micro-organisms are very variable on the surface; but when the epithelium is intact they are found neither in the interior of the cells nor beneath them. Neither are they found in the blood-vessels or lymphatics. When the infection is very severe, a few are found in the mesenteric glands. The liver shows frequently cloudy swelling of the epithelium, but micro-organisms are rare.

In the kidneys lesions of the epithelium are constant in the convoluted tubules, and frequently hemorrhages either sub-capillary or in the glomeruli. Quite often there are miliary abscesses with masses of *staphylococci* at the junction of the cortical and medullary portions of the kidneys. In other cases the micro-organisms are lodged in Bowman's capsule.

The spleen, which is not always enlarged, presents sometimes a simple hyperplasia, sometimes hyaline changes of the reticulum and of the adventitia of the arteries. The micro-organisms are almost as constantly found in the spleen as in the lungs. The pancreas and salivary glands sometimes show parenchymatous degeneration of the epithelium.

In general, the lesions do not seem to vary with the nature of the infection, but too few cases have been observed to base a definite judgment upon. One thing is shown, namely, that in the cases which are clinically different one finds identical anatomical lesions, suggesting the action of a septic virus of which the special organism can be discovered in certain cases. The places of entry of the infection are variable and difficult to locate precisely. By the side of certain cases where one finds a lesion of the buccal mucous membrane sufficient to be considered as a place of entry, there are other cases in which the mucous membranes are normal.

The infection through the air certainly plays an important part, as shown by the frequency and severity of the pulmonary lesions, by the appearance of suppurative otitis, and by the large number of cases which occur in the winter and spring. In all the cases the infection through the alimentary canal seems to play a secondary part. Cases of infection with gastro-enteric symptoms have been observed in the new-born fed during a few days with an infusion of tea.

In closing, the author cites the works of Sevestre, Renard, Girode, Lesage, Marfcon et Nanu; the work of Meyer who mentions cases of death of the new-born from umbilical arteritis, and found *streptococci* and *staphylococci* and the anatomical lesions similar to those which occurred in the author's cases; the work of Strelitz, who found the *streptococcus pyogenes* in a case of Winckel's disease; and that of Neumann, who isolated the *staphylococcus* in a case of hemorrhagic diathesis, etc.

THE HEMORRHAGIC DISEASE OF THE NEW-BORN.²

The hemorrhagic disease of the new-born is studied by Dr. C. W. Townsend in an analysis of fifty

² C. W. Townsend: Archives of Pediatrics, August, 1894, p. 559.

cases, which he has grouped together under the title given above, owing to the presence of certain characteristics common to all the cases. These are, the general and not local nature of the affection, its self-limited character, and the presence of fever. These, together with the greater prevalence of the disease in hospitals, would suggest an infectious character. Thus 45 of these cases occurred in the Boston Lying-in Hospital, making about two-thirds of one per cent. of all the cases; while five cases only, occurred in the outpatient department, or one-tenth of one per cent. The general character of the disease is shown by a table giving the various sources of the hemorrhages, which include the gastro-enteric tract, the various cavities and the skin. Although bleeding from the umbilicus occurred in eighteen cases, in only three was it unaccompanied by hemorrhage elsewhere.

The self-limited character of the affection is shown by the fact that in all cases, the bleeding began within the first week, or at the latest within the first two weeks of life, and all went on to death or complete recovery within five to nine days.

The distinction between this affection and true hemophilia is insisted on, the latter rarely showing itself in the first year of life, being not self-limited and occurring much oftener in females, which is not the case in the infantile affection.

The temperature charts are of interest, and show a preliminary rise to 102° or 103°, followed by a sub-normal temperature as a result of the loss of blood. A test for the recognition of disintegrated blood in the stools is given (Teichmann's test), and the results of post-mortem examinations.

For treatment it is important to remember that the disease is self-limited and not necessarily fatal — 62 per cent. in Dr. Townsend's cases. Perfect quiet, careful feeding with a spoon or dropper, warmth in the stage of collapse and alcoholic stimulants even in the stage of bleeding, are recommended.

PATHOLOGY OF RHACHITIS.³

The very first signs of rhachitic disease in the infant are always found in those parts of the bones which are in the most active stage of development.

In the first days of extra-uterine life, it is the skull which undergoes the most marked physiological changes. Rhachitic disease of the skull attacks preferably two regions: the occiput, extending into adjacent parts of the parietal bones; secondly, the borders of the anterior fontanelle.

The author divides the skulls of the newly-born into three different classes: first, those in which all the fontanelles, with the exception of the large one, are closed, the cranial bones are in firm juxtaposition with no defects in their development. The second group consists of skulls, the bones of which are still very movable and often overlap each other. The third group includes those cases in which we find all the changes present which at a later period in the development, we would call a true craniotabes. Now the question arises, how far the conditions of the third group are physiological and how far pathological, or can we draw a sharp line between the physiological and very early rhachitic disease. To solve the question, the author examined 1,164 children and found 34.6 per cent. had craniotabes. The higher percent-

age was obtained in those under three months of age; it decreased steadily up to the first year when there was an abrupt fall in the percentage to less than one-half of the preceding three months. During the second year, the cases of craniotabes diminished rapidly, but a few sporadic cases were still met with in the beginning of the third year.

The rhachitic changes in the cranial bones range from simple softening which can only be detected by the most careful palpation, to the total destruction of the bone, in which the latter presents itself as a soft pulpy mass; along the borders the bones undergo changes, which mark the degree of severity of the disease; from the simple softening of the border, to absorption of the bone, sufficient to cause a gaping of the sutures up to a finger's breadth. The sagittal suture is most frequently attacked. A further sign of craniotabes is the long-delayed closure of the small and of the postero-lateral fontanelles; in the majority of the newly born these fontanelles are almost entirely closed. Another characteristic sign of early craniotabes is the softening of the borders of those bones which go to make up the large fontanelle. This condition of the bone is always pathological and never physiological, as formerly claimed; furthermore it is claimed by the author, that in healthy children the closure of the large fontanelle is a continuous process from the first day of extra-uterine life, and not, as claimed by Elsaesser, that the fontanelle enlarges up to the ninth month, after which it begins to close. How is it in rhachitis?

The author differentiates three modes of closure of the large fontanelle: first, it may follow the same rule as in healthy children, that is, it grows smaller with age; secondly, it may remain unchanged for a shorter or longer interval and then diminish in size; or, thirdly, it enlarges primarily, and then after remaining stationary for a time, closes. The average size of the large fontanelle in rhachitic children is, even in very early life, far greater than in healthy ones, and the closure may be delayed until the second half of the third year; any enlargement of the large fontanelle is always a pathological condition, and if not due to hydrocephalus, is always caused by rhachitis.

It is the first year of the infant life in which these changes of the large fontanelle take place, but in some cases the disease undoubtedly started in utero. Craniotabes is usually found in all these cases, but there are some in which the above changes of the large fontanelle may be the only symptom of rhachitic disease. Another very important symptom of early rhachitis is the change found at the junction of the ribs and their cartilages, the so-called rhachitic rosary. It often requires a very careful examination to find this sign in less pronounced cases. Rhachitis is by far a more frequent disease than the older writers would lead us to believe. It requires a careful examination and careful observation of our little patients to reveal the less marked signs of the trouble.

In Berlin, the author found out of 1,303 patients, 858 had rhachitis, a proportion of 65.8 per cent.; among 498 children under six months of age, 313 were rhachitic, or 62.8 per cent; showing that the disease may start in very early life, and rhachitis congenita is by no means rare. The congenital form usually manifests itself in changes in the cranial bones.

As to the climatic influence on the disease, the author has found that there was a marked fall in the proportion of the affected during the summer months,

³ Cohn: Pathology of Rhachitis, Jahrbuch f. Kinderheilk., Band xxxvii, Heft 2, abstracted in Archives of Pediatrics, August, 1894.

which is explained by the changes in the hygienic surroundings of the patients.

Rhachitis is always a constitutional disease, and its manifestations may be divided under two headings :

- (1) All the various affections of the bony skeleton.
- (2) The disturbances in the nervous system.

One or the other of these may be especially pronounced, or both be equally well marked.

The enlargement of the spleen has not been as frequently met with as claimed by Kuttner.

In the therapeutics the author does not give anything new; good hygienic surroundings are the cardinal indications. Phosphorus, which, according to Kassowitz, is a specific *sine qua non*, has always been of benefit and particularly in the cases which show marked disturbances of the nervous system.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. HOWEN, M.D., SECRETARY.

REGULAR Meeting, November 12, 1894, the President, DR. C. F. FOLSON, in the chair.

DR. C. B. PORTER showed a specimen of

MYOMA OF THE UTERUS,

weighing thirteen pounds, removed by abdominal section.

DR. J. H. MCCOLLOM and DR. H. C. ERNST read papers on

THE IMPORTANCE OF BACTERIOLOGICAL INVESTIGATIONS IN CASES OF DIPHTHERIA.¹

DR. S. H. DURGIN: I have been asked to say a word about the recent appointments and plans of the Board of Health for the inspection of schools and the care of contagious diseases. I would say that I have been very much interested in the papers, and I consider the bacteriological work an excellent part of the plan which has been laid out for the suppression of diphtheria.

It is well known that for many years diphtheria in Boston has been practically endemic, but in the last few months it has increased so much as to possibly bear the term epidemic. In September diphtheria increased considerably, in October very much more; and so far during the present month it has increased faster than it did previously. I have drawn from our records the number of cases and deaths which have occurred each week since the first of September, 1894, and find that in September there were 236 cases, with 72 deaths; in October 367 cases and 105 deaths; for the first ten days of November there were 266 cases, an equivalent of 798 cases for the month should it go on at the same rate, and with 58 deaths; a total for ten weeks of 869 cases and 235 deaths, and a percentage of deaths amounting to 27, which, by the way, is not large, and if we take into account the fact that many cases exist without being reported the percentage would be still lower. There are many mild cases which do not come to our knowledge, while practically all deaths are reported. With this increase, with the alarmed feeling in the public, the Board of

Health has been enabled to put in operation a plan which it matured and tried to inaugurate three years ago. We have appointed fifty physicians, divided the schools into fifty districts, and placed one physician in charge of each district. Their duties will be to visit each school every day soon after the beginning of the morning session, and see the teacher, who will bring to the attention of the physician any case of illness that may be noticed in the school. The physician will make an examination of the child and advise the teacher whether or not to send the child home, and make a record of the facts. Another duty for the officer, is to visit each case of reported scarlet fever or diphtheria in his district each day, the Board of Health sending to him each morning a list of all the cases of diphtheria and scarlet fever occurring in the city, with their location, so that each officer will be able to pick out those cases which are to be found in his district. He will visit the family of the patient simply to see whether or not the order of the Board of Health as to isolation is being carried out, and report the facts to the Board of Health. He will also at the termination of the disease report to the Board of Health the fact; and in cases of diphtheria that report must be based upon a bacteriological examination which has shown that the diphtheria bacilli were absent; then the Board of Health will issue its certificate for the release of the patient and the disinfection of the house.

I hope it will not be understood by the physicians that this is intended to interfere with any of their prerogatives; it is rather intended to relieve them of many unpleasant importunings for the release of patients from isolation before it is safe to do so.

It is the purpose of the Board to relieve you of that duty and narrow down the responsibility to a small number of officers whom we shall hold responsible for certificates of complete recovery in cases of scarlet fever and diphtheria. The return of children to school is a subject for subsequent consideration; and we do not propose to interfere with the exercise of the statute law which requires that no child from a household in which there is a case of small-pox, scarlet fever, diphtheria, etc., shall attend school until two weeks have elapsed after the recovery, death or removal of the last case of the disease, and that that fact shall be certified by the attending physician, or the Board of Health. Certificates of recovery, for disinfection and school attendance have been given carelessly, and it would be an unpleasant duty to reject one and accept another physician's certificate. I have seen a mother with a certificate of recovery in one hand and the desquamating child holding the other hand, in the health office down-town asking for disinfection. Many children have gone back to school while desquamating from scarlet fever, and many children have gone back into school while Dr. McCollom's examination would show the presence of the diphtheritic bacillus; and it is a fact well known to all of you that one of the great causes of the unreasonable presence of diphtheria in our city has been from children convalescing from diphtheria and scarlet fever in the streets, in the schools, and elsewhere out of isolation. It is with the view of holding these children in isolation, until such time as they can no longer convey the disease to others, and to correct an improper and dangerous school attendance that we have instituted this new work.

¹ See pages 49 and 52 of the Journal.

We have not quite completed our arrangements; but there will be in every part of the city a station in which culture-tubes will be lodged, and all physicians are invited to make use of them, to make the cultures as suggested by Dr. McCollom. They will be sent daily to the Harvard School Laboratory and there examined; and at the end of twenty-four hours a word returned to the physician as to the result. I have also prepared, and it will be sent out to-morrow, a list of all the cases of diphtheria and scarlet fever that have occurred in Boston during the month of October, for the use of the physicians who have been appointed in the districts. One of the drawbacks which face us at the present time is the want of hospital accommodations. The new wards of the City Hospital which are now being prepared for this purpose will not be ready under two or three months. If we had the hospital room we would at once remove many cases of diphtheria which are now spreading the disease for want of possible isolation.

DR. F. H. WILLIAMS: I have been very much interested in what has been said this evening; and it seems to me that we cannot do too much to attempt at least, and I believe it can be attempted with success, to lessen the amount of diphtheria which we have in our community. Two years ago I began making the bacterial tests on patients with membranous throats, and for nearly two years they have been made regularly in the pathological laboratory of the City Hospital. During that period I have read three papers on the subject of diphtheria, and perhaps what I have to say will be simply a repetition; but as the subject is important, you will pardon me if I rehearse some of the points which need to be emphasized frequently. I think it is well to bear in mind in the first place the natural history of this disease. First you have the bacillus in the throat. This stage may last for some hours, or for a number of days, and then is followed by congestion, and later, usually, by false membrane. One cannot tell with certainty whether it is a case of diphtheria or not in the first stage without the bacterial test, nor in the last stage after the membrane has disappeared from the throat. The bacilli may remain in the throat for weeks or months. I recall a case where the bacilli remained one hundred days from the time that the disease was supposed to have begun, and these were dangerous bacilli that were capable of infecting healthy persons. The bacterial test is indispensable during the first stage, when there is nothing to be seen. Let me cite a case that occurred in a family where there was diphtheria. A swab was taken from the apparently normal throat of an individual who had been much in contact with the patient, and she was then sent to a laryngologist who reported that there was nothing to be seen in the throat. Thirty hours after this examination the membrane appeared, and it proved to be a very severe case of diphtheria. The swab had detected the bacilli in the throat before there was any other evidence of the disease.

As regards the prevention of this disease. It is spread, of course, in various ways, but I am inclined to think chiefly by being transferred from mouth to mouth or from hand to mouth or hand to nose. Another point, and one which so far as I know is a new one, is to have the bacterial test applied to all the members of a household in which there is a case of diphtheria. I made this a rule some time ago. In a

family with several children, one having diphtheria, you are quite likely to find within a few days or weeks that some of the other children develop the disease; and the same is true in a school, or where any number of children are together, and for that matter also adults. Roughly estimated, I should say that in most of the families I have examined thus far I have found wholly unsuspected cases of diphtheria, so that the first thing to do after discovering a case of diphtheria is to have the bacterial test applied to all of those who have had any chance of getting the disease; then we shall be able to know early when the patients have it, and take suitable precautions and treat them early. If the disease is treated early locally, except in very young children, the patients usually recover.

As regards the trustworthiness of the bacterial test. Although those who have had experience with it are inclined to advocate it warmly, I think we should remember that it is not infallible. Up to the present time the bacterial test has been applied to something over five hundred of my patients. Now, at times, the test does not detect the bacilli when present. That is not common, and I do not make this statement to discourage any one from having belief in the test and using it as much as possible, but the test may have to be repeated two or three times before the bacilli are found, and sometimes even then does not show them. These cases, I think, are rare. I recall one case where cultures were made with negative results but I believed it to be a case of diphtheria. A swab was taken from a piece of false membrane and examined with negative result. Then a bit of sterilized cotton was rubbed over the membrane, put on a cover-glass and stained without waiting for growth in the culture-tube and the bacilli were readily detected. They were just as characteristic as you get from the culture-tube.

What Dr. Durgin said about the increase in the disease reminds me that October, November, December and January are the four months in the year during which the mortality from diphtheria in this State is greatest, so that we are in the midst of the diphtheria season.

DR. R. H. FITZ: I have been much interested in listening to what has been said this evening, and especially the evidence which has been brought out by Dr. McCollom. We are all deeply impressed with the communications made at the recent Congress in Budapesth, not only with reference to the recognition of diphtheria and to the precautions to be taken against its spread, but also with reference to the treatment of this disease. The uncertain progress of sore throats is so evident that it has been my custom for a number of years to look upon all such cases with a considerable degree of suspicion, and to advise isolation if there is the slightest reason to consider them as deviating from the ordinary course, especially if particularly severe or suggestive of the formation of a membrane. It would seem as if this precaution could not be too distinctly borne in mind, especially by physicians who have not the facilities which the city offers for bacteriological investigation. Certainly they would err on the right side; and there seems to be a growing reason why cases of even apparently simple sore throat should be isolated for a few days, like doubtful measles or scarlet fever. At the same time we must remember that diphtheria bacilli may be found in throats of persons who show no symptoms

of diphtheria, and that there are cases of the prolonged retention of diphtheria bacilli in the throats of patients who have long been free from symptoms. Hence, it is evident that the mere presence of the diphtheria bacillus is not sufficient to make a diagnosis of diphtheria, and that persons need not be necessarily frightened because diphtheria bacilli are found in the throat. It is, however, very important to recognize the fact that if such individuals do not suffer directly from the disease, they represent vehicles of contagion, and that persons exposed to contact with them may suffer in the severest possible way. It is to be hoped that Dr. McCollom will continue his investigations with reference to this class of cases, that is, healthy persons who have no symptoms of diphtheria, and who for a longer or shorter time may harbor these bacilli in the throat.

A point Dr. Durgin has mentioned with reference to the mortality in the present epidemic is interesting. He says the total number of cases of diphtheria is not represented by the figures in the possession of the Board of Health, but a great many unsuspected cases exist; hence, the mortality may appear unduly excessive from the large number of unreported cases. I was interested in this statement because there arrived to-day the latest information from Koch's laboratory and hospital, with reference to the mortality of diphtheria treated by the serum method, according to which only about 16 per cent. of the cases thus treated are fatal. This gives evidence that of the cases which are sufficiently severe to be brought into the hospital for treatment, the mortality is represented by that figure. On the other hand, the statement is made that no death occurred among cases of diphtheria brought under treatment in the first two days of the disease, at which time they are probably to be regarded as mild cases. Certainly it is a great advantage to be able to recognize a possible or probable case of diphtheria before any symptoms of severity appear, and in case the serum treatment continues to hold the position it now assumes, by an early recognition to reduce enormously the mortality.

DR. DURGIN: Dr. Fitz mentions the interesting fact that many of the cases of apparent tonsillitis might prove to be diphtheria if properly examined, and expresses the hope that Dr. McCollom will continue these investigations. I neglected to say that there is and will be the broadest invitation possible to the physicians of Boston to make use of these culture-tubes with the slightest suspicion that you can have in case of ordinary looking tonsillitis or sore throat. If you have any doubt whatever, you are invited to take these tubes, make the culture, and leave it at a station. You merely have to take the tubes from the station, return them, and get more tubes. I will also say that Dr. McCollom has been relieved from all other duties and assigned to the excellent work which he is now doing with Dr. Ernst, who has also been given such additional help by the Board of Health, as he has asked for, to carry along the bacteriological work.

DR. E. M. BUCKINGHAM: I entirely agree with Dr. Williams that diphtheria is conveyed by actual contact, either direct or indirect, and to no appreciable extent through the air. Both clinical and bacteriological evidence, so far as I know them, point in this direction.

DR. F. L. KNIGHT: I am sorry not to have heard Dr. McCollom's paper. I want to say one word in regard

to the value of bacteriological investigation of the patient after recovery, in deciding when he shall return to his ordinary avocation and associate with the family, etc. It seems to me that although this is a good thing, too much value ought not to be attached to a negative result of the examination, for the reason that the region from which the cultures are taken is so limited, and there is such an opportunity for remaining disease in the posterior nares and in the inaccessible parts of the upper air-passages.

DR. WILLIAMS: If I may be allowed one word more, I would like to say that you may find cases of diphtheria where nothing appears in the throat, and in a few days the bacilli disappear. On the other hand, as regards what Dr. Knight said, we must be very careful not to rely on one negative report. I think it is well to say that all methods of treatment are much more successful if begun early — either the serum treatment or the local treatment. The local treatment, which has been used by Löffler in 96 cases, three-quarters of which were diphtheria, was very successful indeed; all recovered. In the cases I treated with strong hydrogen-dioxide solutions, which I saw early in the disease, the mortality was less than ten per cent.

DR. F. W. DRAPER: I am glad of an opportunity to testify how heartily in sympathy I am with all that has been said to-night. What has been said has been progressive and reassuring — progressive because it shows that our teachers are alert and abreast with the latest scientific researches; and reassuring because we have had a demonstration that is distinctly in the line of preventive medicine; and it seems to me that not only the profession, but the entire public, should recognize that fact and be truly grateful for what has been done with such success. I hope the example set by the City Board of Health will be followed by local boards of health elsewhere; and I trust that the State Board of Health will also take up this kind of work and aid in measures from which the public will benefit.

DR. ERNST: One thing I would like to call attention to. It seems to me that one of the most important points shown by this work of Dr. McCollom's is the fact that in no single case where the bacilli of diphtheria have not been found has there been any indication of diphtheria occurring in that patient afterwards, so that the probabilities are that there is some other explanation of the failure of bacilli to grow in the cases collected by Dr. Williams. The special point we have been trying to make is that the method of diagnosis is trustworthy.

DR. H. E. MARION: I have to show the

CLINICAL CHART OF A CHILD WITH MILD TYPHOID FEVER.

The highest temperature reached 105°. The pulse never reached above 60; the lowest and *normal* pulse of the child was 35. It is a case of bradycardia. The boy, fifteen years old, has been under my observation since infancy and this (35) has been his normal pulse.

GASTROSTOMY IN A YOUNG CHILD. — At the meeting of the Société de Chirurgie at Paris, December 19, 1894, Dr. Monnier presented a child five years of age upon whom he had done gastrostomy for an impassable stricture of the esophagus due to swallowing caustic potash.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, November 10, 1894, the President, DR. CHARLES M. GREEN, in the chair.

DR. H. W. BROUGHTON read, by invitation, a report of

TWO CASES OF SUDDEN DEATH IN CHILD BED.¹

DR. J. B. BLAKE referred to a case reported by Dr. F. B. Harrington and the late Dr. Strong, where the patient on the point of death from hemorrhage was saved by a large intravenous injection of saline solution.

DR. C. E. STEDMAN said that the writer was particularly to be commended for reporting fatal cases, as these are often much more instructive than successful cases. The subcutaneous injection of saline solution has been found of great value and is much easier to perform than intravenous injection.

DR. A. WORCESTER referred to a case where a physician saved a case of post-partum hemorrhage following placenta previa by pumping a large amount of salt solution under the skin by means of an aspirator. The water thus injected is rapidly taken up. The amount of water which is taken up by the digestive tract in these cases is astounding. Hence it is reasonable to give water by the mouth as well as the rectum.

DR. G. D. HERSEY, of Providence, especially commended the use of saline solution by the rectum.

DR. C. M. GREEN reported briefly a case of placenta previa with hydramnios which he had recently had at the City Hospital. Here he delivered promptly, and the patient made a good recovery.

Recent Literature.

On Chorea and Choreiform Affections. By WILLIAM OSLER, M.D., F.R.C.P. (Lond.) etc. 8vo, pp. x, 125. Philadelphia: P. Blakiston, Son & Co. 1894.

A portion of this book has already been published in the lectures on chorea which appeared in the *Medical News* in 1887, and the statistics are based upon 554 cases in the records of the Philadelphia Infirmary for Diseases of the Nervous System. There is also a fairly good summary of the recent literature of the subject. The study of the subsequent condition of the heart in choreic patients, published by the author in 1887, has been continued, confirming the previous results. In 51½ per cent. of the cases examined two or more years subsequent to the attack there were signs of organic heart lesion. In addition to the chapters on chorea the book contains a chapter on the habit spasms and tics, and one on Huntington's chorea, and a table of recent autopsies, seventy-three in number, which have been published since 1881, few of which seem to refer to the condition of the nervous system.

With the exception of the study of the heart the book contains little that is new. It is a useful compilation, such as might be made by almost any one having access to a good medical library and the records of a large clinic, but considering the author's reputation, such a production is a distinct disappointment. It is hastily compiled, and often we miss the conclusions which we might expect.

¹ See page 53 of the Journal.

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THE SEMI-CENTENNIAL OF ANESTHESIA.

AN extremely interesting anniversary has quite recently been celebrated in Philadelphia, and an account is given in the *International Dental Journal* for January.

December 11, 1844, was the day upon which Dr. Horace Wells, of Hartford, took nitrous oxide, and while under its influence submitted to the extraction of a wisdom-tooth for the purpose of testing the power of nitrous oxide to annihilate pain. On December 11, 1895, there assembled at Philadelphia a number of dentists and others to celebrate the fiftieth anniversary of that event. This action of Dr. Wells was brought about by his observation of the effects of laughing-gas as administered by Mr. S. Q. Colton, during popular lectures on chemistry. Wells took it himself, and was present while a Mr. Cooley bruised his knees in a way to attract the attention of the audience while he himself was unconscious of the bruise.

The anniversary was celebrated by addresses, a dinner and after-dinner speeches, which certainly did honor to the occasion. Not the least interesting individual present was the Mr. Colton, whose chemical lectures, with their exhibition of laughing-gas, were the starting-point in anesthesia evolution. Dr. Fillebrown, of Boston, spoke of the historic side of the discovery, and to his address we are specially indebted. Such great discoveries seldom leap unheralded upon the world. Anesthesia was said to be accomplished by the ancients, and the drugs first used in the modern history of anesthesia were known long before their practical application. In 1800 Sir Humphrey Davy made his remarkable statement, that "As nitrous oxide gas appears capable of destroying physical pain, it may probably be used to advantage during surgical operations in which no great effusion of blood takes place." One of the very interesting points in Dr. Fillebrown's address is the introduction of a letter from Oliver Wendell Holmes to Dr. Morton, in which he proposes the use of the words "anesthesia" and "anesthetic" as

the necessary noun and adjective to describe the new conditions.

The celebration was intended only to pay to Dr. Wells the tribute for the first application of an anesthetic agent. There was no desire apparent to rob others of the credit of their labors, without which anesthesia might still be awaiting its development; but all will be interested in Dr. Fillebrown's distribution of the honors among those connected with the early days of its history. Reduced to its baldest statement that distribution is as follows:

Dr. Wells observed the effect of the gas, and said, "I believe a man may, by taking that gas, have a tooth extracted or a limb amputated and not feel any pain." Dr. Wells further determined to try it on his own person. C. Q. Colton administered the gas to Dr. Wells for this first operation, and Dr. Riggs extracted one of Dr. Wells's molar teeth. Dr. E. E. Marcy suggested to Dr. Wells the use of ether instead of gas, and verified its action. Dr. Morton made the first public application of ether for surgical anesthesia. Dr. Jackson claimed to have suggested all that Morton knew. Dr. Simpson made himself famous by the popularization of the anesthetic power of chloroform. Dr. Holmes suggested for this condition of insensibility the name which has become universal. Dr. C. W. Long, of Georgia, used ether for anesthesia three times during 1842-3, but his connection with the subject was not mentioned until many years after the fact. Dr. Henry J. Bigelow's connection with the ether discovery was "important, perhaps vital, to the success of anesthesia at that time. . . . He practically supervised etherization during the first year of its use; he announced to the world the discovery of ether in a paper read at the Academy of Medicine November 3, 1846."

It is difficult at the present time to realize the opposition that was felt to the use of any agent intended to interfere with the "natural and physiological forces that the Divinity has ordained us to enjoy or suffer." It is scarcely credible that a clergyman should write that anesthesia is "a decoy of Satan, apparently offering itself to bless women; but in the end it will harden society and rob God of the deep, earnest cries, which arise in time of trouble for help."

The meeting was rightly felt to be not merely interesting but important, in its tribute to a man upon whose memory there remains no blot or stain; against whom "no charge of selfishness, dishonesty, deceit or unfairness was ever made." It was organized as a national tribute to the memory of Wells; the meeting at Hartford, December 10th, to which allusion was made in the JOURNAL, (December 13th, p. 596), and that in Boston, December 26th (JOURNAL, January 3d, p. 19), having a more local character.

AN ELABORATE TEMPERATURE CHART. — An elaborate chart for three-hourly temperature record, with space for pulse, respiration, record of bowels, urine, food, baths, etc., has been prepared by Dr. D. T. Laine, M.P., and published by W. B. Saunders & Co., 925 Walnut Street, Philadelphia.

ANIMAL EXTRACTS.

THE use of thyroid extract in myxedema was based upon deductions drawn from careful scientific experimentation, and the benefits obtained from such use conclusively proved the correctness of these deductions. In consequence of the great success obtained in myxedema by the use of the thyroid gland and its extracts, extracts have been made from many other organs, which have been used in various diseases quite empirically, and without any rational support from experiments. Several of them have even a factitious importance by the endorsement of certain well-known men. An interesting discussion in Germany¹ gives us valuable information as to the value of these extracts. Fürbringer states that the hypothesis in regard to certain glands is that they supply certain antitoxins to the blood, which render certain poisonous substances in it harmless, and prevent auto-intoxication; and that, when these glands are diseased, some form of intoxication follows. In regard to Brown-Séquard's testicular juice, Fürbringer, as the result of his own experiments, found neither a rejuvenating or an invigorating influence, which Brown-Séquard has tried to explain in other cases by the antipathy of the experimenters. Brown-Séquard claimed remarkable results in the treatment of tabes, epilepsy, neurasthenia, and even phthisis, but Massalongo found as much benefit from injections of water in impotence, and Féré found the juice useless in epilepsy. Poehl has substituted spermine, which he claimed was a normal constituent of the blood, and was necessary where the oxydizing power of the blood was diminished. Little benefit has yet been shown from this; Posner and Eulenburg speak very guardedly of its action in tabes, and Fürbringer is still experimenting on it; but has seen little benefit from it. The treatment of myxedema by thyroid preparations rests on a scientific, rational basis, and, like most observers, Fürbringer had found it beneficial. The treatment of diabetes by pancreas juice rests as yet on little experimental evidence, and in some cases of diabetes the pancreas is healthy; in two cases he obtained no benefit. Babes found that in neurasthenics treated for rabies by Pasteur's method the neurasthenic symptoms also disappeared, which he attributed to the injection of nerve matter. Cardine was claimed to show remarkable results in the treatment of heart disease, nephrine in renal disease, and hepatic and muscine have also been introduced. The value of all of these was still undetermined, and the clinical judgment very difficult, owing to the possibility of suggestion.

Leyden had tried pancreas in various forms in the treatment of diabetes without producing the slightest diminution in the amount of sugar.

Goldscheider had studied the effect of the animal extracts for a year and a half in Leyden's clinique. The changes produced by removal of the thyroid or the testicles indicate that the glandular secretions are

¹ *Veren für Innere Medizin. Therapeutische Monatshefte.*, April, 1894.

of great significance, and they furnish a scientific nucleus for their use, although their use is not free from danger. He had treated six cases of diabetes with pancreas juice without any benefit, and a case of exophthalmic goitre with thyroid extract without any effect, good or bad. Pernicious anemia had been treated by preparations from the spleen and bone-marrow without benefit. Nerve matter was not thought worthy of serious discussion; spermine had not been tried. Spleen and bone-marrow were used with apparent benefit for a time in leukemia, but the patient soon died. Goldscheider considers the animal extract treatment dangerous for medicine. The laboratories should first isolate active principles, which can then be employed clinically.

Posner had tried spermine in neurasthenia and loss of sexual power, but without any benefit. Senator had tried pancreas juice in diabetes with no results. Spermine has given very good subjective results in tabes, but injections of normal salt solution did the same.

Except in the case of thyroid extract the results from the use of all the other animal extracts seem almost wholly negative. The glandular secretions may furnish some substance necessary to the animal economy under normal conditions, as has been demonstrated in the case of the thyroid; and, in disease, when this substance is no longer supplied, the glandular extracts may make up for the deficiency. For most of the glands, however, this is a mere hypothesis, and we need more experimental evidence before employing these extracts, of whose composition and action we know nothing, in the treatment of disease. Preparations from non-glandular tissues, the brain, the cord, the heart, and the muscles, are different. There is no evidence that they furnish any necessary substance to the economy, and the use of them in therapeutics has as yet not even a rational hypothesis to support it.

RELAPSE AND IMMUNITY AFTER DIPHTHERIA ANTITOXIN.

WOLFF-LEWIN reports¹ a case of diphtheria in which a typical recovery under antitoxin treatment was followed in two days by the urticaria-like eruption, swelling of the joints, fever, etc., sometimes noted. Recovery from this attack took place in six days, and was followed two days later by a slight recurrence of the diphtheritic membrane on the left tonsil, attended by fever. Further continuance of the antitoxin treatment was thought unwise by the physician and the family of the patient. The recurrence ran a mild course and the patient fully recovered. Another very important point about this case is that the attack took place five weeks after an injection of Behring's antitoxin had been given with the object of conferring immunity. As the child was exceptionally exposed, a brother being ill with diphtheria in the

same house, two doses of Behring's serum No. 1 (60 units) were given, a single dose being considered by Behring sufficient to produce immunity. As the immunity in this case lasted only five weeks, it would point at least to the conclusion that a double immunizing dose does not ensure a doubly long period of immunity.

The fact that Behring himself has recently increased the immunizing dose of antitoxin, and shortened the estimated period of immunity, shows that our knowledge of immunity in diphtheria is still very rudimentary. If the period of immunity depends upon the strength of the injection, it will certainly vary, for it seems hardly possible that even with the greatest care, an antitoxin serum of absolutely constant strength can be produced. The normal unit of strength is calculated on the basis of the amount required to protect a guinea-pig against a dose of toxin which proves fatal in other guinea-pigs. We have here a large element for variation in the varying resistance to the toxins of the animals employed, which can hardly be supposed to be constant. Other examples of an almost unavoidable uncertainty as to the strength of the toxins employed and antitoxins produced might be multiplied.

Practically there has been found to be a variation in the strength of the antitoxin produced by the British Institute of Preventive Medicine. Drs. Washburn, Goodall and Card, in the series of cases noted in our last issue, found that, immediately on beginning treatment with a new consignment of serum, a more rapid effect was noted, and a smaller dose was required to produce a given result. On investigation it was found that this consignment was the first product from a fresh horse not previously employed. Roux has noted marked variation in the strength of the serum produced at the Pasteur Institute, and has in one case been obliged to administer doses amounting to a total of nearly seven ounces.

It would seem, in the light of these experiences, that there might be some slight variation in the "*antitoxin-normal-einheiten*" produced under Behring's own direction.

Whether or not the period of immunity depends upon the strength of the injections, it will probably vary with unknown peculiarities of the patient, and be a very variable quantity, capable of approximation only within wide limits.

HYPNOTISM AND MURDER.

Not long ago a Kansas farm-hand named Macdonald murdered Thomas Pelten. When brought to trial Macdonald urged in his defence that he had been hypnotized by Pelten's enemy, Gray, and compelled to commit the deed by hypnotic suggestion. The jury therefore acquitted Macdonald and adjudged Gray guilty of murder in the first degree. Their verdict has been set aside by the Supreme Court and a new trial granted. Macdonald, the actual murderer, of

¹ Deutsch. Med. Wochenschrift, 1894, No. 52.

course goes free, and Gray can hardly be convicted on a new trial.

Granted that these statements, for which we rely upon the reports in the daily press, are accurate, the question which is thus brought forward is a serious one, and it is obvious that, if such a verdict were to stand, Kansas law would be far more fatal to society than Kansas political economy. We may accept the modern theories as to the criminal, and admit that he is the inevitable product of bad heredity, evil environment, and degeneration; we may often question how far he is responsible for his criminality, but when it comes to the practical point society decides that, for its own protection, the criminal must suffer for his acts in person, and not through his parents or his evil neighbors. If the criminal himself is to escape, and if the punishment is to fall on those who have influenced him to evil, the results will be disastrous. All our criminals will at once claim to be honest but misguided folk, and some of our best citizens may be accused of instigating others to crime. This theory had a practical application here in Massachusetts two centuries ago. Several mischievous young persons escaped a well-deserved whipping and a number of harmless old women were hanged for having bewitched them, and thus compelled them to do many ill deeds against their will.

Not even the marvellous properties attributed to hypnotism can induce us to go back into the dark ages and rake up once again the belief in witchcraft. Unfortunately the study of hypnotism seems peculiarly adapted to develop the credulity of the student, and the literature of the subject to day contains a vast amount of matter that cannot stand scientific criticism. At the trial of Gabrielle Bompard in Paris, Bernheim and other leaders of the so-called Nancy school, urged the same defence as in Macdonald's case, but the verdict was not in accordance with their views. In spite of the make-believe "laboratory" crimes committed under hypnotic influence, the weight of evidence is in favor of the belief that an honest man cannot be made to commit crime under such influence. Moreover, even Bernheim admits that no one can be hypnotized against his will. The alleged tool of the hypnotizer has therefore voluntarily made himself the agent, and has yielded to suggestion as another might yield to alcohol. If we accept the extreme views as to suggestion, the paid murderer has simply yielded to the suggestion of gold. The hypnotized murderer might have resisted at first, but, not having done so, he ought inevitably to suffer the consequences of his acts. If it can also be proved that the hypnotizer suggested the crime, and planned its details, he becomes an accessory before the fact and is likewise amenable to the law. The Kansas verdict is not in accordance with scientific facts or sound jurisprudence, yet its contagion has already spread into another State, and, in view of the enormous amount of credulity in the community, we fear that other criminals may also escape well-merited punishment.

MEDICAL NOTES.

McGILL UNIVERSITY SEEKS PROF. WM. OSLER. — Prof. William Osler of the Johns Hopkins University, has been offered the position of president of McGill University, Montreal.

"PASTEUR STREET." — The Municipal Council of Paris has decided to change the name of the *Rue d'Ulm* to Rue Pasteur, in honor of the distinguished scientist.

A GOOD EXAMPLE. — The City of Sydney, Australia, has imposed a fine of one pound sterling upon any person convicted of spitting upon the floor of public buildings or upon the street.

THE SIXTIETH BIRTHDAY OF PROFESSOR SENATOR. — The sixth of last December was the sixtieth birthday of Professor Senator, the distinguished Berlin clinician. In honor of the occasion he was presented by his assistants in the clinic and polyclinic with photographs of all his former and present assistants, as well as of the Augusta Hospital, the Charité and the Polyclinic.

THE INDIAN MEDICAL CONGRESS. — The first Indian Medical Congress, was opened in Calcutta on Christmas Eve by the Viceroy of India in the presence of many European and native officials. Surgeon-Colonel R. Harvey, M.D., F.R.C.P., D.S.O., delivered an opening address, in which he eloquently expatiated on the progress in medical and sanitary science made in India. The papers announced to be read before the Congress number 203, and embrace a wide range in medicine, surgery, both general and special, and sanitation.

RECOVERY AFTER EXTIRPATION OF A CYST OF THE PANCREAS. — P. Zweifel (*Cent. für Gyn.*, 1894, No. 27) reports in full the history of a case of cyst of the pancreas for which he had operated, removing the entire cyst with recovery of the patient. Although the hemorrhage is very great in these cases, he was enabled to keep it in check by seizing hold of the tissues with forceps, ligating and cutting between the ligatures. He considers extirpation far superior to drainage, as the convalescence is so much more rapid and satisfactory. The patient four months afterward was in perfect health, and the urine which had been highly diabetic did not show a trace of sugar.

PENNSYLVANIA STATE MEDICAL SOCIETY. — The members of the Medical Society of the State of Pennsylvania who wish to read papers at the meeting to be held at Chambersburg, May 21-24, 1895, will please send their names and the titles of the papers they wish to read to the Chairman of the Committee on Scientific Business, Dr. Charles W. Dulles, 4101 Walnut Street, West Philadelphia. The Committee desires papers to be *absolutely* no longer than ten minutes. At the last meeting a large number of interesting papers were not read because those preceding them were too long, and it is to be hoped that those who prepare papers for the coming meeting will

condense them as much as possible. The laws of the society permit each writer to occupy twenty minutes, but it will be of advantage if the members of the society do not avail themselves of all their privilege.

PROPOSED TESTIMONIAL TO SIR HENRY ACLAND.—A movement is on foot to secure a memorial of the work of Sir Henry Acland, on his retirement from the Regius Chair of Medicine in Oxford, which is to take the form of a provision for the increased usefulness of the Sarah Acland home for nurses. £10,000 is thought necessary for the acquisition of a better site and better premises and £1,055 have already been subscribed. Among the subscribers are the Prince of Wales, the Right Hon. W. E. Gladstone, the Earl of Roseberry, etc. Subscriptions will be received by Messrs. Parsons & Co., Old Bank, Oxford; London & County Bank, Oxford; Messrs. W. Wootten & Co., Oxford; Messrs. Gillett & Co., Oxford.

MEMORIAL TO THE LATE DR. STURGES.—A numerously attended meeting was held on Wednesday, December 19th, at Westminster Hospital, to raise some memorial to the late Dr. Octavius Sturges, the senior physician. The chair was occupied by Mr. George Cowell, F.R.C.S. Eng., senior surgeon to the hospital. The following resolution was carried unanimously, "That this meeting cordially approves of the proposal to establish a memorial to Dr. Sturges, and pledges those present to make every exertion to promote this object." The second resolution, also carried unanimously, was as follows, namely: "That the memorial be a prize, exhibition, or scholarship in connection with the Westminster Hospital Medical School, with which Dr. Sturges was so long associated; a portion of the money raised being set aside for the purchase of four permanent photographic portraits of Dr. Sturges, and to cover the cost of a small photograph to be issued with the forthcoming volume of the hospital reports."

ANTITOXIN IN DENVER.—According to the Denver papers, to Denver belongs the distinction of being the first place west of the Missouri River to test the merits of the antitoxin in a severe case of diphtheria. Antitoxin of Berlin manufacture has been tried upon two cases, one mild and one severe, both of which recovered. At the instance of the Arapahoe County Medical Association, enough antitoxin has been imported and brought to Denver to treat seven cases, the expense being defrayed in part by contributions from the members of the association.

SERUM THERAPEUTICS IN A VIENNA HOSPITAL.—At the last meeting of the Vienna Society of Physicians, Professor Widerhofer made a report on the results obtained by the serum therapeutics at the St. Ann Hospital for Sick Children. The mortality from diphtheria at this hospital from 1862 till 1894 varied between 32.3 and 71.9 per cent. The incidence and mortality from diphtheria were generally highest in the months of October, November and December. In October to December, 1891, the mortality was

34.2 per cent., and in the corresponding periods of 1892, 39.0 per cent.; in 1893 it was 44.0 per cent.; and in 1894 only 24.0 per cent. One hundred cases of diphtheria were subjected to the treatment from October to December, 1894. Among them 8 were one year of age, 7 two years of age, 17 three years of age, and the others were between four and six years of age. The patients were kept in hospital as long as Löffler's bacillus could be found. All diphtheritic patients admitted to hospital were injected, even if the admission took place later than on the fourth day of the illness. Patients who died from lobular pneumonia two weeks after they had left the hospital were also grouped with the statistical tables. Of these 100 cases 23 died, 74 recovered, and 3 remained under treatment. On the day of the meeting one of the latter who had had laryngeal diphtheria died from a recent attack of diphtheria. The mortality was, therefore, 24 per cent., while it had been 52.6 per cent. during the nine preceding months of the year.

A TRIUMPH OF ORIFICIAL SURGERY.—An orificial surgeon reports in a recent number of a medical journal a case of "phthisis" cured by the operation for laceration of the cervix. The patient had a severe and long-continued cough and hectic fever, and what the surgeon calls an "interstitial inflammation of the lungs," with infiltration and obstruction of the air cells. "On the day of the operation the temperature reached 97.6°, and never rose above 99° afterwards." Some light is thrown upon the nature of the case by the surgeon's stating that it was a case of phthisis of neurotic origin, and that such cases are often successfully treated by "removing the distal point of pathology." Other successful results of "orificial surgery" are a case in which chronic eczema of the hands was cured by stretching the rectum, and another case of the same disease cured by loosening the "hood" of the clitoris and "clipping of irritated points at the various outlets of the body." Of course all the resources of therapeutic art had been exhausted upon these cases before they came under the care of the "orificial surgeon." A more transparent form of quackery than some of this orificial surgery can hardly be imagined. The author of the article referred to above states that in his observation "many cases of insanity are made worse by the operative procedure, but the secondary effect is most satisfactory." In his opinion "a conservative orificial surgeon should be connected with each of our State hospitals for the insane." This last idea seems an excellent one, if he be connected in the proper capacity, that is, as a patient rather than as a surgeon.

NEW YORK.

INFLUENZA IN NEW YORK.—Influenza seems to have become epidemic in the city, but thus far the mortality has not been as great as in some former outbreaks. During the week ending January 5th seven deaths were reported as due to this cause and in the week ending January 12th, twenty-eight. During

the latter week the weather was exceptionally bad, and the total number of deaths in the city was over one thousand.

THE DEATH-RATE FOR 1894. — The death-rate for the year 1894 has been officially announced as 21.03 per thousand of the estimated population, and it is the lowest reported for many years. In the city of Brooklyn 21,183 deaths were reported during the year.

DEATH OF DR. HALLAM. — Dr. Albert C. Hallam, a prominent physician of Brooklyn, died at his residence in that city, January 9th. He was born in Watertown, Conn., in 1845, and studied medicine at the Yale Medical School, from which he was graduated in 1866. All his professional life was passed in Brooklyn.

THE PRODUCTION OF ANTITOXIN SERUM. — A delegation from Philadelphia, consisting of Dr. Beiller, Commissioner of Public Safety, Dr. Shakerpeare, of the State Bacteriological Department, and Drs. Ford and Heiser, members of the Philadelphia Board of Health, on January 12th visited the laboratories and stables of the New York Board of Health for the purpose of inspecting the preparation of antitoxin. The visitors were escorted by Drs. Biggs, Parks and Beebe, who showed them the various processes. The Board of Health has appointed as inspectors to furnish antitoxin to the medical profession of the city, Drs. Densell, of the Bureau of Contagious Diseases, and Dr. Huddleston, of the Bacteriological Department.

REQUESTS TO THE COLLEGE OF PHYSICIANS AND SURGEONS. — At a meeting of the Trustees of Columbia College held January 7th, President Low announced that the College of Physicians and Surgeons had received two very large gifts, one of \$350,000 from Cornelius, William, Frederick and George Vanderbilt, who each contributed \$87,500, and one of \$200,000 from William D. Sloane. The Messrs. Vanderbilt specify that their gift is to be used in the enlargement of the main college building and also of the Vanderbilt Clinic, and the Sloane gift is for the purpose of erecting a new maternity hospital to be connected with the present one and form a part of it. Mrs. Sloane, who is a sister of the Vanderbilts, agrees to furnish funds for the maintenance of the new hospital after it has been built and equipped by her husband. This last gift of Mr. and Mrs. Sloane will make their total donations to the college over \$1,000,000, and the same is true of the Vanderbilt contributions.

DEATH OF DRs. FITZGERALD AND ROOF. — Two well-known physicians died suddenly of cardiac disease on January 7th, and January 9th, Drs. Joseph S. Fitzgerald and Stephen W. Roof. Dr. Fitzgerald was found dead on the morning of the 8th at the Dispensary on West 139th Street, where he had attended his clinic the evening before. He was 49 years of age and a graduate of the Georgetown Medical College in the year 1870. Dr. Roof died at the armory of the

Ninth Regiment, National Guard, where he had gone for bicycle exercise. He was 51 years of age, and was born at Somerstown, Westchester County, New York. He was graduated at the College of Physicians and Surgeons in 1864. He was for 15 years surgeon of the Ninth Regiment, and at the time of his death was surgeon of the Ninth Regiment Veteran Association.

Miscellany.

THERAPEUTIC NOTES.

A NEW ANTIPYRETIC. — Tussol is the name given to a compound of amygdalic acid and antipyrine. Dr. Rehn, of Frankfort-on-the-Main, has used the drug recently in quite a number of cases of whooping-cough in children. He has found it useful in reducing the frequency of the paroxysms and mitigating their intensity, that its action is different from that of simple antipyrine, and that no untoward effects have been observed from its use. It is soluble in water, and as a corrigent raspberry syrup is better than milk. The minimum doses for children are as follows: Under one year of age, from three-quarters of a grain to a grain and a half, two or three times a day; from one to two years, a grain and a half, three times a day; from two to four years, from three grains and three-quarters to six grains, three or four times a day; for older children, seven grains and a half, four times a day or oftener.

CACTUS GRANDIFLORUS. — Mr. Gordon Sharp,¹ after a careful study extending over two years, of the literature, pharmacology and therapeutics of *Cactus grandiflorus*, a claimant for favor with digitalis, concludes as follows: "The literature of *Cactus grandiflorus* is comparatively extensive, but vague, too many properties being ascribed to the drug, and upon too slender evidence; there being no authoritative evidence of a pharmacological or carefully carried out therapeutic kind. The chemistry is as yet unknown, authorities on this subject not even mentioning the presence of a glucoside or alkaloid; and, so far as we can make out after extensive trials, we have been unable to obtain either of those bodies. The most important agents we find to be a series of resins. The pharmacology is necessarily indefinite, one having to work with rather insoluble resins. These contract the blood-vessels of a frog, but this is not of the nature of a digitalis contraction, but depends, I believe, on simple acidity. On the heart of the frog the resins have little or no effect, comparisons being made with digitalis in the same animal. The drug itself would appear to be pharmacologically inert, and there is no proof that it shortens diastole, nor in fact that it has any special action on the heart muscle at all. The therapeutics of the subject I think are clear enough. *Cactus grandiflorus* cannot be included in our list of cardiac drugs. It is not even a simple stomachic tonic, and at most all one can say is that it has some small diuretic action." The few reported instances in which it appears of any service were cases in which it was combined with some effective drug like nux vomica and consequently not of any test value.

¹ Practitioner, September, 1894.

Correspondence.

PHOTO-MICROGRAPH VERSUS MICRO-
PHOTOGRAPH.

SYRACUSE, N. Y., January 12, 1895.

MR. EDITOR:—From time to time it seems to be necessary to call attention to the confusion in the use of the words herein considered. In the *Boston Medical and Surgical Journal* of January 3, 1895, in table of contents of the New York Neurological Society, and in report at page 14, the word "micro-photograph" is not correctly used. Micro-photographs are curios mounted on microscopic slips or in miniature opera-glasses, handles of pen-holders, etc. In a paper read by me before the American Society of Microscopists in 1886, is the following account and definition:

The confusion of the terms "photo-micrograph" and "micro-photograph" has led the writer to try to discover the paternity and original meaning of the more important word, photo-micrograph.

During the past eighteen months, through the kind interest of Dr. R. L. Maddox himself, and through him of the editors of the *British Journal of Photography*, the looked-for paternity has been discovered. Traced to Mr. George Shadbolt, he has acknowledged the child, writing: "I believe I am responsible for drawing attention to the necessity of a distinction between a photographic picture of an enlarged object and the minute photographic picture of a large object, the former being correctly described as a 'photo-micrograph' and the latter as a 'micro-photograph,' in accordance with the meaning of the original Greek derivatives. This will have been in an early number of the *British Journal of Photography*, probably while it was still called 'The Liverpool Journal of Photography.'"

The exact date of the birth of the word is still somewhat doubtful, but Dr. Maddox writes: "I think we may safely put it at 1859 or 1860, although we cannot put our finger on the page even after much research."

The two acknowledged leaders in photo-micrographic literature in the two great English-speaking countries, Drs. Maddox and Woodward, throughout their writings have used the words in question with the clearly-defined Shadbolt distinction; and the writer trusts, with this historical note recorded in our Proceedings, the American Society of Microscopists, as a body and as individuals, will insist upon the correct usage of these terms.

A photo-micrograph is a macroscopic photograph of a microscopic object; a micro-photograph is a microscopic photograph of a macroscopic object.

Yours truly,
A. C. MERCER, M.D.

"SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS."

WEST NEWTON, MASS., January 15, 1895.

MR. EDITOR:—In the issue of the JOURNAL for January 10, 1895, Dr. W. C. Holyoke in an article on "Some Cases of Scarlet Fever with Especial Reference to Contagion and Prophylaxis," refers to an outbreak of scarlet fever in the Rutland Street Home during January and May, 1894.

The doctor attributes the outbreak to some toys which were received at the Home on January 2, 1894, from Newton Centre, where, he says, newspaper reports indicated that scarlet fever was prevalent at the time the toys were collected.

The records of the Board of Health of Newton show that there was no scarlet fever in Newton Centre between July 20, 1893, and January 15, 1894, so that it seems impossible that these toys should have been the cause of the outbreak referred to.

Very respectfully,

FRANCIS GEO. CURTIS, M.D.,

Chairman Newton Board of Health.

METEOROLOGICAL RECORD.

For the week ending January 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S...30	30.11	18	28	8	42	67	54	W.	W.	12	8	O.	C.
M...31	30.18	26	29	22	61	58	60	W.	N.	5	13	O.	O.
T...1	30.04	26	32	19	66	60	63	N.	N.W.	12	13	O.	C.
W...2	30.22	22	29	16	68	62	65	W.	W.	9	5	C.	C.
Th...3	30.29	24	31	16	66	70	68	O.	S.E.	0	6	C.	O.
F...4	30.08	28	35	21	73	50	62	W.	N.W.	8	14	O.	C.
S...5	30.42	10	17	4	30	43	36	N.W.	W.	16	4	C.	O.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. $\overline{67}$ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 5, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.	
New York . .	1,956,000	776	286	13.13	23.27	.78	7.28	1.43	
Chicago . . .	1,600,000	—	—	—	—	—	—	—	
Philadelphia .	1,139,457	471	156	11.13	17.22	.42	9.03	.21	
Brooklyn . .	1,013,000	468	170	16.28	24.42	.22	13.20	.22	
St. Louis . .	540,800	—	—	—	—	—	—	—	
Boston . . .	501,107	204	70	10.29	20.09	—	8.33	1.96	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Washington .	285,000	119	35	2.55	2.55	2.55	—	—	
Cincinnati . .	325,000	131	38	7.65	2.55	2.55	—	—	
Cleveland . .	325,000	103	41	20.37	14.55	1.94	1.94	16.69	
Pittsburg . .	272,000	132	52	15.20	26.60	5.52	9.12	.76	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	33	8	6.06	9.09	—	—	6.06	
Charleston . .	65,165	40	16	2.50	10.00	2.50	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . .	100,410	38	15	18.41	10.52	2.63	—	2.63	
Fall River . .	92,233	23	8	13.05	30.45	—	4.35	—	
Lowell . . .	90,613	24	7	12.48	12.48	—	4.16	—	
Cambridge . .	79,607	23	9	13.05	9.70	—	9.70	—	
Lynn	65,123	19	5	10.62	—	—	—	—	
Springfield .	50,284	18	5	11.11	11.11	—	—	5.55	
Lawrence . .	49,900	12	5	25.00	25.00	8.33	—	8.33	
New Bedford .	47,741	23	10	8.70	4.35	—	8.70	—	
Holyoke . . .	43,348	—	—	—	—	—	—	—	
Brockton . .	33,939	12	5	8.33	—	—	8.33	—	
Salon	33,155	11	6	27.27	9.09	—	18.18	9.09	
Haverhill . .	32,925	9	1	33.33	11.11	—	—	11.11	
Malden . . .	30,209	3	0	—	—	—	—	—	
Chelsea . . .	29,806	13	2	7.69	7.69	—	7.69	—	
Fitchburg . .	29,383	11	3	—	9.09	—	—	—	
Newton . . .	28,837	12	3	16.66	16.66	—	16.66	—	
Gloucester . .	27,293	—	—	—	—	—	—	—	
Taunton . . .	26,954	15	6	26.66	6.66	—	26.66	—	
Waltham . .	22,058	8	1	12.50	—	—	12.50	—	
Quincy . . .	19,642	11	1	—	—	—	—	—	
Pittsfield . .	18,802	3	1	—	—	—	—	—	
Everett . . .	16,565	5	0	20.00	—	20.00	—	—	
Northampton	16,331	4	3	25.00	25.00	—	—	25.00	
Newburyport .	14,073	4	0	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,845; under five years of age 980; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 394, acute lung diseases 541, consumption 294, diphtheria and croup 218, scarlet fever 43, typhoid fever 33, diarrheal diseases 26, measles 15, whooping-cough 10, cerebro-spinal meningitis 9, erysipelas 5, small-pox 4.

From diarrheal diseases New York 6, Philadelphia and Cleveland 3 each, Fall River and Lowell 2 each, Brooklyn, Washington, Providence and Worcester 1 each. From measles New York 11, Brooklyn 2, Providence and Springfield 1 each. From whooping-cough New York and Worcester 3 each, Brooklyn 2, Philadelphia and Lawrence 1 each. From cerebro-spinal meningitis New York 4, Lynn 2, Washington, Providence and North Adams 1 each. From erysipelas New York and Brooklyn 2 each, Worcester 1. From small-pox Philadelphia 3, Brooklyn 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,458,442, for the week ending December 28th, the death-rate was 18.0. Deaths reported 3,615; acute diseases of the respiratory organs (London) 332, measles 153, diphtheria 64, fever 56, whooping-cough 51, scarlet fever 34, small-pox (London, Birmingham, Liverpool and Hull 1 each) 4.

The death-rate ranged from 6.5 in Croydon to 26.2 in Preston; Birmingham 17.5, Bolton 18.1, Brighton 23.3, Hull 18.9, Leeds 21.3, Leicester 13.2, Liverpool 21.8, London 17.2, Manchester 18.5, Newcastle-on-Tyne 18.3, Nottingham 16.8, Sheffield 19.3, Swansea 15.3, West Ham 13.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 5, 1895, TO JANUARY 11, 1895.

The leave of absence for seven days granted CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, is extended twenty-one days.

Ordinary leave of absence for one month and fourteen days, in addition to the extension of leave of absence on surgeon's certificate of disability granted him, is granted CAPTAIN ADRIAN S. POLHEMUS, assistant surgeon.

The leave of absence granted FIRST-LIEUT. CHARLES LYNCH, assistant surgeon, is extended one month.

FIRST-LIEUT. GEORGE DESHON, assistant surgeon, will proceed from Fort Logan, Colorado, to Fort Douglas, Utah, and report for temporary duty.

Leave of absence for three months on surgeon's certificate of disability, is granted CAPTAIN WM. C. SHANNON, assistant surgeon, U. S. A.

Leave of absence for one month is granted FIRST-LIEUT. HENRY C. FISHER, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 12, 1895.

AMMEN FARENHOLT, assistant surgeon, detached from the U. S. Receiving-ship "Vermont" and to Naval Hospital, Norfolk, Va.

C. P. KINDLEBERGER, assistant surgeon, detached from Naval Laboratory and Department of Instruction and to the U. S. Receiving-ship "Vermont."

GEO. H. COOKE, medical inspector, in addition to present duties will attend officers on duty at League Island Navy Yard, but residing outside of the yard.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, January 24th, at 8 o'clock, by Prof. H. C. Ernst. Subject, "Immunity." Physicians are cordially invited.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 21st, at eight o'clock.

DR. J. W. ELLIOT, W. F. WHITNEY and E. G. CUTLER will read on "Pancreatic Hemorrhage."

JAMES G. MUMFORD, M.D., *Secretary*.

APPOINTMENTS.

At the January meeting of the Board of Managers of the Boston Dispensary the following appointments were made:

DRS. MALCOLM STORER and BENJAMIN TENNEY to the Medical staff at the Central Office; DR. WM. E. CHENERY to the staff of the throat department; DR. EDWARD H. NICHOLS to the orthopedic department, and DRS. E. CHANNING STOWELL and WM. L. EDWARDS, district physicians.

RESIGNATION.

DR. R. M. HOBBS has resigned his position on the Massachusetts Board of Lunacy and Charity.

RECENT DEATHS.

MYRON LESLIE BAXTER, M.D., of Derby Line, Vt., is dead at the age of fifty-six. He was a graduate of the University of

Vermont. He served as surgeon during the Rebellion and was a brother of the late surgeon-general, J. H. Baxter, U. S. A.

DR. HENRY H. CAMPBELL, of Waterville, Me., died recently, aged seventy-four. He was born in Farmington and was educated at Bloomfield Academy and Dartmouth and Jefferson Medical Schools. He practised in Waterville for forty years.

BOOKS AND PAMPHLETS RECEIVED.

Sixth Annual Report of the Trustees of Morton Hospital for the year ending February 28, 1894.

Ligature of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate Gland. By J. Ewing Mears, M.D., Philadelphia. Reprint. 1894.

Report of the Trustees of the Rhode Island Hospital, Presented to the Corporation at its Thirteenth Annual Meeting, November 8, 1893. Providence. 1893.

The Proceedings of the Fourth Annual Meeting of the Association of Military Surgeons of the United States held at Washington, D. C., May 1-3, 1894.

Atlas of Clinical Medicine. By Byrom Bramwell, M.D., F.R.C.P., Edin., F.R.S., Edin., Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume III. Part 1. Edinburgh. 1894.

Inoculation for Diphtheria and Croup. [Report on the Treatment of Diphtheria and Croup by Means of Hypodermic Injections of Diphtheria Serum. By C. W. Chandler, United States Consul at Havre, France.]

Diagnosis, Differential Diagnosis and Treatment of Diseases of the Eye. By A. E. Adams, M.D., Instructor in Diseases of the Eye in the Post-Graduate Medical College, etc. New York: G. P. Putnam's Sons. 1894.

The Soldier's First Aid Handbook, Comprising a Series of Lectures to Members of the Hospital Corps and Company Bearers. By William D. Dietz, Captain and Assistant Surgeon, U. S. A. New York: John Wiley & Sons. 1891.

Notes on Military Hygiene, for Officers of the Line: a Syllabus of Lectures at the U. S. Infantry and Cavalry School. By Alfred A. Woodhull, Major, Medical Department, Brevet Lieutenant-Colonel, U. S. A. New York: John Wiley & Sons. 1893.

On Chorea and Choreiform Affections. By William Osler, M.D., Fellow of the Royal College of Physicians, London; President of the Association of American Physicians; Professor of Medicine, Johns Hopkins University. Philadelphia: F. Blakiston, Son & Co. 1894.

Report on Typhoid Fever in the District of Columbia, submitted by the Medical Society of the District of Columbia to the Committee on the District of Columbia of the U. S. House of Representatives, June 14, 1894. Washington: Government Printing Office. 1894.

The History of Education in Connecticut. By Bernard C. Steiner, A.M. (Yale), Instructor in History, Johns Hopkins University; Librarian of the Enoch Pratt Free Library of Baltimore. Washington, D. C.: Bureau of Education, Circular of Information, No. 2. 1893.

Points in the Etiology and Clinical History of Erysipelas. The Complicating Conditions, Associated Diseases and Mortality-rate in Erysipelas. The Treatment of Erysipelas. Beriberi, with Report of Cases. By J. M. Anders, M.D., Ph.D., Philadelphia, Pa. Reprints. 1893-94.

A Dictionary of Medicine, Including General Pathology, General Therapeutics, Hygiene and the Diseases of Women and Children. Edited by Richard Quain, Bart., M.D., Lond., etc., and others. With an American appendix. New edition. Two volumes. New York: D. Appleton & Co. 1894.

Physiology for Beginners. By M. Foster, M.A., M.D., F.R.S., Professor of Physiology in the University of Cambridge, and Lewis E. Shore, M.A., M.D., Fellow of St. John's College, Cambridge, and Senior Demonstrator of Physiology in the University of Cambridge. New York and London: Macmillan & Co. 1894.

A Synopsis of the Practice of Medicine for Practitioners and Students. By William Blair Stewart, A.M., M.D., Lecturer on Therapeutics; late Instructor on Practice of Medicine in the Medico-Chirurgical College of Philadelphia; Demonstrator in the Philadelphia School of Anatomy, etc. New York: E. B. Treat. 1894.

The Physiology of the Carbohydrates; Their Application as Food and Relation to Diabetes. By F. W. Pavy, M.D., LL.D., F.R.S., Fellow of the Royal College of Physicians; Consulting Physician to and formerly Lecturer on Physiology and on the Practice of Medicine at Guy's Hospital. London: J. & A. Churchill. 1894.

The History of Education in Delaware. By Lyman P. Powell, A.B., Fellow in the Wharton School of Finance and Economy in the University of Pennsylvania, and Staff Lecturer on History to the American Society for the Extension of University Teaching. Washington, D. C.: Bureau of Education, Circular of Information, No. 3. 1893.

Original Articles.

A CONSIDERATION OF SOME OF THE INDICATIONS FOR OPERATION IN HEAD INJURIES.¹

BY WILLIAM N. BULLARD, M.D.,

Physician to Department of the Diseases of the Nervous System, Boston City Hospital.

THE subject of the indications and contra-indications for operations in head injuries is so large that it will be possible to cover only a small portion of the ground this evening, and I shall therefore confine myself to presenting to you certain points which seem to me to have not yet been appreciated at their full value by the profession. For the purposes of this paper it will be necessary to limit ourselves to the consideration of some of the indications for *immediate* operation in cases of head injuries in *adults*. By *immediate* operations we understand such as are performed within at least twelve hours of the time of the injury. As a rule, the operations under consideration are to be performed within as short a time after the injury as possible.

The indications for later operations, that is, more than twelve hours after the injury, differ very considerably from those for immediate operations, and are, on the whole, much easier for determination. These we will not consider to-night.

The symptoms on which we rely in order to decide on the advisability of immediate operation in cases of severe head injury may be roughly divided into four groups: (1) extracranial or cranial local symptoms, (2) intracranial local symptoms, (3) extracranial general symptoms, (4) intracranial general symptoms.

(1) The direct local symptoms, those which are immediately due to the injury and are perceptible to the surgeon. Such are wounds, ecchymoses, evident fractures of the cranium and all other local and evident conditions due to direct injury in any part of the body, which have any bearing on the diagnosis or prognosis. These are *local extracranial* or *cranial* symptoms.

(2) The intracranial or indirect local symptoms. In this group I would include all localized symptoms which are to be referred to intracranial conditions. Such are the various forms of paralysis, partial or total, of local spasms and certain conditions of the pupils. Symptoms of this group point more or less distinctly to affections of special portions of the intracranial organs, and so far as they do so are *localizing*.

(3) The third group is a somewhat indefinite one. It includes such general symptoms and conditions as may exist after any injury without special relation to intracranial conditions. Under this heading I should place the general strength or weakness of the patient and the condition of the pulse. I have called the symptoms of this group the *extracranial general* symptoms.

(4) The intracranial general symptoms. This includes all general conditions presumably due to intracranial conditions. Such are the states of cerebral activity or of cerebral repose; consciousness, semi-consciousness, unconsciousness, coma and delirium. These may be reasonably referred to intracranial conditions caused by the injury and may be fairly considered as the *index* of these conditions.

The direct external symptoms are too well known to every surgeon to render their discussion valuable. The localizing symptoms, though often of great value in combination with other symptoms, in themselves rather determine *where* we shall operate than *when* we shall operate.

I propose this evening to pass over the symptoms which I have placed in the first three groups, and devote myself principally to the consideration of those general symptoms indicative of intracranial conditions which we have mentioned in the last group.

It is largely from the general mental condition of the patient, meaning by this term those states or conditions which we have before enumerated, consciousness or unconsciousness, delirium, quiet or irritation, that the indications or counter-indications for immediate operation in head injuries are in many cases to be drawn. We will now, therefore, consider the indications for and against immediate operation in cases of severe head injury in adults where the external signs and the localizing symptoms do not exist or do not afford sufficient indication.

The *primary* indication for immediate operation in severe head injuries is *increased intracranial pressure*. The question of operation in these cases depends on the degree of this pressure.

Whenever it has reached a certain point operation is imperative, unless otherwise contra-indicated. This point is the condition of deep stupor where the patient cannot be roused by supraorbital pressure. When, however, the unconsciousness is deep, but the patient can still be roused by passive movements or in other ways, the indication is less definite. Yet in all such cases, and they form a large proportion of those entering the large hospitals, we must be largely guided in our action by the depth of this unconsciousness.

Cases of this kind, as a rule, grow more unconscious during the first few hours, so that if we wait we may often be obliged to act rapidly later. On the other hand, the lighter cases of unconsciousness, which do not tend to become more unconscious, should not be operated upon at once. In any doubtful case the most careful watch should be kept for any increase in the degree of unconsciousness, and as soon as this has been thoroughly determined operation should be performed.

In all cases, whether only lightly or deeply unconscious, where there has been a rapid increase in the depth of unconsciousness, or where there is a distinct increase of paralysis of the extremities within the course of a few minutes or hours after the injury, operation should be performed. Gradual increase of paralysis and gradual increase of unconsciousness becoming apparent shortly after a head injury, suggest intracranial hemorrhage, usually middle meningeal, and demand immediate surgical interference in all persons under forty years of age. In persons much above this age, in cases where the external injury is slight or doubtful, the question of the presence of slow hemorrhage from some of the deep vessels of the cerebrum (ingravescent apoplexy) must be considered.

When together with unconsciousness there exists cerebral activity or irritation, as evidenced by delirium, it has usually seemed to me more advisable to wait and not operate at once, although some of these cases have fatal terminations. On the whole, I consider delirium as rather a sign for delay than for immediate action. Where delirium without unconsciousness exists, it con-

¹ Read before the Surgical Section of the Suffolk District Medical Society, December 5, 1894.

tra-indicates operation or indicates that we should not operate at once.

Localized cerebral irritation, as evidenced by clonic convulsions, either general or local, is not a common sign of head injury (surgical). In cases where there is no history, convulsions render it probable that the case is non-traumatic, or that some ordinarily non-traumatic condition has been set up by the trauma. These are the results of clinical experience.

It would seem scarcely needful to state that in each individual case we must consider the special symptoms and indications. In those cases in which there is no evidence of paralysis, and no pupillary symptoms exist, we rely on the general condition of the patient. The important signs are two: (1) the depth of unconsciousness, (2) the increase of unconsciousness.

(1) It is hard to define exactly the degree of unconsciousness at which—there being no special contra-indication—operation is absolutely demanded. In most of the more doubtful cases we have some secondary symptoms (fracture, paralysis, pupillary conditions) to guide us. Where these do not exist, we must rely to a certain extent on the general appearance of the patient, his pulse, apparent strength and respiration. If his strength is failing but he can still bear operation, operate at once. As a rule, we should advise operation in any case where the patient (adult) could not be roused by supraorbital pressure and where the pupils did not react to light.

(2) When the unconsciousness, light at first, rapidly becomes deeper, especially if this be accompanied by any commencement or increase of paralysis, we should at once suspect intracranial hemorrhage, usually middle meningeal.

Where an unconsciousness, deep from the beginning, becomes slowly and very gradually deeper, without an increase of paralysis of the face or limbs, we can only diagnosticate an increase of intracranial pressure, and cannot determine whether such increase be due to hemorrhage or not.

What now are the pathological conditions existing in these cases? I believe that wherever the conditions of lasting unconsciousness, stupor and coma exist, we have to deal with an increase of intracranial pressure. This conclusion is based on the results of many operations and observations.

The cause of this increase of intracranial pressure is not altogether plain. It is *not by any means*, as is sometimes supposed, *always* a pressure from intracranial hemorrhage. In fact, I am inclined to believe that pressure from this cause is much less frequent than is supposed. It takes a considerable quantity of blood to produce from outside the brain substance an active pressure on the brain, even when the pressure is produced rapidly.

In many cases, moreover, on operation we have no evidence suggestive of any severe hemorrhage, and yet the increased pressure is apparent. Again, this increased pressure in all probability occurs in the cases of so-called concussion, and in other mild cases where unconsciousness exists but where there can be no question of any profuse hemorrhage. What seems to occur is this: The brain in some way acts as a sponge, and swells and pushes so hard against the dura as to inhibit or diminish pulsation. If in these cases the dura is incised, the cerebral pulsation again becomes visible, and the relief to the patient is instantaneous and extraordinary.

And here let me state that after a tolerably large experience in these operations I have never seen a case in which the incision of the dura has caused the slightest injury to the patient, or has apparently caused any untoward symptoms whatever. The cause of this brain swelling I will not discuss to-night, because it is a difficult subject, not well understood, and, moreover, has immensely broad bearings in various directions. It occurs undoubtedly in certain cases of apoplexy and, in a chronic form, in many intracranial diseases. This or something analogous, the so-called acute edema of the brain, is the immediate cause of death in cases of acute alcoholism, of sunstroke and perhaps (in its chronic form) in uremia.

Let us now pass to certain surgical considerations in operations such as we are discussing. It is evident that unless the operation be of a suitable and efficient character, its value is likely to be much impaired and the result not conformable to our expectations. It is as important to know *how* to operate as it is *when* to operate or *where* to operate. It may seem a little presumptuous for one who is not a practical surgeon to attempt to speak on this subject, but I have for years followed these operations with care, and feel justified in laying down certain rules. These are:

(1) Be sure that the opening in the cranium is sufficiently large. In the early days of these operations, and to a certain degree even to the present time, there has been a tendency on the part of the surgeon in exploratory trephining or opening of the cranium to make his aperture too small.

This is a serious matter, both because it prevents the surgeon from seeing and from working inside the cranium at his ease, and still more because it prevents him from opening the dura sufficiently, and efficiently relieving the intradural pressure. I believe that in the ordinary case nothing smaller than a one-inch trephine should be used, and then the opening enlarged, with bone forceps, if possible. An opening, as a rule, to be efficient should be at least two inches by one. Of course it makes no difference how this opening is made providing that it is made as *quickly* as possible, with as little jar as may be to the patient and without laceration of the dura.

(2) The second point to be emphasized in these operations is always to open the dura where there is evidence of intradural pressure. There is no more danger in opening the dura under proper antiseptic or aseptic precautions than there is in opening any other serous cavity. The superstition that the dura was a structure which it was exceedingly dangerous to meddle with dies hard, and still lingers consciously or unconsciously in the minds of many surgeons and physicians. I can only repeat that having closely observed for a number of years a very considerable number of patients in whom the dura has been opened, either intentionally or otherwise, I cannot recall a single case in *an adult* where any essential harm was produced. In a very large proportion of cases there is neither any perceptible shock at the time, nor are any future harmful effects (of no matter how slight a character) perceptible.

(3) Remember that in these operations time is an important factor. Do what has to be done as rapidly as possible. In children many deaths are caused in these operations by loss of time. In adults the consequences are not, as a rule, so serious, nevertheless next to asepsis time is probably the most important

factor in the success of an exploratory cranial operation.

(4) In an exploratory operation, where it is not certain that a large extradural clot exists, look out for the middle meningeal artery. Remember that it runs in a deep groove on the inner surface of the cranium, and that in trephining directly over it, unless the dura be separated in some way from the cranium, the artery is likely to be cut by the trephine before the bone has been completely sawn through. Again, remember how closely the dura is or may be attached to the inner surface of the cranium, and that in cutting with bone forceps in the course of the artery or its branches, great care must be taken not to tear or cut the blood-vessel.

(5) It is perhaps scarcely necessary to mention that all cases of intracranial hemorrhage with which the surgeon has to deal (that is, all cases from superficial vessels, from sinuses, etc.) can be stopped by pressure. Ligating the vessel when possible is preferable, but sometimes it is not possible.

(6) The last point I wish to speak of is a somewhat doubtful one in my mind, and I only desire to call your attention to it. This is the length of time during which packing should be left in the intracranial cavity. I am inclined to think that the present tendency is to remove it too early.

Gentlemen: I thank you for your attention, and I hope that you will pardon my presumption in speaking on surgical subjects before a surgical society.

ACUTE GONORRHEAL RHEUMATISM.¹

BY HOWARD LILIENTHAL, M.D., NEW YORK,
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GONORRHEA with its various complications has, of late years, been the subject of much research by investigators all over the world. Much has been learned of the pathology and etiology of the various forms of the disease and of the life history of its determining organism, the gonococcus. We have been taught how to recognize the germs with the aid of the microscope, how to cultivate them artificially in all their virulence, and how to prove them to be gonococci by showing that inoculations of the urethræ of dogs with the culture is followed by gonorrhea (Turró). Cultures of the germs have also been obtained from the fluids and tissues of various parts of the body afflicted by inflammation coincident with gonorrhea elsewhere.

The subject of this paper is one of the complications of gonorrhea which, though unfortunately far from rare, has until very lately been so misunderstood that many have even gone so far as to doubt its existence. Some believe that the disease is usually due to germs other than those of gonorrhea, and they are inclined thus to regard it as a pyemia. Doubtless there are instances of mixed infection; and the examination of a few such cases will go far to form an individual opinion. Writers and observers are not wanting who take the ailment to be of nervous origin, vaso-motor in character (Lewin). It is hard to believe that any one educated in the modern way can reach such a conclusion. If the disease were a pyemia, we should more often see other signs of pyemia, such as multiple abscesses. This complication is, however, a very rare one; and when it does occur, it seems to be the result

of an infection grafted upon the gonorrheal rheumatism, and not its cause or a coincident effect from a common cause. It is not in every instance practicable to give the "ocular proof" in this disease, but a good clinical diagnosis may nevertheless usually be made; and often in just such cases treatment is most needed, and the patients are most anxious for an opinion and prognosis.

My belief is that such a disease as gonorrheal rheumatism exists; that it is invariably caused by the gonococcus; and that in the most severe cases there is a group of symptoms so characteristic that one may repeatedly make a working diagnosis without even the corroborative evidence of coexistent gonorrheal urethritis. The discovery of gonococci in secretion or tissue is proof of gonorrhea; but the failure to discover them does not prove absence of the disease, especially if clinical symptoms be present. It has lately been learned that the germs may undergo changes of involution which result in forms of the organism quite unlike gonococci in appearance and in staining properties, and yet on culture and physiological test the usual forms are again evolved (see Touton).

The part played by the male urethra in the production of gonorrheal rheumatism has, I believe, been overestimated, and the frequency of the disease in females, underestimated. In these days of accurate investigation cases are not wanting where other mucous membranes have been the source of the rheumatic metastasis, for example, the conjunctiva (Kammerer).

Gonorrheal rheumatism has been classified according to the tissue involved, whether joint, tendon-sheath or bursa; and it may be acute or chronic. It is not, however, my intention to enter here upon an exhaustive description of the malady in its various forms, but rather to confine myself to its more acute and serious aspect from a purely clinical point of view.

Acute gonorrheal rheumatism is usually described as a mono-articular inflammation, with considerable pain, but not so much pain nor constitutional disturbance as is noted in ordinary acute rheumatism (Keyes). It is my belief that no inflammation causes more exquisite and demoralizing pain than the one under discussion. I have in several cases been able to guess correctly the nature of the trouble from this one symptom, and the history of its persistence for more than a few days. This, too, in spite of the wilful misrepresentations of the patients. Not long ago I saw a young man of nineteen who had been for about four weeks confined to his bed with an arthritis of the right knee. He had lost much flesh and strength. His temperature had been high (104° F.), but for some days had been below 101° maximum. There was great swelling of the knee, with evident disintegration of the joint. The entire neighborhood was boggy and semi-fluctuating. The gentleman in charge was an orthopedic surgeon, and I was called to give an opinion as to the advisability of excision of the knee. On approaching the patient I saw that he was completely demoralized. He shrieked with pain at the lightest touch, and had to be anesthetized to be properly examined. His physician had made up his mind that bone disease existed, and suggested that it had perhaps gone so far as to demand amputation. My diagnosis was gonorrheal arthritis, with destruction of the joint. This opinion I held principally on account of the peculiar character of the pain. The patient insisted that he had no gonorrhea, and this in spite of a suspicious

¹ Read before the "Warren Club," December 4, 1894.

moisture at the meatus. Mainly on account of this action on the part of the patient, an intelligent young man, I finally agreed to an exploration by incision. No pus was found, but the joint was filled with a gelatinoid mass of granulation tissue, the bones being perfectly healthy. An examination of the joint contents by a pathologist showed numerous diplococci, which that gentleman believed to be gonococci. Cultures were not made.

The case went from bad to worse, and finally came to amputation on account of general septic intoxication, the patient then making a rapid recovery. Autopsy of the joint showed disintegration of the articular and peri-articular structures, but with no bone involvement and scarcely any erosion of the cartilages. I believe excision of this knee would have been fatal.

Another instance illustrating diagnosis without immediate corroboration by the history of urethral blenorrhea is that of a physician of my acquaintance. I found on my table one day a note, the chirography very shaky, saying, "Call at once. Wrist lame." When I saw my colleague, he was in great pain, which had its principal seat in the sheaths of the extensor tendons of the right thumb, where I found a reddened sausage-like fluctuating swelling. The patient was a man of education, but of a phlegmatic, undemonstrative temperament, being usually one of the most insensitive of men as to physical pain; but now the mere pointing of a finger at the swelling made him nervous and apprehensive. There was also some pain in the wrist-joint, and there was a moderate elevation of temperature. I at once inquired whether or not the patient had urethritis, but met with an unqualified and emphatic denial. The arm and hand were put upon a flat splint, and treatment with oil of wintergreen and soda bicarbonate was commenced.

The progress of the case was slow and in a short time I was, in spite of the doctor's word to the contrary, quite sure of the character of the disease. Recovery was finally completed; and some months afterward my patient confessed that he had had a first attack of gonorrhea, and that two days before the rheumatism set in and, while the urethritis was still acute, he had cut his own meatus—an interesting fact because of the probable connection between the rheumatism and the trauma.

Gonorrheal rheumatism is not usually mono-articular, though occasionally a single joint is involved, and there is nearly always more or less disease in the neighboring tendon-sheaths and bursæ. This circumstance is probably the explanation of Charcot's three points of tenderness when the knee or the ankle is involved. These three tender points are almost pathognomonic of gonorrheal infection. They are all in the sole and at the spots where the body weight is principally borne; one at the heel directly under the calcaneum, one under the head of the first metatarsal, and one under the head of the fifth metatarsal. This tenderness makes a characteristic clinical picture. It is due to inflammation of the bursæ situated in the above-mentioned places. Another bursa, the retro-calcaneal, between the calcaneum and tendo-Achillis is also commonly the seat of pain, constituting the majority of cases of so-called Achillodynia (Toutou).

One important factor in the determining of an attack of rheumatism is direct injury to a part by a blow or strain. The symptoms in the second case

cited above, for example, came on the morning after rather long-continued billiard practice, when the very group of tendons involved was excessively exercised. This is rather a rare region to be the seat of gonorrheal rheumatism; but the patient had, very likely, invited the onset of the trouble by incising his urethra, and the overstrain merely determined the location of the rheumatism.

Whenever, after a contusion or fracture, there is excessive, long-continued and increasing pain, with elevation of temperature, this complication should be thought of, be the patient male or female.

The diseases nearest resembling gonorrheal rheumatism are acute articular rheumatism and surgical tuberculosis. The principal clinical differences between gonorrheal and acute articular rheumatism are that in the ailment under discussion there is an absence of that profuse acid-smelling perspiration which characterizes ordinary rheumatism; that the pain is decidedly more severe; and that, although several regions in succession may become infected, there is no abatement of symptoms in those first diseased. The three points of tenderness in the sole, if knee or ankle is involved, and the slow instead of rapid improvement under salicylates, completes a sufficiently characteristic picture. The presence of endocarditis is not sufficient evidence to exclude gonorrhea as a cause, for recently cases of gonorrheal cardiac affections have been reported. Indeed, gonococci have been found by Councilman in the myocardium and pericardium; while Chiasso has, in a case of rheumatism, found them in the pleural cavity.

In the male the presence of sexual blenorrhea with gonococci is additional and weighty evidence, though not conclusive without the rest of the clinical appearances, for there is no reason known why a man with clap may not have ordinary rheumatism. In the female this corroborative evidence is often wanting, or with difficulty secured; for the discharge may be in the vagina, cervix, uterus, or even in more remote regions. It is always best to make a diagnosis in this disease without probatory puncture, though if there is question as to the advisability of operative procedure, this precaution should not be neglected. One unpleasant characteristic of the malady is its resentment of surgical operative interference. Trauma is one of the determining causes of an attack, and a joint which is becoming quiescent preparatory to a peaceful ankylosis may on forcible breaking up of adhesions, or on incision, become violently inflamed, and then progress, in spite of all treatment, to a termination fatal to limb or even life. In making the puncture it is best, in addition to the usual precautions, to make a minute incision through the skin with a scalpel, and then to insert the aspirating-needle so as to avoid passing the instrument through a possibly unclean skin and carrying the infection to the deeper parts. This exploratory puncture is most often required in those cases which have become chronic, where there is perhaps a vague history and no urethral discharge, and where other disease may be suspected. If the puncture into a much distended and fluctuating joint yield pure pus, I have learned to regard the case, especially if of short duration, as decidedly hopeful, not only as to the speedy recovery but also for a movable joint. Of course, thorough drainage is indispensable. I believe this class of cases to be usually due to mixed infection. Gonorrheal rheumatism generally fills the joint and

its neighborhood with plastic exudate, not pus, just as in the gonorrheal peritonitis so often met with in the female pelvis the exudate is more often solid than purulent; and this is in very clear contrast with peritonitis of the ordinary septic type where there is, as is well known, much pus formation.

The prognosis in all the more acute gonorrheal rheumatisms is grave. Even with the greatest care the inflammation may go on to the destruction and ankylosis of joints, or even to a general septic intoxication necessitating, as in the first case here mentioned, the most incisive measures to preserve life. To be sure, the disease may become chronic, and turn into a more or less quiet form of hydrarthrosis; but even here there often are exacerbations and perhaps infection of another kind. It is probable that such a joint may later become tubercular.

And now as to treatment. Unfortunately, although the science of medicine has made great progress in the last quarter-century, the noble healing *art* has hardly kept the pace. Yet to know the cause of an ailment is surely the first step in the right direction; and as in the past the discovery of a cause has always led to more intelligent and satisfactory therapy, so in the near future we may hope for a method for the cure of gonorrheal rheumatism. Up to the present our knowledge of treatment consists mainly in knowing what not to do. To be sure, various drugs, such as mercury, potassium iodide, the salicylates, alkalies, oil of wintergreen (itself salicylic), and many others have been proposed and tried. I must say I have a preference for oil of wintergreen and soda bicarbonate, with considerable attention to the use of the alkalies. Though Finger says that alkali predisposes to cystitis and that the weak acid of the normal urine kills the gonococcus, I seem to have one argument for my treatment in the recent investigations of Turró, who has found that though the germs will grow on alkaline human blood-serum, and will not grow on alkaline agar or gelatine, an excellent and virulent culture may be obtained from acidulated or unneutralized media, and that the urethræ of dogs may be infected with this culture. I shall, therefore, continue the alkali treatment until it has been really shown to be harmful or useless. Drugs aside, however, the diseased joint should be at once put at rest on a splint of such proportions that as much comfort as possible may be obtained. Gentle compression over a dressing of ichthyol ointment (20 per cent. to 50 per cent.), or over mercurial ointment, or over an ordinary wet dressing should be applied by bandage. The urethra or other focus of infection should be carefully treated, and the discharge decreased. The bowels should be regulated, and a minimal quantity of opium used. If the disease seems to be manageable, gentle massage is valuable during convalescence; but if ankylosis is believed inevitable, it should be assisted by perfect fixation in plaster-of-Paris. These patients usually become much run down by the disease, and should have from the first tonic and stimulant treatment. The so-called urethral hygiene, with starvation diet, will here do far more harm than good; on the contrary, the indication is for forced feeding. Meat, eggs, milk and its preparations, besides other simple and easily digested food, should be forced upon the patient every two hours or oftener. In many cases small doses of alcoholic stimulants will be well borne. An accurate record should be kept of all nourishment taken; it is more important than pulse or temperature.

Lastly, avoid, if possible, all operative procedures. Abscesses must, of course, be evacuated; but do not be deceived by appearances and interfere in the acute stage for any other reason. This rule applies to those violent forms of the disease which are the subject of this paper, and does not refer to the later conditions of chronic deformity where gonorrheal rheumatism as such no longer exists.

For the sake of emphasis I have reserved the discussion of prophylaxis until the end. This part of the subject may be divided into two portions, namely, the prevention of gonorrheal infection and the prevention of the complication of gonorrheal rheumatism in those already infected. With the first of these heads I shall not here concern myself, because in all its aspects it has been often and thoroughly discussed. On the second head, however, the prevention of the complication in those already having blennorrhœa, I wish to say a few words.

Knowing that the acquisition of a clap is a great misfortune, and that it is the sole cause of many and serious complications, I believe in an abortive treatment whenever this promises success. To my own satisfaction I have proven that if properly carried out the abortive treatment of clap may succeed, and without danger of aggravating the disease. Given a case of very short standing, where the discharge consists of mucus with some pus cells, first examine with microscope for gonococci. Having found them and settled the diagnosis, the patient is requested to urinate. Now, take an endoscope of such size as will very easily enter the meatus, and having lubricated with a little glycerine, examine the first *half-inch* of the urethra by daylight, without inserting the instrument deeper than is absolutely necessary. If no line of demarcation be seen, remove the instrument; wash it, and insert it for one inch, and examine again. Probably now a more or less distinct line of demarcation can be made out between the diseased anterior part and the deeper healthy mucous membrane. Carefully wipe out with dry cotton on an applicator, and then apply thoroughly by means of another swab a ten-per-cent. solution of nitrate of silver. The swab must enter the urethra a little farther than did the mandrel of the endoscope, and all parts of the canal from this point to the meatus must be thoroughly touched. No cocaine should be used. The patient must now go to bed and take bicarbonate of soda in ten to fifteen grain doses every two hours, drinking water at the rate of one six-ounce tumblerful every hour. The following day the discharge should again be examined; and if gonococci be found, another endoscopic examination should be made. If the diseased area extends deeper than before, it is not worth while to repeat the treatment, but otherwise silver may again be applied. If the germs vanish and then reappear in small numbers a day or two later, the application may be again made. It has been my fortune to try this treatment only twice, but both men were cured so promptly, all symptoms disappearing within two days, that I shall follow this method in other suitable cases. If it is to succeed it must be employed very early, for gonococci make their way rapidly to the deeper parts, von Crippa having found them in the fluid of the edematous tissues around the frenum five days after the attack began.

I am well aware that the abortion of a clap by means of argentic nitrate is a very old method. I also know that in one or another form it has been often

tried and often abandoned. The old method of injecting the silver is certainly dangerous, because if there is a failure to abort the malady we have caused a chemical irritation of a considerable portion of the urethral canal with a consequent catarrh, which makes the mucous membrane especially sensitive to attack by microbes. The endoscopic tube, however, renders it possible for us to confine our attentions to the diseased portions, and if properly used the method cannot be blamed for an aggravation of the gonorrhea.

It is not necessary for me to say anything concerning the local treatment of an ordinary clap; but, as in gonorrheal rheumatism, I believe that strict "urethral hygiene" may be overdone and too little attention paid to the patient himself. Locally, as in all acute inflammations where an antitoxic remedy is unknown, we must depend upon rest and the healing power of Nature. Meantime, however, by good food and plenty of it we may help our patient to resist the systemic intoxication with its anemia and general lowering of the vital forces which results from absorption of the poison generated by the gonococcus.

Clinical Department.

A CASE OF FRACTURE OF THE BASE OF THE SKULL, INVOLVING THE CAVERNOUS SINUS; OPERATION; RECOVERY.¹

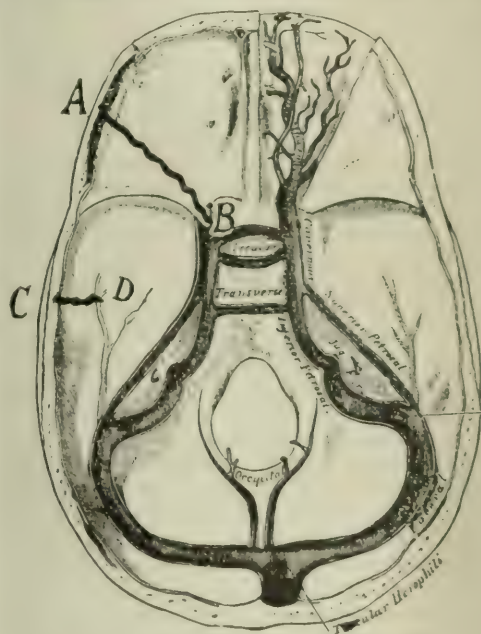
BY F. S. WATSON, M.D., BOSTON.

T. H. O'N., nineteen years old, was struck on the head by a brick thrown from a height of twenty feet above him. He fell, but immediately arose, again falling on his knees, however, an instant afterward. He then got up and walked across the street, and was, he says, fully conscious for one hour; the only pain he felt was in the right eye and above it. At the end of an hour he gradually lost consciousness, and knew nothing until the following morning.

He was brought to the hospital three hours after the accident, and was seen within the next half-hour by Dr. Bullard, whose record of his condition is as follows: "The patient is unconscious, but can be roused so as to make motions with the limbs. There is no hemorrhage from the ears, nose or mouth. The left pupil is dilated and does not react; the right pupil is normal. There is slight paresis of both extremities of the right side. Sensation is universally dulled, but this is thought to be due to unconsciousness. The knee-jerks are present and normal. Pulse 60, and of fair strength. During the next half-hour the paresis of the right extremities steadily increased, and the patient became more profoundly unconscious."

Operation.—A very slight, simple depressed fracture could be felt an inch to the left of the median line and just anterior to the coronal suture. The site of injury was exposed by a large semicircular incision and reflecting a skin-flap. All hemorrhage was prevented by transfixing its base, previous to incision, with a strong needle set in a handle (the needle being about eight inches long), and compressing the base of the flap with a piece of stout tape passed around it and drawn tight on the shaft of the needle. This familiar manœuvre of cutting off the blood-supply by transfixing the base of the flap serves a good purpose when

applied to the skin-flap made to expose the cranium by saving time. The skull was trephined over the site of a very slight depressed fracture. A large blood-clot lay beneath the opening. The fracture was seen to extend in two radiating lines towards the base of the skull, anteriorly to the outer angle of the orbit and laterally downward toward the petrous portion of the temporal bone. On removing the clot beneath the trephine opening, profuse hemorrhage occurred. A channel half an inch wide was rapidly cut through the bone along the anterior line of fracture toward the outer angle of the orbit, with a rongeur, and was enlarged at its lower end. A large blood-clot was then seen to occupy the whole temporal region and to extend forward and backward beneath the base of the brain. On removing the clot the patient's respiration, which had become very slow, shallow and irregular, at once resumed its normal character. The finger could now be swept over the orbital plate, and the line of



AB and CD show the lines of fracture on the inner surface of the skull. (Gray's Anatomy.)

fracture could be clearly felt extending diagonally across it to the sella turcica. From this point arose a profuse hemorrhage, which so far as could be determined originated at the point of junction of the ophthalmic vein and cavernous sinus. The bleeding from this place was controlled by firm packing with iodoform gauze. The posterior radiation of the fracture could also be clearly followed from the depression on the vertex well down toward the petrous portion of the temporal bone. From this region also a brisk hemorrhage was going on, probably from a branch of the middle meningeal artery. This was likewise controlled by firm pressure with iodoform gauze. The ends of the gauze were led through the lower end of the opening in the skull, and through a counter-opening in the base of the skin-flap, the edges of which were united with silk sutures. The packing was not removed until the tenth day. The patient made a rapid and uninterrupted recovery. On the morning following the operation he was perfectly intelligent, had no pain or other symptom. In twenty-four days he was out of bed, and

¹ Read before the Surgical Section of the Suffolk District Medical Society, December 5, 1894.

left the hospital on the twenty-eighth day, well. Other than weakness and some pain over the left eye and across the forehead, he has suffered no inconvenience since. He has, as you see to-night, the appearance of good health. He tells me, however, that on trying to resume his work two days ago he was obliged to give it up on account of being dizzy and easily flustered. (The patient was shown to the Society.)

A CASE OF FROG-SKIN GRAFTING.

BY GEO. SEELEY SMITH, A.M. M.D., PROVIDENCE,
Interne, Rhode Island Hospital.

THE restoration of the integrity of the skin through grafting will always prove of interest to the medical profession, restoring, as it does, the epithelium of the part, and thereby preventing the deformity, and loss of function which would follow if the process of granulation were allowed to mature.

The following is the report of a case where both human epidermis, and the skin of the frog, were used for the purpose, and in some ways it is one of peculiar interest.

Necessity compelled me to look about for a substitute for human skin, and it was fortunate that my resources were thus taxed, for the subsequent course of the case showed that frog-skin not only took in a larger percentage of cases than human skin, but that its ultimate growth and proliferation was more rapid.

In August of 1893, while in Cleveland, O., I was called to see a case of very deep and extensive burn in a child five years of age. On July 18th, four weeks previous to my first visit, the boy's clothing caught fire, and before the flames could be extinguished the entire thickness of the skin had been destroyed over a large area of the trunk, face and neck.

The part involved may be traced by a line running from the thyroid cartilage, down the median line of the body to within an inch of the umbilicus, and from here following the band of the trousers around to the median line of the back; up to the external occipital protuberance; to the malar bone, on the left, including a portion of the ear; diagonally across the face to the right corner of the mouth, and completing the area by connecting this point with the thyroid cartilage.

I found the entire surface covered with healthy granulations that bled freely upon the slightest touch. In other respects, however, the case had received but little attention, a fact which was emphasized by the fold of the axilla being firmly adherent, through neglect to separate the parts in dressing.

As a consequence the arm was firmly bound down, and my first care was to break up these adhesions under ether.

It being evident from the first that healing by granulation would not only require many months, but would eventually result in considerable deformity, it was decided to resort to grafting. Here the first difficulty presented itself, as the surface was so extensive, and the boy in such a weak and nervous condition, that any attempt to have taken the necessary epidermis from him would have been highly imprudent.

It being very difficult to secure human contributions, I finally determined to resort to experiment, and frog-skin was tried, with the gratifying results already alluded to—results far beyond my fondest hopes.

On the 29th of August, operations were begun by

planting upon the chest twenty pieces of skin, each a quarter of an inch square. They were placed in two rows of ten each, each graft being separated from its neighbor by a space of half an inch. In two days the skin had become identified with the granulating surface, and in five days the grafts had lost their original color, and each had sent forth embryonic epithelium meeting that of its neighbor.

This gave to the surface much the appearance of tile work. The embryonic epithelium was transparent at first, giving to the granulations underneath a slightly glazed appearance. In time this epithelium lost its transparency and then assumed the character of normal skin. In the course of a week the original grafts were dissolved leaving, instead, an embryonic epithelium such as has just been described.

Pieces were taken from the belly and legs of the frog, and also from the back, in cases where the frog was small, and the skin not too thick. In every instance the skin lost its original color in from five to ten days. It was found that the comparatively thick skin from the back took more satisfactorily than that from the belly or legs.

The case was dressed and grafted every second day, and on each occasion from twenty to eighty frog-grafts, and from ten to twenty human-grafts were used. The latter were very small (about one-sixteenth of an inch in diameter) and were placed upon the face and neck until it became evident that the frog-skin would not retain its color.

The method used in dressing was as follows: The surface was first cleansed by irrigating with a warm solution of carbolic acid (one to forty), and after the detritus had been entirely cleared away the parts were washed with a stream of sterilized water. The latter step was to assure asepsis, grafts not thriving under conditions of antiseptics. Each graft was then firmly pressed into the granulating surface. Following this, a dressing of boric acid and vaseline (a drachm to the ounce) was spread upon strips of compress cloth, and applied so as to fit the parts snugly. Outside of this was placed sterilized gauze, and as a final step the roller bandage was used.

At first an attempt was made to hold the grafts in place by strips of gutta-percha; but it was soon found to be impracticable, as the surface was so extensive, and the child so nervous it was impossible to keep him still. The method employed although not so elegant proved effective, and few grafts were lost.

On October 5th, seven weeks after my first visit, the parts were all grafted in; nearly a thousand frog-grafts and about four hundred human-grafts having been planted. The skin, however, was soft and immature, and required constant care and dressing for three months thereafter.

The child attended school during the following spring, and at the time of the present writing (December 12th), has entirely regained his former robust health. He is able to throw his burned arm vertically over his head with no apparent effort. There is absolutely no contraction, the arm being full size where the burn encircled it.

I have recently seen frog-skin used in another case with very gratifying results, and I strongly recommend it as worthy of trial in cases where the destruction of skin is extensive, and it is deemed imprudent for the patient to furnish the epidermis required for the operation.

AN ENDEMIC OF DIPHTHERIA APPARENTLY STOPPED BY THE USE OF ANTITOXIN.

BY F. GORDON MORRILL, M.D.,
Visiting Physician to the Boston Children's Hospital.

DURING 1894 there were three outbreaks of diphtheria at the Children's Hospital which rendered the institution worse than useless so far as the wards were concerned. Applications for admission had to be refused. Those who had the disease were transferred to the contagious wards, and all the other children were hurried away to the Convalescent House at Wellesley or to their own homes. The wards in which the cases had occurred, together with the furniture and bedding underwent the usual process of cleaning and disinfection, involving much trouble and expense, aside from the grave inconvenience of having the working of the hospital thrown out of gear for days at a time. The statistics of the disease were very unsatisfactory, as they have been everywhere previous to the use of antitoxin. It has also been very unsatisfactory, to say the least, to have a child enter the house for the purpose of having bow legs straightened or an eczema cured, and then die of a diphtheria contracted in the wards. It was thought at first that the disease was brought in by the parents and friends of the patients, and blouses and other precautionary measures were made obligatory to such visitors, in the hope of rendering them (externally) sterile. But in spite of these measures the thing recurred, and an active investigation (which is now in progress) will result, I think, in remedying certain faults in the ventilation, and thus reduce future danger to a minimum. The disease has apparently originated every time in one particular ward. But be this as it may, the result has always been the same; for all the children who were well enough to walk or even to be carried to the top of the building met in the playroom every day, and medical and surgical patients have suffered alike.

The cases were usually ill-defined at the start; a child suffering from what was apparently nothing more serious than a cold in the head or a mild tonsillitis would fatally infect others, or perhaps suddenly develop well-marked diphtheria in his or her own throat. In December there were two mild cases, both of which I injected with antitoxin, and would have then used the remedy throughout the wards as a prophylactic if it had been obtainable; but everybody at that time was hard pressed to obtain a sufficient quantity for a single case in private practice.

January 13th, eight days since, there were nine cases in the contagious wards, three of which were serious. During the preceding forty-eight hours there had been four or five cases sent over from the house, and the outlook was anything but cheerful. It was not my term of service; but as the staff very kindly gave me *carte blanche* in the emergency, I took charge so far as the diphtheria was concerned, and used antitoxin very freely and with particular reference to its immunizing properties. Every patient in the house was given an injection of five cubic centimetres of the serum prepared by the Pasteur Institute of New York, and admissions were continued with the proviso that each child should be given a like amount upon entrance. The patients in the contagious wards have been sent back to the house after being disinfected whenever they have shown two negative cultures three days apart. No fresh cases have occurred; and if we

may judge by the history of previous outbreaks in the hospital, the present condition of affairs would appear to be the very satisfactory effect of a perfectly defined cause—it being the opinion of the staff that if protection had not been afforded the hospital would have been temporarily closed before now, and for the fourth time within twelve months. The patients who received the dose for immunity were suffering from various ailments, medical and surgical. No exception was made for any cause. In all 50 were injected, including those in the contagious wards. Three nurses and 39 children were injected for immunity. The ill effects were unimportant: well-marked urticaria on the fifth or sixth day in four; ephemeral diarrhea within twenty-four hours in seven; temporary increase of micturition in nine; anorexia and slight vomiting in four; well-marked tenderness over site of injection and extending up to axilla in two; erythema around the puncture in three. All these minor evils disappeared promptly. In some cases an increase of appetite and immediate improvement in general condition was noticed by Mr. Herbert J. Hall, the surgical interne, to whom I am indebted for good work in connection with the subject of these very hasty notes. These were mostly suppurative cases—spine and hip. Some very sick children were injected. In the surgical wards the serum was given in the evening (in many cases as late as 11 o'clock).

In no case to which I shall refer was the temperature normal when the injection was given. The surgical charts show an average temperature of 99.8° F. Four hours later it was 99.4°, the slight drop being accounted for by the hour (between 12 and 3 A. M.) at which it was taken, when the minimum would naturally be reached. Of those who showed a reaction (21 cases), the thermometer registered an average rise of .7° ten or twelve hours after the injections, and this in the morning when in children sick from other causes, the temperature would naturally be lower than in the evening. The greatest rise in any case was 1.8°. In one there was a drop of 2.8°; in one of 1.2°; in another of 4°. In a single instance there was no change whatever. These four were spine or hip patients. In 19 of the cases which reacted the evening temperature averaged 99.6°—a remission of about .5° at a time when, in a sick child, a rise would usually be expected.

The temperature of thirteen medical cases injected for immunity was 99.4°. These were all treated in the afternoon. Four hours later the average was 99.5°. Of the seven who reacted, the morning temperature (say sixteen hours after treatment) showed a rise of a small fraction less than a degree—this at a time when it would naturally be less than in the afternoon. Two cases registered a drop of .4°, one of 1.4°, and another of 1.2°. In one case no change was noted. A lobar pneumonia who had just dropped to normal showed the greatest reaction so far as temperature was concerned, a rise of 2.4°; but it dropped back to 99° in the evening, and there was absolutely no disturbance of its general condition. The average evening temperature of the cases which reacted was 99° in the evening. In short, the reactions were unmistakable, and agree with what has been hitherto observed.

Of those treated for diphtheria in the contagious wards, there is not much to be said. Two of the sickest children were sitting up in bed and enjoying themselves twenty-four hours after receiving a dose of

15 or 20 c. c. In both cases the temperature dropped twenty-four hours after treatment—one from 104° to 101.2°, and the other from 100.4° to 100°. Both were "nasty" cases. The worst case was sent over with a croupous pneumonia and the worst kind of diphtheria. In addition, there was almost a suppression of urine and edema of face and legs. In all, 45 c. c. was injected in this instance; but the child died sixty hours after the first dose, the temperature showing little or no change until a few hours before death, when it dropped from 102° to 101°. At the autopsy a broncho-pneumonia (from infection by the staphylococcus) in the lung opposite the original trouble (croupous pneumonia) was found. It was very extensive, and would have killed in any case. It is the only instance of an unmistakably double infection of the kind that I have ever seen or heard of. The mild cases have all done perfectly well, and three have been disinfected and returned to the general wards. There were no urticarias noted in the contagious wards.

Medical Progress.

RECENT PROGRESS IN DISEASES OF THE NERVOUS SYSTEM.

BY PHILIP COOMBS KNAPP, A.M., M.D.

DISTURBANCES OF SENSATION IN VISCERAL DISEASE.

HEAD¹ has concluded the very suggestive study analyzed in the last report,² with especial reference to the pain and tenderness in the head and neck produced by visceral disturbances. It is impossible in a brief analysis to do justice to these two papers, but they should be carefully studied in the original by all who desire to attain accuracy in the diagnosis of disease. In the first place by careful study of the distribution of pain and tenderness he differentiates seventeen areas in the head and neck, and he finds, as in his previous study, that the distribution of herpes zoster corresponds in the main to these areas, although on the face and head there is a much greater tendency for the eruption to appear over a group of several areas. The lower areas correspond to the sensory distribution of the third to the eighth cervical segments of the cord, and they overlap somewhat. Head next points out the areas rendered painful and tender by lesions of special organs of the head and neck. In affections of the eye, the headache produced by errors of refraction is associated with pain and tenderness in the mid-orbital region, it is definitely made worse by reading and sewing, it comes on in the morning as soon as the eyes are opened, it disappears under atropine when applied long enough completely to paralyze accommodation, and there is no pain or tenderness elsewhere. Disease situated deep in the cornea or anterior chamber causes referred pain in the fronto-nasal area; in the iris, in the temporal area; and farther back in the eye, in the temporal, fronto-temporal, and maxillary areas. The referred pain from diseased teeth varies according to the teeth affected, but in most cases Head has succeeded in establishing the area associated with each group of teeth. Disease of the external ear causes no referred pain; disease of the drum and middle ear

causes referred pain and tenderness over the hyoid area; elevation of tension in the middle ear causes tenderness also over the vertical and parietal areas. Disease of the tongue causes tenderness in the mental, hyoid, and superior laryngeal areas. Furthermore, in disease of the various organs in the trunk there is apt to be referred pain and tenderness in the head areas as well as in the spinal areas, which the author in his previous article showed were associated with these organs. Thus in disease of the lungs there is apt to be referred pain in the fronto-nasal, mid-orbital, and fronto-temporal areas; in disease of the heart in the mid-orbital, fronto-temporal, and temporal areas; in disease of the stomach and small intestine in the temporal, vertical, and parietal areas; in disease of the liver in the vertical and occipital areas; in disease of the ovaries and testes in the occipital area; the uterus, the Fallopian tubes, and the bladder are not represented, and disease of these organs does not give rise to referred pain in the head. These areas do not correspond to the peripheral nerve-supply, which is found in the head to overlap tremendously. They probably represent some more central nervous arrangement than the posterior roots of the cervical plexus and main branches of the fifth nerve. All the thoracic and abdominal viscera which are referred into the dorsal areas of the scalp are supplied by the vago-glosso-pharyngeal nerve, which, as Gaskell has shown, represents the visceral branches of a set of nerves whose somatic sensory roots are to be found in the sensory portion of the fifth; so that it is not surprising that impulses passing up the vagus should be referred to the area of the fifth. The author's articles bear evidence of such careful and thorough work as to demand confidence, and the aid that a careful study of pain and tenderness in these different areas can give, seems to afford a new and valuable source of information in determining the diagnosis in cases of obscure disease.

NEURITIS.

Beri-beri.—Scheube,³ whose earlier researches upon this disease are well known, has published an exhaustive study, which, in view of recent outbreaks of the disease in Dublin and occasionally on vessels, is of timely interest. He considers beri-beri a miasmatic infectious disease occurring chiefly in tropical countries. The special agent is still unknown, but it is to be sought in the soil; there are, however, certain individual and predisposing causes. Natives and colored persons are chiefly affected, men more than women; most cases occur between sixteen and thirty. One attack does not secure immunity. There are four forms of the disease: an imperfect, rudimentary form; the atrophic form; the dropsical form; and the acute, pernicious or cardiac form. The nervous system is chiefly affected, especially on the motor side; the legs and the peroneal muscles being chiefly affected. The cranial nerves are seldom involved, except the vagus, whose cardiac branches are especially apt to suffer. The paralysis is flaccid, and the muscles atrophy rapidly; symptoms of motor irritation also occur. There are various changes in the electrical excitability, sometimes amounting to complete reaction of degeneration. Sensibility in all its forms is diminished, and paresthesia is constant. The skin reflexes are normal; the knee-jerks are often absent. Cerebral symptoms are rare. Palpitation, cardiac distress and shortness of

¹ Brain, Part Ixvii, 1894.

² See this Journal, Jan. 18, 1894.

³ Die Beri-beri-Krankheit, Jena. 1894.

breath are common; the pulse varies; functional heart murmurs are often heard. Anemia is frequent. There may be disturbances in the respiratory, digestive, urinary and genital apparatus, but these are less striking. There is very rarely fever. The patient usually recovers, the mortality not reaching five per cent. in his experience, but motor disturbances may persist. He gives the result of twenty autopsies. Dropsy is usually present, especially dropsy of the pericardium, and there are usually changes in the circulatory organs. The central nervous system is normal, but there is a degenerative inflammation of the peripheral nerves and of the muscles. The search for a specific bacterium has thus far proved unsuccessful. The disease is regarded as an endemic multiple neuritis. As prevention the author recommends good hygiene, a pure soil, good drinking water, and the erection of healthy dwellings. In the medicinal treatment of the disease digitalis has given the best results.

Neuritis.—An interesting discussion on peripheral neuritis was held last August at the Congress of Alienists and Neurologists of French-speaking countries.⁴ Marie held to the opinion of Erb and others that the alterations in the peripheral nerves were dependent upon lesions provoked in the nervous centres by some morbid agent. If the peripheral origin of the alterations be assumed, how can we explain the symmetry of the motor and sensory troubles so often seen, or the incongruities in the localization of the trouble with regard to the nerve trunks—the segmental anesthesia, or the exemption of the supinator longus in lead paralysis? Furthermore, the atrophic paralysis of polyneuritis differs in no essential from the atrophic paralysis of anterior poliomyelitis. Anatomically, of course, the most profound changes are found in the nerves, but in polyneuritis the brain is often affected, and the latest and most exact researches are beginning to show lesions in the gray matter of the cord. The spinal ganglia have an important trophic influence upon the peripheral nerves, but very few observations have been made of them in polyneuritis. The lesions in the nerves themselves are often not in proportion to the symptoms; in many grave diseases, cachexiæ, and even in old age we may find changes in the nerves as great as in polyneuritis, without any marked motor or sensory troubles. The nerve roots may be apparently healthy, but this is not an argument against the central origin of the trouble, for the most peripheral parts of the nerve are the first to degenerate. Nevertheless the peripheral origin of some cases, notably leprosy and vascular neuritis, cannot be wholly rejected, and an effort should be made to distinguish between the two forms.

Babinski distinguished two great classes of neuritis, those of external (usually traumatic) origin, and those due to internal causes, usually a toxic agent or a dyscrasic alteration in the blood. Only of leprosy neuritis can we say that it is certainly due to peripheral causes. A very large number of cases, as Erb and Remak have shown in saturnine neuritis, are due to some slight alteration in the nervous centres. The axis-cylinder of the peripheral nerve is nothing but the prolongation of the nerve cell, and a disturbance of the central part of the cell, so slight as to be imperceptible, may in all probability manifest itself by

changes in the parts of the cell farthest from the nucleus, that is, in the peripheral end of the axis-cylinder. Pathogenic agents may attack the whole cell, but only the most vulnerable part, the periphery, may show changes. Without one of these hypotheses it is difficult to understand certain forms of neuritis. We sometimes find lesions in the cord in cases presenting the symptoms of peripheral neuritis, especially in lead paralysis; but such changes may be seen also in cases of traumatic neuritis, clearly of peripheral origin, so that this argument is not decisive. The term peripheral neuritis should not imply that the lesions of the nerves are primary and the origin of all the trouble, and that the central nervous system presents no modification. It means only that the changes perceptible by present methods are located exclusively or chiefly in the peripheral nerves. Many of the pathogenic agents of neuritis cause disturbances both of the central and peripheral nervous system, and sometimes of other anatomical systems; the functional troubles due to them are caused not only by the perceptible changes in the nerves, but by dynamic changes elsewhere; the lesions of the nerves are only the most apparent alterations.

Renaut thought that the axis-cylinder, although a prolongation of the cell, must be considered as a highly differentiated member of it, rather than as a simple expansion. In the large amyelinic nerves of cyclostomes the axis-cylinder as it becomes a nerve quintuples in volume, and an abundant granular protoplasm takes its place between the fibrillæ; this is an active agent in nutrition. Perineuritis, Gombault's segmentary neuritis, parenchymatous and interstitial neuritis all point to a peripheral affection in many cases.

Pitres distinguished three classes of neuritis: local, due to cold, injury, or local infection (as in leprosy); general, toxic and infectious; and cases of central origin, as in poliomyelitis, tabes, hemiplegia, etc. The first two groups are due to alterations produced by the morbid agent on the peripheral parts; in the majority of cases they are primarily cases of peripheral neuritis.

Babinski called attention to the relations between tabes and peripheral neuritis, and held that the lesions in the posterior columns of the cord could not be proved to be secondary to lesions of the roots or spinal ganglia. Dynamic changes in the ganglion cells were merely hypothetical, yet we must assume them in tabes, optic atrophy, and other affections. Others hold that the affections of the nerves are primary, and that the cells may be affected later, by an ascending neuritis; but no case of neuritis of external origin has ever given rise to spinal lesions like those of tabes, and alcoholic, saturnine, or diphtheritic neuritis has never caused Duchenne's spinal atrophy.

Psychoses of Neuritis.—Colella⁵ has made an elaborate study of the polyneuritic psychosis, based on a study of 35 cases, eight of which came under his own observation. In many cases of polyneuritis the psychical symptoms present a very definite clinical form. These symptoms are due to the same morbid conditions (toxic substances) which produce the neuritis. The psychosis, however, does not seem to have any definite relation to the severity of the neuritis. The psychical condition is represented by a particular mental state in which amnesia predominates. In one class of cases the disorder of memory may come on acutely, may be

⁴ Congrès des médecins aliénistes et neurologistes des pays de langue française. Archives de Neurologie, Sept., 1894.

⁵ Annali di neurologia, xii, 1. 151. 1894.

more or less profound, may involve especially recent events, and may present itself almost as a state of isolation. In other cases, together with grave amnesia, disorders of consciousness, incoherence and restriction in the field of ideas predominate. In a third class phenomena of an exaggerated irritability in the psychical sphere predominate with the disturbances of memory. The psychosis may begin with a period of delirium and disorders of perception. After these have disappeared the disorders of memory may present the following characteristics: there is a profound, general, almost instantaneous amnesia of recent acts and impressions, contrasting with the detailed and precise account of more distant events; this amnesia may not only involve all memories subsequent to the onset of the disease, but also memories of the period immediately preceding; the absolute incapacity to recall present events is often in contrast with the precision of the patient's answers, the logic of his reasoning, and the justness of his conclusions; the amnesia is determined by the loss of the faculty of evoking memories, which conforms to the ordinary rule that the latest memories are the first to be lost, and that the affective faculties are lost more slowly than the intellectual. Recovery follows a similar process. Consciousness may be unaffected; but sometimes the patient has no consciousness of the place where he is, the people who are about him, or even of his disease. Ideation may be normal, but the range of ideas may be very limited. There may also be an exaggerated excitability and anxiety, sometimes approaching outbursts of mania. When the patient's general condition is good, and the cause of the disease can be removed, the psychosis usually terminates favorably, but when the evolution is very rapid and intense, and is due to a general and profound intoxication, and when it develops in debilitated subjects suffering from tuberculosis, cancer, etc., it is apt to result fatally.

Régis⁶ in the discussion referred to above, does not admit that this psychosis is especially associated with polyneuritis, but thinks that they are both consequences of the same cause—intoxication or infection. He cites the case of a young man who, after diphtheria, had the characteristic mental state of the polyneuritic psychosis, but he had no neuritis until eight months later, when he had a mild attack brought on by cold. The infection may have left a protracted predisposition to the neuritis. The psychosis he believed to be simply an infectious psychosis, not necessarily connected with the neuritis, which is merely another effect of the same cause.

(To be continued.)

PRESSURE PALSY FROM WALKING UPON STILTS.
—Bergonié and Bordier report a case of paralysis from pressure on the right anterior tibial nerve, just below the division of the external popliteal nerve into its anterior tibial and peroneal branches. The tibialis anticus and the extensors of the toes and the great toe were the muscles affected. The peronei had escaped. The patient lived in the marshy districts near Bordeaux, where the use of stilts is common, and walked several miles daily upon them. The stilt was buckled round the upper part of the leg by a stout strap, beneath which he wore a leather pad. It was this pad which had compressed the nerve. On the left side the pad fitted better, and the nerve had escaped injury.

⁶ Archives de Neurologie, Sept., 1894.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 5, 1894, Dr. F. B. HARRINGTON in the chair.

Dr. F. S. WATSON read a paper describing

A CASE OF FRACTURE OF THE BASE OF THE SKULL PROBABLY INVOLVING THE CAVERNOUS SINUS; OPERATION; RECOVERY.¹

Dr. BULLARD: I will just say one word on this case of Dr. Watson's. There are two points I wish to speak of. First, the size of the clot. The clot was very large. It extended as far back as could be determined and downwards towards the base of the skull. Between the orbital plate and the frontal lobe of the brain it was nearly an inch in thickness. In the second place, Dr. Watson compressed the middle meningeal artery near the pterion, and found that that did not stop the hemorrhage; consequently the hemorrhage was not due to the meningeal at or above this point.

Dr. Bullard also presented a paper on

A CONSIDERATION OF SOME OF THE INDICATIONS FOR OPERATIONS IN HEAD INJURIES.²

Dr. BRADFORD: The questions which Dr. Bullard has stated I think can be very briefly answered. In the first place, as to the size of the button. It seems to me that that depends somewhat upon the operation. If you are to remove a tumor of large size, you make the opening according to that tumor. If you are making an exploratory operation, it seems to me best to make an opening large enough for the rongeur forceps, in order that you may increase the size of the opening if necessary. As to opening the dura, I should agree with what Dr. Bullard says, that it should be treated as one would treat the peritoneum. One would rather not open the peritoneum when it is not necessary, but one would not hesitate to open it when it is. As to the length of time, it has seemed to me that speed is of importance, and it is for that reason that I feel inclined to use mechanical force in trephining, that is, surgical injuries. I have not formulated any opinion in regard to the length of time which packing should be kept in the skull. I know I myself have removed the packing too soon.

Dr. ABNER POST: I can say very little except to agree in general with Dr. Bullard's propositions. In regard particularly to the size of the trephine, it seems to me that one should think rather of the instrument which will penetrate the skull the quickest than the exact size of the trephine. The larger the trephine the greater the mechanical force required to drive it, and a sharp instrument which is not exactly the size desired would be to my mind preferable to one of the exact size a man chose which was dull and would require a greater length of time, for time seems to me to be everything. There are very few skulls indeed in which the opening cannot be enlarged by the rongeur forceps after the trephine has once removed a single button. I do not think I ever met with but one skull where I was unable to enlarge my opening with ron-

¹ See page 78 of the Journal.

² See page 73 of the Journal.

geur forceps. My experience in regard to opening the dura would coincide exactly with Dr. Bullard's. I do not know as I have ever seen any trouble follow it, and I certainly have opened it a good many times. In regard to packing, I feel very sure that I have kept packing within the skull for a fortnight. In one case in which a longitudinal sinus was opened the packing required was pretty extensive to control the hemorrhage, and it was removed only gradually piece by piece. I am sure it was fully a fortnight before the last piece was taken out, and that patient recovered without any unpleasant symptoms. I should like to say one word a little outside of Dr. Bullard's line of argument, and that is in the use of the trephine in compound fractures. We speak invariably of trephining the skull in such cases, and I have noticed that a good many men who meet such compound fractures but seldom are a little surprised to notice that the trephine is not always necessary. A little judgment, little care, little use of the rongeur forceps in nipping off projecting points, or the elevator or forceps allows one to lift the depressed portion very rapidly without spending time with the trephine in a very large proportion of cases.

DR. RICHARDSON: I would like to congratulate Dr. Watson on his most brilliant case. I do not think I have anything to say with reference to the surgical questions Dr. Bullard has raised. I should agree with him in every particular, perhaps with the modification Dr. Bradford suggested of not opening the dura unless necessary. I think we should feel if anything does go wrong with a serous membrane, if any detail is neglected,—and we do once in a while even now see a drop of pus—I do—if we do get infection in a serous membrane like the peritoneum or brain, we have a deplorable result. As to the size of the trephine, I think one should be used which permits a rapid button formation, and yet not too large. I do not like the new trephines; they are built for the purpose of not slipping into the cranial cavity. I like the old cylindrical trephine. It cuts more rapidly, and one ought not to use a trephine if he cannot use it with sufficient skill not to suddenly slip into the brain. I usually use a trephine perhaps three-fourths of an inch in diameter. That is one I should select not only for the reason it acts more quickly, but with a very large trephine it is almost impossible to make a clean cut through the whole button; as there are very few parts of the bone where the thickness is the same.

I recall three cases in which opening the dura mater was followed by very extensive hernia cerebri, two were fatal at the end of some months; but it is only fair to say that there was a new growth in each pushing up the brain substance from behind. The third I reported a long time since; was septic; and I never understood why there was such extensive hernia. I should think one-half of the lateral lobe must have come out through the large opening, and the girl gradually became paralyzed and died. I do not recall the use of gauze to prevent hemorrhage in but one case. I never met that trouble from hemorrhage from flaps or other cause in cerebral operation except once, and in that instance it was controlled. The patient had a hemorrhage from the place Dr. Watson's came from. It was alarming. Dr. Brewster tells me he left the gauze in forty-eight hours. I think, as a rule, we are inclined to leave the gauze in too long, long enough to

tear the newly-formed adhesions and to cause fresh hemorrhage.

DR. ELLIOT: I understand one of the points Dr. Bullard makes is that in these cases of patients unconscious after head injuries that opening the dura is a sufficient and very valuable procedure *per se*, even if neither blood or serum be found. This may be true, but his reasoning certainly fails to convince me. In the first place, if you take out a button where there is intracranial pressure, the dura itself gives somewhat and even bulges considerably where there is sub-dural blood; also in cases of brain tumor at the base, to relieve pressure we take out a button; we never open the dura in such cases; it relieves the pressure very much indeed without opening the dura. In these injury cases if you take out a button and open the dura, the brain itself does not bulge any more than the dura did; and so I see no advantage in opening the dura if there is no fluid under it. I often open the dura, yet I consider it a very important step in an operation. I think it is entirely different from opening the peritoneal cavity. In the peritoneal cavity things glue up rapidly and the peritoneal scar is not troublesome. After opening the dura, if you do a second operation, the brain is found glued to the dura and the dura glued to the skin, it makes a scar and a thickened mass which involves brain-tissue. Such a condition is objectionable, and should be avoided unless we are sure it is necessary. I know one case where a piece of the dura was cut out for epilepsy and there was relief for a year and then the convulsions returned; a secondary operation was done, and there was much more scar-tissue, much more of the condition which was originally found than at the first operation. The second operation brought only temporary relief, I suppose for the same reason. I often open the skull as an exploratory operation, and I feel I have not done any damage; but when I come to the dura I always consider carefully whether to go further. I think you can tell by feeling the dura whether there is any fluid under it. If there is fluid, you get the feeling of ballottement, the feeling of fluctuation. The dura does not necessarily bulge when there is blood under it. I have lately met a class of cases which is interesting to me. In these cases there is a compound depressed fracture, and the bone jammed into the brain, depression of half an inch or more. Take up the depression, and you feel the fluctuating dura, open the dura, and you find a condition of edema of the pia, perhaps a little bloody fluid, but not a great deal of blood. The pia seems to have been jammed and to have secreted a great deal of serous fluid. Of course, in such cases it is obvious that opening the dura is of value.

As to the time of the operation, I have usually felt there was no hurry, and I am governed entirely by the pulse and condition of the patient. I am surprised also in the indications for operation that Dr. Bullard has not laid more stress on the pulse. To me it is one of the most important things.

I think that packing in the skull cavity and especially in these large bleeding cavities ought to be managed with great care and great consideration. I do not think you can say it ought to be left in ten days by any means. I think in a general way packing ought to be left in if there is bleeding as long as it does not do any harm. It may cause pressure symptoms or even convulsions. It is extraordinary how gauze or a little pus in the wound or a little edema in

the flap outside the trephine hole affects the brain. I have seen such things cause convulsions so that it seemed as if the operation was wholly unsuccessful. When, however, the wound complication disappeared the case turned out all right again. So I think that although some cases do much better to leave the gauze in, it is not a general rule that should be followed.

DR. WATSON: I should like to speak for a moment in reference to the point Dr. Elliot has raised. It is the point Dr. Bullard brought out particularly and which I think he has focussed more clearly than Dr. Elliot. I am inclined to believe that some of Dr. Elliot's cases of pia edema are of that class of cases which Dr. Bullard described. This is outside the immediate line of discussion, but this question of acute edema following injury is very interesting I think. I had not heard it carefully described, or much importance given to it until Dr. Bullard called my attention to it last year. I had then two such cases, there was no intracranial hemorrhage whatever, but the patients showed symptoms such as arise from hemorrhage. On trephining and opening the dura, a considerable quantity of clear fluid poured out through the incision. The relief afforded by the evacuation of the serous fluid from the brain was very striking, and such as Dr. Bullard describes, and I cannot but think that in some of these cases, this acute edema is, as Dr. Bullard says, the important factor in the case; I do not know any neurologist who goes as Dr. Bullard has gone for years with the surgeons to all surgical cases of head and spinal injury occurring at the hospital, and I think great weight should be placed upon what he says as to this special class of cases after so large an experience.

DR. WALTON: I think Dr. Bullard is to be congratulated on his résumé of the subject and on the clearness with which he has brought his individual views before us. I am rather inclined, however, to agree with Dr. Elliot that we should not minimize the dangers of going through the dura mater simply because in a great many cases we fail to find unfavorable result therefrom. I have always regarded the dura mater as a danger point in the operation, not only on account of the greater danger of immediate injury, but on account of the other point alluded to by Dr. Elliot, that is, that after the operation is over the inflammatory products and the adhesions inside the dura pressing on the brain itself may become a source of irritation and set up convulsions in future time, dangers we do not incur when we leave the dura alone; and yet, though I regard it as a danger point, I should advise going through where there is any doubt. In advising this step I should not be guided simply by the question of pressure, a lesson impressed upon me by a recent case of Dr. Porter's in which there were undoubted signs of hemorrhage under the dura, convulsions on one side and deep coma coming on six days after the accident. In that case after going through the skull the dura was really depressed; it was far from bulging and it apparently pulsated, and there was considerable hesitation about recommending going through the dura. I was, myself, rather inclined not to advise it because there was no bulging and because there was apparent pulsation, and yet there was a slight lividity of the dura which influenced Dr. Porter to incise this membrane and disclose an extensive clot, which was removed, leaving the brain permanently depressed. That brings me to the point Dr. Elliot brought up regarding the cause of lack of bulging in

some of these cases. In that case it looked as if the brain was really atrophied, partly perhaps from the loss of blood and perhaps partly from general circulatory defect. This is the first case of the sort I have seen, for in all previous cases of hemorrhage I recall the dura was bulging. About the size of the opening, I should not quite want to make a cut-and-dried rule that every opening should be at least two by one inches for example, or of any definite size. I think the trephine opening above will sometimes suffice for exploration, or tapping a cyst, perhaps; and I should be guided by the necessity of the case. If there is necessity for opening it, that is, if there is marked bulging, for example, of the dura mater, I would advise enlarging the opening extensively before going through the dura mater. I saw one case with Dr. Richardson in which there was a large glioma, in which the opening was made as we thought at first sufficiently large; but on opening the dura the brain poured out in every direction over the trephine opening so as to materially interfere with further enlargement. With regard to the question of time, I consider this factor often important, so important that I have favored in one or two instances the plan of Horsley, followed several times at the Massachusetts General Hospital, of first removing the bone, then allowing the wound to heal by first intention and several days later tearing it open and continuing the operation. This plan has worked very nicely in the cases I have seen.

DR. PRINCE: I doubt if I can add anything of value to what Dr. Bullard has already said in his exceedingly interesting paper. I think his studies, if future observations shall confirm them, as I have no doubt they will, will prove to be quite an advance in our knowledge of the symptomatology of these cases, and will be a great help in the diagnosis and gives us valuable guides to operation. There is only one point on which I should like to speak, and that is on the usual surgical guides which are made use of by surgeons. There always will be, it seems to me, doubtful cases. You may lay down all the rules for guidance that you please, and there always will be cases in which you will be in doubt as to whether the hemorrhage is upon the surface or in the interior of the brain; as to whether there is hemorrhage at all, or whether it is a serous effusion; whether the symptoms are due to laceration or what not. Now, we may lay down all the rules we like, but in a practical consideration of these cases at the bedside I cannot help feeling that we must be in doubt at times, as I know I have been when called upon for an opinion in the past. The point I wish to make is this: it seems to me that surgeons have always been a little too prone to consider whether or not they should operate, to consider what the prognosis is regarding the life of the patient and to consider that alone. I think all neurologists here will agree that many of these cases afterwards turn up in the neurological departments of the hospitals and there come into the hands of the neurologist and their after-condition in many cases is pitiable. In such cases it seems to me we should also consider what the after-condition of that patient is likely to be. For example, we have a doubtful case, not quite certain as to the location of the hemorrhage if there is one. It seems to me that in such cases, even if we are not certain as to the advisability so far as life is concerned, that we ought to give the benefit of the chance to the patient

and operate if we feel certain we shall not do any harm, even although we feel certain he will get well. I have seen so many cases where the patient has been a wreck afterwards in life that I think that should be taken into consideration as well as the mere question whether or not the patient is going to get well. Only the other day, for example, I was called upon to give an opinion, and I advised operation. The surgeon was opposed to it, I think largely on the ground that the patient would get well. The patient did get well; but I am still of the opinion from the after-condition that the operation should have been performed, and I am not certain that he don't come to operation yet.

Regarding this matter of opening the dura, perhaps I should not hold an opinion, but I do think this, that it is a little mite risky laying down positive rules that it is perfectly safe to open the dura, because I think we can only say it is theoretically safe on the supposition that absolute antisepsis is obtained. I think we must take into consideration the results of other people's operations as well as those with whom we are conversant; and I think perusal of the literature will show that it is not very infrequent to have sepsis after the dura is opened, and even, as Dr. Richardson has said, he himself has had a case where sepsis occurred, and yet one cannot doubt that every precaution was taken. Therefore, while Dr. Bullard might lay down that rule theoretically provided absolute asepsis can be secured, it seems to me a dangerous rule to give the surgeon at large, and to say that anybody, no matter whether he is careful or not, his methods good or bad, can open the dura with impunity. It seems to me a little bit dangerous rule to lay down in that way.

DR. FOLSOM: I am very strongly of Dr. Prince's opinion that there is a very considerable number of cases where it is absolutely impossible to say precisely what is the source of the paralysis or of the pressure. I think in those cases it is justifiable and good practice to trephine, and if necessary to take out two or three buttons of bone, to make quite a large opening simply for the sake of making a diagnosis. That has been done in three cases in my practice in the last five years. In neither case did there seem to be any sufficient reason for going through the dura. Neither the family nor I should have been satisfied, considering the gravity of the situation, if in each case that much had not been done. If the dura is not opened, it is a simple operation and justifiable for assistance in making an accurate diagnosis.

DR. KNAPP: I feel very grateful to Dr. Bullard for his valuable and clear paper. I think he has put the rules for operation in these head injuries more concisely and more simply than has been previously done. As regards the indications for operating, I agree with him distinctly that we should be guided very largely by the indication of increased intracranial pressure; but I would also agree with Dr. Prince that there are a good many cases where it is better to operate even if it is not on account of the simple question of life or death. It seems to me that in every case where the symptoms are at all grave we should operate. I believe that it makes the prognosis only a little worse in such a case, that the risks of the ordinary trephining are very slight; and in those cases, as Dr. Prince has suggested, where there is possibility of local injury to the brain I believe that we should remove as far as possible early in the development of the case the source of the irritation.

I am glad to hear most of the surgeons agree in the question as to opening the dura, an opinion which I have held almost from my earliest experience in brain surgery. I have never yet been able, in what I have read or observed in the cases of trephining, to discover that opening the dura added materially to the risk. I think the case Dr. Walton has cited is just such a case. We might have had the record of the first operation for brain tumor in the world if the surgeon had been willing to take the risk of opening the dura. The last stroke of the operation was not done, and the tumor lay just beneath the dura. Certain risks in opening the dura must, however, be admitted. It adds somewhat to the risk of sepsis. There is also some risk, as Dr. Elliot has suggested, of setting up adhesions and possibly causing epilepsy. The chief immediate risk, as far as life goes, is the risk of brain hernia. That develops, I believe, under only two conditions: the first place, under septic conditions where for some reason, I know not why, there is the possibility of very tremendous hernia; and, secondly, in the cases of tumor, where the tumor cannot be removed. My own experience with trephining for the relief of pressure in brain tumors is that I have not got much relief to the pressure, until the ventricle was tapped; but I think that in every case of trephining for the relief of pressure of the brain tumor, you will be pretty certain to get brain hernia and death in the course of two or three months; I doubt if you get very marked relief for any length of time in those cases from opening the skull without opening the dura. The dura is usually so tense and so firm that it gives very little relief. The suggestion with regard to edema of the brain which Dr. Bullard has made, is of distinct interest. In cases of that sort it seems to me it is necessary to open the dura in order to get drainage. You get a little enlargement from the bulging of the dura; but the relief that is to be obtained is the relief by means of drainage—the drainage of the cerebro-spinal fluid or the edematous fluid which is causing the increased intracranial pressure. If you do not let that out, you do no good.

DR. LOTHROP: I would like to say just a word in regard to opening the skull. The ordinary method here is with the trephine, and then enlarging with the rongeur. Recently I have seen a good many cases where the skull was opened with the chisel and hammer, and in these cases you can make use of the line of fracture. First make an oval incision going through to the skull, not stripping off the periosteum, then chisel round on the bevel and turn down more or less of this bone-flap according to the size of the opening desired. You have at once a large field for operation, and it makes no difference whether the skull chips or cracks; simply remove all the spiculæ, and turn the flap back, and it has the advantage of being able to close the opening in the skull, whereas with the trephine and rongeur you have lost all the bone tissue. I think that this method has some advantages.

DR. ELLIOT: I should like to mention one case that bears on the point of opening the dura. I had a child two years ago; the top of the head was broken in by a severe injury, and the whole top of the skull taken out, and the dura was lacerated and brain lacerated in several different directions, so that the brain substance with blood was running out. In that case it seemed to me that the brain was fast oozing away, and I sewed up the dura tight with two lines of catgut suture with all the blood and degenerated brain

in there, and he recovered promptly, but had certain paralyses. In this case a very severe brain injury did well with the dura closed.

DR. RICHARDSON: In the case Dr. Prince referred to of hernia, the dura was opened for abscess. It was a case of sepsis previous to the operation. Moreover, the operation was performed in the antiseptic days in the time when the mortality from sepsis was great. I trephined last summer twice for brain tumor. In one instance it was for a glioma. In another instance I trephined over both lobes of the cerebellum in a child, and was able to see through the transparent dura the outlines perfectly of the convolutions of the cerebellum, and it was evident that there was no tumor there. The relief from pressure was so great that the child, from groaning and pain, became perfectly quiet, and was singing all the rest of the time in the hospital. I have been sorry I did not open the dura in that case, and explore with the finger all the lobes of the cerebellum; but not being able to feel or see anything, it seemed at the time that we had done enough.

DR. HARRINGTON: In connection with what Dr. Prince has said about the difficulty of deciding what to do and the importance of operating in certain cases where life is not threatened, but where the after-effects may be bad, I should like to mention a case which came to the hospital last summer. An infant of a few months was placed by its mother on the tail-board of a wagon. The horse being tied and being suddenly startled brought his chin down on the child's head. The result was a marked depression in the middle of the parietal bone as large as a silver half-dollar which might have held half a drachm of liquid. The child cried and suffered considerable pain at the time of the accident. There were no symptoms of pressure. I watched the case a week. The child seemed perfectly well. There seemed to be no change in the depression. It was a case in which one would have had very little difficulty I think in elevating the depressed skull, but it seemed to me that the condition was more like a green-stick fracture and that in time the development of the parts would correct the depression or that the pressure being regular and free from spiculæ, no trouble would ensue. Yet this was not the unanimous feeling of surgeons who saw the case. I have not since heard from the child and for this reason I judge that there have been as yet no unfavorable symptoms.

DR. G. H. MONKS showed a pair of Keen's rongeur forceps, which he had used successfully in one case, where it was necessary to make a very large opening in a child's skull.

DR. BULLARD: In regard to intracranial pressure, I consider that the most important symptom in determining in many cases the question of operation. In these cases we often trephine and find the dura bulging and tense and there is no pulsation. It is in those cases that I advise that the dura be incised. Of course there are certain cases in which the dura is not tense. They are not very uncommon. We may have tenseness of the dura and non-pulsation from hemorrhage beneath the dura or the pia; but as a rule the bulging in these cases is not due to hemorrhage apparently, but to simple swelling of the brain, because the moment the dura is cut the pulsation of the brain returns without fluid escaping with great rapidity from anywhere. But it is impossible to say

absolutely what the cause of this condition is. All I know is that there is increased intradural pressure which does not appear to be due to hemorrhage. After the dura has been cut the advantage to the patient is very evident in many cases; of this there is no doubt. Patients are brought to the operating table comatose with stertorous respiration and apparently in almost hopeless condition. I have seen such patients recover consciousness immediately after getting over the effects of the ether and retain that consciousness and go on to recovery.

With regard to the question of packing, Dr. Richardson, I think, said he had taken packing out in two days without any untoward effects. I have seen packing stay in eleven days and then removed without untoward symptoms. The packing may stay in sometimes for some time without producing untoward symptoms although the difficulty of removal is said to be greater when it stays in longer. On the other hand, I have seen packing put in and hemiplegia, partial paresis of the extremities, produced by that packing. Yet although the packing was allowed to stay in nine or ten days, the paresis passed off with the removal of the packing. In other words, the mere fact that paresis is produced by pressure of packing, does not in itself contra-indicate the leaving in of the packing for several days.

DR. BURT showed a specimen well preserved in a solution of formalin (1 to 40).

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. TWENTIETH ANNUAL MEETING, AT HOT SPRINGS, ARK., NOVEMBER 20-23, 1894.

FIRST DAY.—MORNING SESSION.

THE Association was called to order by the Chairman of the Committee of Arrangements, DR. THOMAS E. HOLLAND, of Hot Springs.

An Address of Welcome on behalf of the State was delivered by GOVERNOR GEO. W. FISHBACK.

HON. W. H. MARTIN, of Hot Springs, followed with an Address of Welcome on behalf of the citizens of Hot Springs.

PRESIDENT'S ADDRESS.

After the reading of the reports of the Secretary and Treasurer, the President, DR. X. C. SCOTT, of Cleveland, Ohio, delivered his address.

At the conclusion of the President's address, a committee of five was appointed to consider the suggestions contained therein and to report at a subsequent session.

FIRST DAY.—AFTERNOON SESSION.

DR. EMORY LANPHEAR, of St. Louis, followed with a paper entitled

BONE AND JOINT TUBERCULOSIS THE FUTURE FIELD OF LITIGATION AGAINST RAILWAYS.

He submitted the following conclusions:

(1) Pott's disease, hip-joint disease, white swelling, and most chronic joint affections are tuberculous, and "scrofula" has no existence, being but an attenuated tuberculosis.

(2) The family history is unimportant, as tuberculosis is always acquired—never inherited. The

presence of tuberculosis in the family simply gives a better opportunity for infection.

(3) Infection may occur in very early life. The germs lie dormant for many years in the lymph glands, and local tuberculosis only develops after an accident.

(4) An injury to a bone or joint must be slight in order to cause tuberculosis. If severe, the resultant inflammation or hypernutrition is not favorable to the proliferation of the bacilli.

(5) An injury *alone* can never produce tuberculosis. The bacillus must always be present in the system, or introduced into a wound at the site of injury.

(6) *Per contra*, bone or joint tuberculosis would never develop without a slight local injury.

(7) If after a railroad accident, falls, wrenches, or other accidents may possibly have occurred, the local trouble may be due to them as well as the railway injury. There must be a direct sequence to attribute the disease to the local injury.

DR. ROBERT H. BABCOCK, of Chicago, made some remarks on

ENLARGEMENT OF THE HEART WITHOUT VALVULAR DISEASE, WITH SPECIAL REFERENCE TO TREATMENT.

The reader said that idiopathic enlargement of the heart, as Fraentzel designates it, affecting primarily the left ventricle, is due primarily to prolonged, high arterial tension; and this increase of arterial tension may be secondary only to (1) a cirrhosis of the kidneys, (2) chronic arterio-sclerosis, (3) congenital narrowing of the arterial system, and (4) some obscure condition probably dependent upon defective assimilation and elimination, which is not fully understood, connected probably with the circulation in the blood of toxins. He wished to be understood as speaking of idiopathic enlargement of the heart without valvular lesions. Prolonged, high arterial tension he considered the chief factor concerned in the production of this form of enlargement of the heart. The enlargement may involve either the right side or the left side of the heart, or both. A case was reported in which the enlargement was primarily of the left ventricle; and the enlargement which existed on the right side of the heart was probably secondary to the dilatation which had taken place of the left ventricle. Prolonged, high arterial tension, when independent of organic disease of the kidneys or blood-vessels, seems to be due to what the Germans call "luxus consumption." It is observed in individuals who belong to the better class, who are more or less sedentary in occupation, who are hearty feeders, and oftentimes great diners out.

The treatment was divided into, first, the treatment of the stage of loss of compensation in which the heart is at first broken down in its resistance. Rest is the important factor, along with cardiac stimulants and the administration of remedies calculated to decrease the high arterial tension. The patients usually present themselves with dyspnea, cough, and frothy expectoration, and an extremely rapid and feeble pulse, with all the evidences of cardiac dilatation. Our first indication, therefore, is to relieve the over-distended left ventricle and to whip the heart on to increased vigor or contraction. Hydragogue cathartics are therefore indicated from the first, since their action is to lessen arterial tension; and by preference the author uses one of the mercurials, since the effect of

calomel or blue mass is to lessen arterial tension even before its effects are manifested on the intestines, and this is followed by a saline.

Digitalis, strophanthus, and their congeners are not suitable to the cases in the stage of loss of compensation; since the effect of digitalis, and to a less degree strophanthus, is to increase the resistance within the arterial system, and thereby increase the strain, already too much for the impaired right ventricle. It is preferable to administer an arterial stimulant rather than one of the so-called cardiac tonics. Under the effect of rest and cardiac stimulants improvement in the condition is generally manifested speedily.

The author then referred to the Schott method of treating these cases, which consists of baths and gymnastic exercises. He stated that the treatment had been used in Germany for more than ten years. A combined course of baths and gymnastics is given for an interval of from perhaps seven or eight weeks. He considers this method of treatment suitable to all forms of chronic cardiac disease, excepting those in which heightened arterial tension would be disastrous, as in widespread and extreme chronic arterio-sclerosis, aneurism of the aorta or other large vessels, or cardiac aneurism.

DR. W. T. BAIRD, of Dallas, Tex., read a paper on OXYGEN AS A HEART TONIC, AND SOME OF THE BENEFITS WHICH MAY BE DERIVED FROM ITS USE AS SUCH.

DR. W. H. DALY, of Pittsburgh, Pa., followed with a paper entitled

MALARIA A WATER-BORNE DISEASE.

The reader said, in summing up the evidence in a given case of so-called malaria, that it was important to remember that the water vehicles of malaria may include contaminated land-water, taken into the stomach on the stalks of celery or on the leaves of lettuce, or it may find its vehicle in the rinsing of milk-cans with malaria water or in the adulteration of milk with contaminated water containing the Laveran germ. The cistern-water stored under the earth may be easily contaminated by the earth-water containing the germ, if the cistern itself is cracked or otherwise inefficient. The fact that the patient has drank at all of suspected water, even but once, ought to be taken into consideration, as a single draught of contaminated water may have contained all the necessary germs for the infection of the blood and the production of the fever.

The author defined his position on this question by quoting from an article, published in the *Medical Record* of September 15, 1894, wherein he says: "Twenty years observations and studies on this subject, and investigations made in various districts from Manitoba to Louisiana, and all along the southern coast of the Atlantic Ocean, and of Cuba, Yucatan, and other districts in Mexico, lead the writer to the conclusion, that so-called malarial disease is not easily, if at all, contracted by inhaling so-called malaria or bad air, of the low, swampy or new lands, but it is distinctively, if not almost exclusively due to drinking the water that has come in contact with or become infected by the malarial germs or infusoria that exist in the earth and waters of the swamps and low lands. This germ does not ordinarily, if at all, float in the air during the day nor does it find easily a vehicle in the fog or vapors of the night."

SECOND DAY. — MORNING SESSION.

DR. A. P. BUCHMAN, of Fort Wayne, Ind., read a paper on

INTESTINAL INDIGESTION.

In conclusion the author said that any form of treatment instituted for the relief and cure of intestinal indigestion must necessarily include a careful consideration of the stomach and colon; that very little, if any, amelioration of symptoms will result unless they are both rationally included. Inasmuch as the colon is within easy reach *via* the rectum, it is the author's experience that colonic baths properly medicated are immensely useful in the general treatment and care of patients suffering with intestinal indigestion.

DR. J. E. WOODBRIDGE, of Youngstown, O., read a paper entitled

TYPHOID FEVER CAN BE ABORTED; ANOTHER YEAR'S WORK WITH NO DEATH AND NO FAILURE IN EVIDENCE.

This paper was in the nature of a supplement to the author's previous contributions on this subject.

DR. HENRY SUMMA, of St. Louis, read a paper on

OX-GALL IN THE TREATMENT OF TYPHOID FEVER.

The author highly recommended its use in this disease, and had obtained excellent results with it.

DR. A. B. WALKER, of Canton, O., discussed

THE IMPORTANCE OF URINALYSIS IN DIAGNOSIS.

If physicians and surgeons could avail themselves of this important aid to diagnosis, much more good could be accomplished to their patients, many a life spared, and thousands of dollars saved life-insurance companies. As urinalysis requires but a few moments of time, and the results from it are so positive and true, the writer felt that no opinion of a case of any importance should be given without there having been made a careful examination of the urine.

DR. A. M. OWEN, of Evansville, Ind., read a paper entitled

MY EXPERIENCE WITH GOLD AS A THERAPEUTIC AGENT.

DRS. FRANK R. FRY and M. A. BLISS, of St. Louis, presented a paper on

QUININE IN THE TREATMENT OF CHOREA.

The writers briefly reviewed Prof. H. C. Wood's theory of the causation of chorea as set forth in a paper on "The Choreic Movement," published in the *Journal of Nervous and Mental Disease*, April, 1893. They then reported a number of their own cases from clinic and private practice, in the treatment of which they have been using quinine. Their results confirm those of Dr. Wood and others. They called attention to the fact that they had not used as large doses as others, yet had had very satisfactory results. They raised the question whether the effect of quinine in this disease is due to the *modus operandi* suggested by Dr. Wood, namely, its stimulating effect on the spinal inhibitory apparatus, and not to some other effect. They suggest that this drug has a decided value in the treatment of certain infectious diseases, in which class, according to the opinion of some authorities, chorea belongs. While they have witnessed, decided, and, as a rule, only beneficial effects from the drug, in chorea they

concluded that more data must be collected before its final status may be determined upon.

DR. EDWIN WALKER, of Evansville, Ind., read a paper on

REFLEX IRRITATION AS A CAUSE OF DISEASE.

The writer thought that no error in modern times has held such tenacious hold on the professional mind as that of reflex irritation as a cause of nervous disease. In fact, to most of us the explanation of the occurrence of any nervous phenomenon or lesion is satisfactorily accounted for if some peripheral irritation is found. A long prepuce, some slight version, flexion or laceration of the uterus or other deviation from the picture in our charts, is sufficient to account for hysteria, epilepsy, or other nervous disease. The reflex theory dates back many years. Early in this century it was offered as an explanation for certain neurotic phenomena; but its prominence in the medical mind of to-day is due to the lectures of Brown-Séquard on the "Physiology and Pathology of the Nervous Centers," delivered in London in 1858.

The essayist then alluded to the contributions of several other prominent writers in regard to reflex irritation as a cause of disease, and said that for nearly twenty years he had thought much of this question, his attention being first called to the articles of Sayre. He followed his advice and did many circumcisions, and later, mainly through the teachings of Emmet, did operations on the cervix and vagina, and has observed many cases of neuroses in women presenting various lesions of the genital tract; and states that he has never seen a case of epilepsy, insanity, catalepsy, hysteria, or grave neurasthenia, nor any organic disease of the nervous system cured or even permanently benefited by any operation on the genital tract, either done by himself or any one else. He has also noticed that a large proportion of patients who consult us for diseases of the genital tract do not suffer from definite nervous disease; and, on the other hand, that of patients who do consult us for nervous diseases, many and perhaps most of them are free from genital disease. In a given case in which we find genital irritation and nervous disease, a careful inquiry into the case will develop other more potent causes. The writer does not deny that lesions of the genital tract may not in some way derange the nervous system, but insists that it does not do so by reflex action. For example, a woman has a bad laceration of the perineum that interferes with her locomotion; it is difficult or painful for her to go about; her life becomes sedentary; she suffers with constipation, and later with dyspepsia, from her inactivity; then her general system suffers from deficient nutrition as well as the want of healthful exercise. The nerves are not nourished, and disease is engendered. Or a patient has some disease of the abdominal viscera; perhaps he has intestinal indigestion and nervous symptoms—a very common thing. Are we now to say that his nervous disease is reflected from his bowels? Certainly not. The lack of proper digestion and assimilation of food starves the system or by auto-infection poisons it.

(To be continued.)

LADY PAGET, the wife of Sir James Paget, died in London, January 7th, aged eighty years. She was married to Sir James Paget in 1844; their golden wedding was celebrated last year.

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GONORRHEAL INFECTION OF THE NERVOUS SYSTEM.

VARIOUS observations which have been recently published indicate that gonorrhea, like other infectious diseases, may give rise to secondary affections of the nervous system. Engel-Reimers¹ has collected four cases of multiple neuritis, two of which came under his own observation, which show that the toxins produced by the gonococcus may act deleteriously like alcohol or lead. A healthy man had gonorrhea, followed four weeks later by vesical symptoms. With these he had a gradual loss of power in the legs, and muscular tenderness. Ten days later the legs were wholly, and the arms were almost wholly paralyzed; the knee-jerks were lost; the electrical reactions were diminished; the sensibility was unimpaired; and the nerves and muscles were extremely tender. Later the face and larynx were involved. Convalescence was established in nine weeks.

A healthy girl was impregnated and infected one month before. The gonorrhea was followed by gradual paralysis, first of the arms and then of the legs, with pain, tenderness, and reaction of degeneration. She improved in five months, and was delivered of a healthy child at term. Engel-Reimers also thinks that there may be an isolated neuritis of gonorrheal origin, especially of the sciatic nerve, analogous to the multiple swellings of the joints, inflammation of the sheaths of the tendons, iritis, etc., due to gonorrhea; such a neuritis may vary in its severity with the gonorrhea. He also reports a case of acute spinal meningitis, and quotes two other cases. Gonorrhea alone seems inadequate to produce this condition, and some exciting cause, especially cold, seems also necessary. His own case was that of a young coachman, who had gonorrhea three weeks before, and who sat on his box in a severe north wind for several hours. He had a severe chill, sudden headache and

backache, vomiting, fever, stiffness of the neck, herpes and erythema. The spleen was not enlarged and the sensorium was free. The spine was rigid. The headache and stiffness of the neck disappeared in forty-eight hours. The knee-jerks were exaggerated and there was much pain and tenderness over the vertebræ. Eleven days later the temperature fell, and in four weeks he recovered.

Tambourer² reports the case of a man who had chronic gonorrhea of three years' standing, associated with stricture, arthritis in the larger joints, and phlebitis in both legs. The phlebitis disappeared and the arthritis improved, but he had a sudden attack of cerebral embolism with right hemiplegia, and died in three days. The phlebitis and embolism were considered due to gonorrhea, Leyden having demonstrated gonococci in the vegetations on the valves in a case of acute gonorrheal endocarditis. Muscular atrophy and exaggerated reflexes were present, and were ascribed to the arthritis.

Pitres³ supplements this by the report of two cases. A man with acute gonorrhea and arthritis had a sudden attack of apoplexy, with right hemiplegia and aphasia. Eight weeks later he had attacks of Jacksonian epilepsy and died. There was a large area of softening in the left hemisphere, and abscess of the kidney. The heart and vessels were healthy. Another young man with gonorrhea was attacked with left hemiplegia, from which he made a partial recovery. The heart and vessels were healthy. Pitres commits himself to no explanation of these cases, but states that he was simply struck by the coincidence of the two affections, especially so in the last case, in a man who had none of the ordinary causes of hemiplegia. He adds that if the observations multiply we may find that gonorrhea may produce softening of the brain, as it seems to produce myelitis.

Cullerre⁴ reports the case of a woman with stupidity and hallucinatory confusion, symptoms of meningo-encephalitis, and ideas of satisfaction and riches, which he thinks indicated an infectious psychosis. The only infection was by the gonococcus, but moral causes and possibly alcohol entered into the etiology, and provoked the explosion of nervous accidents prepared by infection. The second case had a bad nervous heredity; a young woman after gonorrhea, developed hallucinations, stupor, and outbursts of mania and melancholia.

Venturi⁵ in twenty-two cases of hebephrenia found gonorrhea in twelve. It usually preceded the mental trouble, and none of the cases recovered until the gonorrhea was cured, the cure of the mental trouble usually coming two or three months later. Venturi thinks that there is a specific morbid process, a serous sub-arachnoid effusion provoked by the gonococcus.

¹ Société de neurologie et de psychiatrie de Moscou, January, 1894, *revue neurologique*, June 30, 1894.

² *Revue neurologique*, August 15, 1894.

³ *Vendee medicale*, May 3, 1894.

⁴ *Riforma medica*, Nos. 20, 21, 1894.

⁵ *Jahrbücher der Hamburger Staatskranken-Anstalten*, II. Jahrgang, 1890.

These latter cases do not seem very conclusive. Proof that the embolism is really due to any action of the gonococci is lacking, and, as Pitres says, the embolism may be merely a coincidence. In the reported cases of psychoses, gonorrhea seems to have been merely one factor in the etiology, and it is not unreasonable that the idea of having gonorrhea may have had a greater effect upon the brain than the gonococcus itself.

REPORT ON NEW YORK TENEMENT-HOUSES.

THE New York Tenement-House Commission, of which Mr. Richard Watson Gilder is chairman, presented its report to the Legislature on January 17th, and it contains a large mass of information and numerous recommendations. The statements, we take it, are probably accurate. How far all the recommendations are possible and can be practically applied, time will show. The present situation unquestionably admits of great amelioration. The Commission found that New York, below the Harlem, had a greater density of population than any other city in the world, so far as known, namely, 143.2 per acre. In one down-town east-side district of 32 acres, there were found no less than 476.6 persons to each acre. After enumerating some of the evils of over-crowding, the report states that the "double-decker" tenement is the one hopeless form of tenement-house construction. It cannot be well lighted, it cannot be well ventilated, and even the High Street houses in Edinburgh, constructed centuries ago, are not so bad. Under the head of danger from fires the report says:

"In the year ending June 30, 1894, there were 2,415 tenement-house fires, involving a loss of \$603,784, and in that time fifteen occupants were killed outright and seventy-two injured. It is a startling fact that while less than one-third of the buildings in New York are tenement-houses, among them occur annually more than one-half of the fires."

Density of population, it was found, does not necessarily affect the death-rate, for the Tenth Ward, with its population of 621.66 to the acre, has a death-rate of only 17.14, next to the lowest in the city. The facts showed that soil and natural drainage have much to do with the death-rate, and the age and condition of buildings used as tenements affect it more than almost anything else. "It is a well-known fact," the report says, "that human dwellings, by prolonged occupation, become so saturated with the bodily emanations of those who have lived in them, sick and well, as to be less healthy than newer houses. This result of prolonged human occupancy is made worse in this city by the rapidity with which the character of the population in the lower parts of the city has changed, and the fact that houses built as private dwellings are not fitted to serve as tenements, either in respect to light, ventilation, water-supply, privacy or facilities for cleanliness. . . . The most cursory examination shows that the death-rates are very high where there are rear

tenements; running up to 61.97 — an enormous death-rate — in the old First Ward, and being 27.66 for the entire city, against 22.21 for the single tenements. If we take the death-rate of children as a test, the rear tenements show themselves to be veritable slaughter-houses."

The report recommends an increase in the tenement-house inspection force of the Board of Health and also that the sanitary police force be augmented by fifteen additional inspectors. After referring to the necessity of parks in the tenement-house districts, and to a number of small parks which have been already ordered, the report goes on to say: "But supposing that the above parks were actually completed, what would be the situation of the most crowded part of the city as to breathing spaces? The area of the city below Fourteenth Street is 2,628 acres, or nearly four square miles. The estimated population of this area on July 1st was 707,530, the park area is 64.65 acres, or but 2.55 per cent. of the whole area, while the proportion of the park area inside the city limits is a little over 7.5 per cent. of the whole territory. . . . Not only should additional small parks first be placed where at the moment they are most needed, but in character they should be especially adapted to the local conditions. Each of these parks should have a considerable portion of its area — possibly not less than one-half — finished as a public playground, and one might be almost exclusively dedicated to such purposes."

The report states that, while the bathing habit is increasing among the masses of the people, out of a total population of 355,033 covered by the Commission's inspection, only 366 persons have access to bathrooms in the houses in which they live. "The freer use of water by the tenement-house population," it continues, "would aid them very materially in their struggle for existence by assisting the elimination from their systems of the poisons absorbed in the sunless and airless dwellings. That several hundred thousand people in the city have no proper facilities for keeping their bodies clean is a disgrace to the city and to the civilization of the nineteenth century." The Commission favors as a beginning the building of a municipal bath providing every kind of bath at the cheapest rates.

The Commission makes twenty-one specific recommendations, and embodies them in bills for presentation to the Legislature. The first gives the Board of Health authority to tear down buildings which are unfit for occupation and to compensate the owners. - Another relates to the construction of tenement-houses in the future and provides for more light and air and diminished danger from fire. No tenement- or lodging-house shall occupy more than 70 per cent. of an interior city lot, or 90 per cent. of a corner lot, and each room must have a separate window opening to the outer air. Another bill forbids the use of wall-paper in any tenement-house, the better class of apartment-houses being excepted. Another bill provides for the construction of additional public parks, and another, that no school building shall be hereafter

erected without playgrounds, and that as rapidly as possible playgrounds be attached to the schools now existing. Another bill makes it mandatory upon the Board of Health to prevent over-crowding by requiring at least 600 cubic feet of air to each occupant of a tenement-house. Among other recommendations made are those for rapid transit facilities, more lavatories and drinking fountains, more electric lights and more smooth pavements. In conclusion, the Commission recommends the abolition of the present Tenement-House Board, which has not been found to accomplish the ends desired in its establishment, and that in its place another statutory commission upon the subject be created by the Legislature every five years.

A CHAIR OF ANATOMY, PHYSIOLOGY AND HYGIENE AT WEST POINT.

We have before us the annual report of the Board of Visitors to the Military Academy at West Point for the year 1894, and find therein that the sub-committee on Hygiene and Athletics, of which Dr. W. W. Keen, of Philadelphia, was chairman, strongly recommends the establishment at the Academy of a separate chair, to be filled by the Senior Surgeon of the post, for the instruction of the cadets in anatomy, physiology, hygiene and first aid to the injured. The reasons given in the report for the establishment of such a chair seem to us cogent, and in fact are such as would naturally present themselves to any one giving careful consideration to the subject—certainly to any one having had a medical training. Such a chair has already been established at the Annapolis Naval Academy, and is filled by a surgeon. The entire instruction in these important subjects at West Point is limited at present, it appears, to six advanced lessons (with five review), together with incidental allusions to various sanitary matters by the professors of chemistry and engineering; to this meagre provision is to be added one lecture by one of the medical officers on first aid to the wounded.

That the sanitation of armies during war is not merely a medical question; that disease kills and disables a much greater number of men in an army than the weapons of the enemy; that many a valuable life has been lost, in the absence of medical officers, from want of knowledge of first-aid—these are propositions which we suppose few will dispute. If they are granted, the natural conclusion follows. The difficulty at West Point, of course, is that the time of the cadets is already fully occupied. Increased instruction could only be added in case that given in some other subjects should be curtailed. The Committee thinks that the subjects indicated are of more importance to those concerned than mineralogy and geology, and that time might be taken from these latter subjects so that more could be given to the former. This may be regarded as a matter of administrative detail, but the general position taken by the Visiting Committee seems to us a sound one.

The report commends most highly the general sanitary conditions prevailing at West Point, and remarks on the extremely favorable location of the post.

It appears that nearly one-fifth of the cadets require the aid of glasses, and suggestions are made to relieve as far as possible the continued eye strain incurred in reading, writing and drawing. A considerable proportion of the cadets, after leaving the Academy and giving up the incessant near use of the eyes, are able to dispense with their glasses.

Athletic sports and games are recognized by the superintendent as conducive to scholarship and discipline, and the hope is expressed that such pastimes may be encouraged to the utmost, both for recreation and health.

In another part of this interesting report we find an urgent recommendation that increased attention be given to the study of English. Of a grand total of 7,837½ hours of study and recitation in the four years at West Point, over 2,000 hours are given to the mathematical branches, over 1,000 hours each to two other modern languages and to modern physics, 227½ hours to law, 565½ hours to chemistry, mineralogy and geology, and only 294 hours to English! Every officer, the report justly remarks, should know how to use the English language accurately and tersely.

SANITARY CLIMATOLOGY.

THE general interest manifested in the subject of climate and its influence on health and disease has determined the Secretary of Agriculture, through the medium of the Weather Bureau, to undertake the systematic investigation of the subject.

It is hoped to make the proposed investigation of especial interest and value to the medical and sanitary professions, and to the large number of persons who seek, by visitation of health resorts and change of climate, either to restore health or prolong lives incurably affected or to ward off threatened disease.

The Bureau suggests that, "the study of the climates of the country in connection with the indigenous diseases should be of material service to every community, in showing to what degree local climatic peculiarities may favor or combat the development of the different diseases, and by suggesting, in many instances, supplementary sanitary precautions; also by indicating to what parts of the country invalids and health seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases."

The hearty co-operation of the various boards of health, public sanitary authorities, sanitary associations and societies, and of physicians who may feel an interest in the work, is asked to achieve and perfect the aims of this investigation.

No compensation can be offered for this co-operation other than to send, free of cost, the publications of the Bureau bearing upon climatology and its relation to health and disease to all those who assist in the work.

Co-operation will consist in sending to the Bureau reports of vital statistics from the various localities. That these reports may be of value, it is requested that they should be accurate and complete, and be rendered promptly and regularly. Blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the Bureau on application.

It is hoped to publish soon a periodical devoted to climatology and its relations to health and disease. The publication will probably resemble in size and general appearance the present Monthly Weather Review. More detailed information will be furnished on application to the Chief of the Weather Bureau.

MEDICAL NOTES.

THE CLEVELAND MEDICAL SOCIETY.—Dr. William E. Wirt has been elected president of the Medical Society of Cleveland, Ohio.

JOHNS HOPKINS UNIVERSITY KEEPS WHAT MCGILL UNIVERSITY DESIRES.—Prof. William Osler of Johns Hopkins University, will not exchange his present sphere of usefulness for one in Montreal.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The annual election of the College of Physicians of Philadelphia was held January 2, 1895. Prof. J. M. DaCosta was elected President, and Prof. John Ashurst Vice-President, for the ensuing year.

THE SLAUGHTER OF THE INNOCENTS IN LONDON.—It is stated on good authority that a thousand infants perish in London each year, from suffocation due to being overlain by their parents in bed. On December 27, 1894, five inquests on the bodies of children who had died from this cause were held in London by one physician.

PROFESSOR WÖLFLEK CALLED TO PRAGUE.—It is probable that the chair of surgery at Prague, rendered vacant by Professor Gusenbauer's call to Vienna, will be filled by Professor Wölfler, now of Gratz. Professor v. Ritter v. Hacker, docent at the University of Vienna, and a former assistant of Billroth's will be offered the chair at Gratz.

THE SIXTY-THIRD ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION will be held in London on Tuesday, Wednesday, Thursday and Friday, July 30, 31, August 1 and 2, 1895. President, E. Long Fox, M.D., Oxon., F.R.C.P., Consulting Physician to the Bristol Royal Infirmary, Eng. President-Elect, Sir J. Russell Reynolds, M.D., Bart., F.R.C.P., F.R.S., President of the Royal College of Physicians.

THE SHEPPARD ASYLUM.—The third annual report of the Sheppard Asylum, a hospital for mental diseases at Baltimore, Md., is at hand. The photographs with which the pamphlet is illustrated show the buildings and grounds of the institution to be exceptionally attractive from an external point of view,

and the interiors also appear to be well arranged and pleasantly furnished.

TYPHOID FEVER AND OYSTER EATING.—According to the *British Medical Journal*, numerous cases of typhoid fever probably due to oyster eating have recently occurred in London. No complete demonstration, however, such as was made in this country in the case of the epidemic at Wesleyan University, has so far been made in the London cases, although strong probability has been established that oysters were in some cases the cause of contagion.

THE TRANSMISSION OF TUBERCULOSIS BY A BRASS HORN.—Dr. Addison S. Thayer, in the *Journal of Medicine and Science*, reports the cases of three young men whose family history was good and who were themselves physically sound, who became infected with tuberculosis by using, as members of a brass band, a second-hand horn hired from a dealer. The possibility of tubercle bacilli being deposited in the convolutions of a horn, to the danger of subsequent players cannot be denied. The three users of the horn in question were the only members of the band who did use it. Two of them are now in Colorado and one in Southern Pines under climatic treatment for tuberculosis. To make the chain of evidence complete it is only necessary to take the horn to pieces and find tubercle bacilli in the dried spittle in its convolutions and joints.

THE TREATMENT OF CHOLERA BY INTRAVENOUS INFUSIONS OF SALT SOLUTION.—In Kronstadt between June 8 and July 21, 1894, 218 cases of Cholera were treated (J. Hazen Torn, *St. Petersburger Med. Woch.*, 49; from *Wratsch*, No. 34). Of 42 cases treated before June 23d, 27 died. On June 23d the treatment by intravenous infusion of salt solution was begun; 193 infusions were performed upon 124 cases. The immediate effect, as is usually the case, did not last. Of the 124 cases treated by infusion, 67 recovered, and 57 died. Of the 67 who recovered, 49 received one infusion, 16 two, and two received three infusions. Of the 57 who died, 22 received one, 22 two, 11 three, and two were given four infusions. Of the 124 cases treated by infusion, there were only 10 which did not belong to the severest type. Leaving out these 10 cases, we have 114 cases of cholera *gravis* with 57 recoveries and 57 deaths—a mortality of 50 per cent. Under the treatment by infusion of normal salt solution, then, the mortality is lowered to 50 per cent. Under the usual methods of treatment the mortality in these cases amounts to 75 per cent.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, January 16, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 82, scarlet fever 72, measles 56, typhoid fever 5. During the week ending at noon, January 23, 1895, the following cases were reported: diphtheria 70, scarlet fever 47, measles 75, typhoid fever 7.

THE FIRST ANNUAL REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE. — The first annual report of the Board of Registration in Medicine, has just been presented at the State House. The whole number of applications of all kinds received up to January 1st has been 4,390. The whole number of certificates issued has been 3,017. Of these, 2,817 have been issued to graduates and 200 have been issued to practitioners of three years' standing; 294 applications have been rejected, leaving some to be accounted for. A large number of these are simply awaiting engrossment, and certificates will soon be issued. Every application received has been carefully investigated and none has been rejected unless passed upon by the full board. A number of those recently received are now being looked up, and some among them no doubt will be found which should not be accepted. "Polk's Medical and Surgical Register" for the year 1893 gives the total number of practitioners 4,012, classified as follows: regulars 2,646, homeopaths 687, eclectics 221, not belonging to the foregoing classes 458. There are now four medical schools in this State which confer degrees in medicine. The receipts and disbursements of the board have been as follows: Up to January 1, 1895, the receipts for fees and paid to the treasurer have been \$3,500. The disbursements have amounted to \$2,462.08.

POISONING BY WATER-GAS. — Cases of poisoning by illuminating-gas of more or less severity have been rather frequent in Boston this winter. People should not forget that water-gas is more poisonous and has less odor than coal-gas, that all gas furnished in this neighborhood now is water-gas, and that especial precautions should be taken in consequence.

THE MEDICAL SCHOOL OF MAINE. — The Medical School of Maine is said to be in prospect of an income of \$8,000 a year from invested funds. For some reason the bequest has not as yet become available to the school.

THE ANNUAL REPORT OF THE RHODE ISLAND HOSPITAL. — During the year ending September 30, 1894, 1,730 patients were admitted; 8,163 cases were treated in the out-patient department; 270 surgical operations were performed, with 9 deaths; and 114 gynecological operations, also with 9 deaths. Sixteen autopsies were performed at the hospital during the year. Bequests amounting to \$27,000 were received during the year. The deficiency account of the hospital stands at \$18,309.91, which represents the excess over income of expenditures not covered by the subscriptions of guarantors since September 30, 1880. The amount reported last year was \$18,311.03.

NEW YORK.

CORPORAL PUNISHMENT FOR CRIME. — At a meeting of the Section on Public Health of the New York Academy of Medicine held January 9th, Dr. Andrew J. Carter read a paper on "Corporal Punishment for Certain Forms of Crime," in which he advocated the whipping-post, especially for wife-beaters. Mr. El-

bridge T. Gerry, President of the Society for the Prevention of Cruelty to Children, who took part in the discussion of this paper, thought that flogging should also be used in the case of men convicted of assaulting little girls, and read the draft of a bill which he had prepared for presentation to the Legislature. This bill provides that any person who is convicted of a felony which involves injury to the person of the victim may, in the discretion of the court, be sentenced to not only the penalties provided now by law, but also to be flogged. The number of strokes, which are to be administered on the bare back with a whip or lash, is not to exceed forty, and such punishments are always to be given in the presence of a physician.

DR. BENEDICT APPOINTED CHIEF OF THE BUREAU OF CONTAGIOUS DISEASES. — At the last regular meeting of the Board of Health Dr. C. S. Benedict was appointed successor to Dr. A. H. Doty as Chief of the Bureau of Contagious Diseases, and Dr. Alonzo Blauvelt was made assistant to Dr. Benedict.

Miscellany.

THE PRIORITY OF THE DISCOVERY OF ANTI-TOXIN.

PROF. JAIME FERRAN, of Barcelona, has called the attention of the editors of the *Deutsche med. Wochenschr.* to a paper by him entitled "Nota sobre la vacunacion contra el envenenamiento difterico agudo experimental," bearing date April, 1890, in which a safe and practical method of immunizing animals against fatal doses of the diphtheria poison successfully employed by him is described. On the basis of this publication, which appeared eight months before Prof. Karl Fraenkel's communication on the same subject, Dr. Ferran claims the priority of the discovery. The Spanish bacteriologist's claim, together with the *pièces justificatives*, having been submitted to Prof. Karl Fraenkel, has been frankly acknowledged by him to be well founded. He says (in a letter published in the *Deutsche med. Wochenschr.* of December 27th) that after reading Dr. Ferran's paper he has been able to convince himself that the Spanish worker had in fact, in April, 1890, reported the result of prolonged experiments on the immunization of guinea-pigs against infection with diphtheria bacilli, adding, "there can therefore be no doubt that in this question decisive priority belongs to him."

Prof. V. Babes, of Buda-Pesth, also lodges a claim on his own behalf. He points out, in the same number of the *Deutsche med. Wochenschr.*, that whereas the first communication by Drs. Behring and Kitasato on the immunizing power of the blood serum of artificially immunized animals in the case of tetanus, was published in 1890 in the *Deutsche med. Wochenschr.*, No. 49, 1890, he, in co-operation with Dr. Lepp, had established the same principle as regards "a not less important infective disease" (hydrophobia) in 1889, in a paper published in the *Annales de l'Institut Pasteur*, July, 1889. Professor Babes, however, admits that to Behring belongs the credit of applying the principle to diphtheria. All he claims for himself

is that he took a definite part in laying the foundation-stone of the great and solid structure which Behring and his fellow-workers have raised.

THE TREATMENT OF INOPERABLE MALIGNANT TUMORS WITH ERYSIPELAS AND PRODIGIOSUS TOXINS.

In an article on this subject in the *Medical Record* for January 19th, Dr. W. B. Coley gives the following summary of his results:

Up to May 31, 1894, he had treated with mixed toxins twenty-five cases of inoperable sarcoma, eight of inoperable carcinoma, and three of sarcoma or carcinoma. In carcinoma he had noted marked improvement in a number of cases, but no cures. They were all very advanced recurrent tumors. In sarcoma he stated that there were six cases in which he considered there was a reasonable hope of permanent cure. Six months have passed, and none have shown any recurrence. Of two others which were merely mentioned among the tabulated cases as improving, one has gone on to entire disappearance of the very large tumor and promises to be a cure, and the other, a six-times-recurrent sarcoma of hand, is in perfect health at present, nearly two years after the beginning of the treatment. Since May 31, 1894, he has treated twenty-four cases of malignant tumors, all inoperable and mostly recurrent, with the mixed toxins. Of these cases thirteen were sarcoma and eleven carcinoma. In many cases of carcinoma the injections had an undoubted retarding influence, and in some the improvement was extraordinary, but in none did the tumor entirely disappear. In the cases of sarcoma the effect was far more marked; and although in a number of them the disease was so far advanced that there could be no possible hope of recovery, still the powerful controlling influence of the toxins was demonstrated. In three of the thirteen cases the sarcomata have entirely disappeared, and although no great length of time has elapsed, the results in his older cases make it improbable that relapse will occur. Of his total of thirty-eight cases of inoperable sarcoma, therefore, nine promise to be permanently successful.

Correspondence.

MICRO-PHOTOGRAPHS.

ROXBURY, January 18, 1895.

MR. EDITOR: I condole with you on your ignorance, as pointed out by Dr. Mercer, of Syracuse (*JOURNAL*, January 17, 1895, p. 71), in your use of the word "micro-photograph" to denote what he calls a "photo-micrograph," which is, as he defines it, "a macroscopic photograph of a microscopic object." Dr. Mercer quotes Maddox and Woodward as authority for his use of the word; he might also have added Sternberg. He does not seem to be aware that you have on your side Robert Koch, Fraenkel and Pfeiffer, and all other German and Continental authorities. Possibly you may have had these stupid foreigners in mind when you perpetrated the blunder so kindly corrected by Dr. Mercer. Perhaps the bias of a foreign education may have disqualified you in some measure for the "correct" use of your mother tongue. Maybe you know too much Greek to be willing to use such a curiously constructed word as "photo-micrograph." If so, I am with you.

Sympathetically yours, "AUSLÄNDER."

METEOROLOGICAL RECORD.

For the week ending January 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer		Thermometer		Relative humidity	Direction of wind.		Velocity of wind.		Wet't. *		Rainfall in inches.
	Daily mean.		Daily mean.	Maximum.								
						8.00 A. M.	8.00 P. M.			8.00 A. M.	8.00 P. M.	
S... 6	30.18	26	35	16	84	100	92	S. E.	W.	18	2	O. R. 6.30
M... 7	30.09	42	34	30	86	91	88	S.	S. W.	8	5	O. R. 0.04
T... 8	30.21	40	47	33	88	95	92	W.	N. W.	12	10	O. N. 1.1
W... 9	30.47	33	35	31	75	74	4	N. E.	N. W.	8	8	O. O. 1.1
T... 10	30.44	31	36	26	84	95	90	N. E.	N. E.	23	24	O. O. 0.12
F... 11	29.86	42	50	35	92	79	86	W.	S. W.	3	14	O. T. 1.73
S... 12	29.83	38	42	35	83	100	92	S. W.	N.	4	7	O. G.
	30.17	43	29				88					1.71

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoke; R., rain; T., thunder; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 12, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York	1,956,000	1006	343	13.40	24.10	.70	6.70	2.40
Chicago	1,500,000	—	—	—	—	—	—	—
Philadelphia	1,139,457	45	171	8.20	19.40	.30	7.40	.20
Brooklyn	1,043,000	505	142	7.00	20.00	.40	4.40	.40
St. Louis	540,000	—	—	—	—	—	—	—
Boston	501,167	240	78	14.28	18.80	.84	7.98	2.10
Baltimore	500,000	—	—	—	—	—	—	—
Washington	250,000	—	—	—	—	—	—	—
Cincinnati	325,000	100	39	12.55	13.32	4.02	3.45	—
Cleveland	325,000	101	36	16.00	10.00	—	1.6	14.00
Pittsburg	272,000	111	43	19.89	17.10	11.70	4.00	—
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	37	12	10.80	13.50	—	—	10.80
Charleston	65,165	36	7	—	11.12	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	34	17	17.64	11.76	—	8.82	—
Fall River	92,233	30	14	8.36	20.33	—	3.33	—
Lowell	90,618	39	14	17.2	10.4	—	10.24	2.56
Cambridge	79,607	17	3	11.76	11.76	—	3.88	—
Lynn	65,113	13	1	6.79	6.79	—	6.79	—
Springfield	50,784	24	7	4.16	20.80	—	—	4.16
Lawrence	49,900	14	6	—	28.56	—	—	—
New Bedford	47,711	18	5	—	—	—	—	—
Holyoke	43,348	—	—	—	—	—	—	—
Brockton	33,939	9	0	11.11	—	—	11.11	—
Salem	33,155	12	4	—	—	—	—	—
Haverhill	32,925	6	2	16.66	16.66	—	—	—
Malden	30,269	7	3	14.8	28.56	—	14.28	—
Chelsea	29,006	15	8	24.77	13.33	—	13.33	—
Fitchburg	29,383	3	1	—	—	—	—	—
Newton	28,837	10	2	—	28.66	—	—	—
Gloucester	27,293	—	—	—	—	—	—	—
Taunton	26,354	6	2	33.33	—	—	33.33	—
Waltham	22,058	8	0	—	—	—	—	—
Quincy	19,642	—	—	—	—	—	—	—
Pittsfield	18,802	5	2	26.00	—	—	26.00	—
Everett	17,585	3	2	33.33	—	—	—	—
Northampton	16,331	—	—	—	—	—	—	—
Newburyport	14,073	4	1	25.00	—	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 3,013: under five years of age 993; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fever) 801, acute lung diseases 640, consumption 517, diphtheria and croup 177, scarlet fever 56, typhoid fever 34, whooping-cough 13, cerebro-spinal meningitis 16, malarial fever 7, measles 6, small-pox (New York) 1.

From whooping-cough New York 10, Brooklyn 5, Boston 3, Haverhill 1. From cerebro-spinal meningitis New York 8, Worcester 3, Chelsea 2, Boston, Lowell and Hyde Park 1 each. From malarial fever Brooklyn 5, Cleveland and Everett 1 each. From measles New York 3, Brooklyn, Boston and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,594,530, for the week ending January 5th, the death-rate was 18.9. Deaths reported 3,844:

measles 125, diphtheria 87, whooping-cough 63, diarrhea 45, fever 41, scarlet fever 35, small-pox (Birmingham 2, Liverpool 1) 3.

The death-rates ranged from 14.1 in Cardiff to 25.0 in Gateshead; Birmingham 20.7, Bradford 15.2, Burnley 19.4, Croydon 18.1, Hull 15.6, Leeds 24.1, Leicester 17.2, Liverpool 23.2, London 17.4, Manchester 23.4, Newcastle-on-Tyne 17.6, Nottingham 15.9, Sheffield 19.9, Swansea 23.7, West Ham 17.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 12, 1895, TO JANUARY 18, 1895.

COL. JOSEPH R. SMITH, assistant surgeon-general, will be relieved from duty as medical director, Department of the East, to take effect about February 5, 1895, and will proceed to his home where he is authorized to await retirement.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 19, 1895.

JAS. R. WAGGENER, surgeon, placed on waiting orders.

L. W. CURTIS, passed assistant surgeon, detached from Naval Hospital, Chelsea, Mass., and placed on waiting orders.

L. H. STONE, passed assistant surgeon, ordered to the U. S. S. "Albatross," January 22d.

J. G. AYERS, passed assistant surgeon, ordered to the U. S. S. "Olympia."

M. R. PIGOTT, passed assistant surgeon, ordered to the U. S. S. "Olympia."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JANUARY 15, 1895.

CARTER, H. R., surgeon. To assume temporary command of Cape Charles Quarantine. January 7, 1895. Relieved from such duty. January 14, 1895.

PERRY, T. B., passed assistant surgeon. To proceed to Delaware Breakwater Quarantine Station for temporary duty and to join station (Cape Charles Quarantine) upon completion of same. January 14, 1895.

WERTENBAKER, F., assistant surgeon. Granted leave of absence for seven days. January 3, 1895.

HARVARD MEDICAL SCHOOL. EVENING LECTURES.

The next lecture will be given on Thursday evening, January 31st, at 8 o'clock, by Dr. E. Cowies. Subject, "The Relation of Insanity to Neurasthenia." Physicians are cordially invited.

SOCIETY NOTICES.

THE WARREN CLUB. — A regular meeting of the Club will be held at 14 Marlborough Street, on Tuesday evening, February 5th, at 8 o'clock.

Dr. Homer Gage: "Movable Kidney."

W. E. PAUL, M.D., Secretary.

NORFOLK DISTRICT MEDICAL SOCIETY. — The Fellows of the Norfolk District Medical Society, resident in Jamaica Plain, will entertain the Society at Aremum Hall, 658 Centre Street, on Tuesday, January 29th, at 8 P. M.

Communications. "The Theories of Immunity and the Methods of Preparation Involved in the Antitoxin of Diphtheria," H. C. Frost, M.D. "Clinical Results of the Use of Antitoxin," C. F. Williamson, M.D. "A Severe Case in Private Practice Treated with the Antitoxin," O. F. Rogers, M.D.

Collection at 9.30.

The meeting will be called to order promptly at 8 o'clock, and members are requested to make special effort to be present at that time.

Attendants at the hall will take charge of horses, stable them and return them at close of the meeting, free of charge.

Centre Street electric cars pass the hall every ten minutes.

J. C. D. FIDON, M.D., Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Notes on a Few Clinical Experiences of Inherited Syphilis. Syphilis. By Burnside Foster, M.D., St. Paul. Reprints. 1894.

Report of the Surgeon-General, U. S. Navy, Chief of the Bureau of Medicine and Surgery to the Secretary of the Navy. Washington. 1894.

Fourth Report of the State Board of Health of Colorado, Including the Reports for the years 1892, 1893 and 1894. Denver: Published by the State. 1894.

Transactions of the American Otological Society, Twenty-seventh Annual Meeting, Arlington House, Washington, D. C., May 29, 1894. Vol. VI. Part 1.

Four Months in New Hampshire, a Story of Love and Dumb Animals. Written for, and revised, copyrighted and published by the American Humane Education Society. 1894.

The Dynamics of Life, an Address delivered before the Medical Society of Manchester, October 3, 1894. By W. R. Gowers, M.D., F.R.S. Philadelphia: P. Blakiston, Son & Co. 1894.

United States Bureau of Education, Circular of Information, No. 1, 1894. No. 18. History of Higher Education in Rhode Island. By William Howe Tolman, Ph.D. Washington. 1894.

Twenty-sixth Annual Report Relating to the Registry and Return of Births, Marriages and Deaths in Michigan for the year 1892. By the Secretary of State of the State of Michigan. Lansing 1894.

Statistiques et Observations de Chirurgie Hospitalière. Par la Dr. Polaillon, Chirurgien de l'Hôtel Dieu, Professeur agrégé à la Faculté de médecine de Paris; Membre de l'Académie de médecine. Paris: Librairie Octave Doin, Editeur. 1894.

Travaux d'Electrothérapie Gynécologique, Archives Semestrielles d'Electrothérapie gynécologique Fondées et Publiées. Par le Dr. G. Apostoli, Vice-Président de la Société Française d'Electrothérapie. Paris: Société d'Éditions Scientifiques. 1894.

Annual Report of the Medical Officer of Health of the Vestry of St. George the Martyr, Southwark. By F. J. Waldo, Diplomat in Public Health of the Royal College of Physicians and Surgeons (England), M.R.C.S. (England), etc. Southwark. 1894.

A System of Legal Medicine. By Allan McLane Hamilton, M.D., Consulting Physician to the Insane Asylums of New York City, etc., and Lawrence Godkin, Esq., of the New York Bar, and others. Illustrated. Vol. II. New York: E. B. Treat. 1894.

Higher Medical Education the True Interest of the Public and of the Profession. Two addresses delivered before the Medical Department of the University of Pennsylvania on October 1, 1877, and October 2, 1893. By William Pepper, M.D., LL.D. Philadelphia: J. B. Lippincott Co. 1894.

Castration for Hypertrophied Prostate. Removal of the Head of the Femur from the Lesser Sciatic Notch. The Removal, by Trephine, of Fluid as the Result of Acute Cerebral Meningitis, with Report of a Case. Fifty Cases of Rectal Surgery. By B. Merrill Ricketts, M.D., Cincinnati, O. Reprints. 1894.

Manual of Practical Morbid Anatomy, being a Handbook for the Post-Mortem Room. By H. D. Rolleston, M.A., M.D., F.R.C.P., Fellow of St. John's College, Cambridge; Assistant Physician and Lecturer on Pathology at St. George's Hospital, and A. A. Kanthack, M.D., M.R.C.P., Lecturer on Pathology at St. Bartholomew's Hospital. Cambridge: University Press. 1894.

Diseases of the Ear; a Textbook for Practitioners and Students of Medicine. By Edward Bradford Deuch, Ph.B., M.D., Professor of Diseases of the Ear in the Bellevue Hospital Medical College; Aural Surgeon, New York Eye and Ear Infirmary; Fellow of the American Otological Society; of the New York Academy of Medicine, etc. With colored plates and illustrations. New York: D. Appleton & Co. 1894.

Textbook of Hygiene; a Comprehensive Treatise on the Principles and Practice of Preventive Medicine from an American Standpoint. By George H. Rohé, M.D., Professor of Therapeutics, Hygiene and Mental Diseases in the College of Physicians and Surgeons, Baltimore. Third edition, thoroughly revised and largely re-written, with many illustrations and valuable tables. Philadelphia: The F. & A. Davis Co. 1894.

The Principles of Surgery and Surgical Pathology, General Rules Governing Operations and the Application of Dressings. By Dr. Hermann Tillmanns, Professor in the University of Leipzig. Translated from the third German edition by John Rogers, M.D., New York, and Benjamin Tilton, M.D., New York. Edited by Lewis A. Stimson, M.D., Professor of Surgery in University of the City of New York, Medical Department. With 441 illustrations. New York: D. Appleton & Co. 1894.

Sexual Neurasthenia, Its Hygiene, Causes, Symptoms and Treatment, with a Chapter on Diet for the Nervous. By George M. Beard, A.M., M.D., formerly Lecturer on Nervous Diseases in the University of the City of New York; Fellow of the New York Academy of Medicine, Member of the American Neurological Association, etc. Edited with notes and additions by A. D. Rockwell, A.M., M.D., formerly Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital; Member of the New York Neurological Society, etc. New York: E. B. Treat. 1895.

Original Articles.

HINTS CONCERNING THE PERFORMANCE OF THE OPERATION FOR THE EXTRACTION OF SENILE CATARACT, BEING A RECORD OF PERSONAL EXPERIENCE.

BY HASKET DERBY, M.D., BOSTON.

A RECENT excellent and instructive article entitled "Practical Advice to Young Ophthalmic Surgeons in regard to the Operation for Cataract," by Dr. Hermann Pagenstecher,¹ contains so much valuable information in regard to the results of his own experience, that I was at first tempted to simply offer a translation of the whole for the columns of the JOURNAL. But subsequent reflection has convinced me that, as the aim of the author was to express his personal views and predilections, it might be well for a surgeon living in another country, dealing moreover with people varying from the Germans in habits, constitution and temperament, to state the conclusions at which he himself had arrived after many years of practice.

I have kept full notes of all the extractions of senile cataract made by myself, both at the Massachusetts Eye Infirmary, the Carney Hospital and in private practice since the year 1865. It is not my intention here to analyze them numerically or to give tables of results. My present purpose is simply to present to those now coming on the stage a *résumé* of the experience I have gained from the careful study of my different operations, the consequences of the various modifications in technique and after-treatment I have successively practised, and the subsequent history of the patients, followed up in many instances for a number of years afterwards. I by no means lay claim to wisdom superior to that of my colleagues, or maintain that my own conclusions are more apt to be correct than the ones formed by those who may differ from me. But thirty years of practical experience have instilled in me some positive convictions, and I give them for what they are worth.

It is my intention to discuss the best manner of restoring useful vision to the subjects of senile cataract. Confining then our study to this class of cases, I start with two axioms. The first, that no operation is to be done on one eye as long as the lens of the other is wholly transparent; the second, that, save in most exceptional cases, entire maturity is to be awaited.

In the great majority of cases both crystalline lenses are found to be affected, though rarely to the same extent. But this rule is not universal. One of the first cases of cataract in which I was consulted was that of a well-known surgeon of this city, then sixty-five years of age. One of his eyes was the seat of a mature, uncomplicated senile cataract, while the other was entirely free from disease. He retained the sight of this eye unimpaired and practised his profession to the day of his death, some ten years later. The relatively slight advantage this gentleman would have gained from the enlargement of his field of vision after a successful operation might have been more than met by the impression made on his general health through the prolonged confinement and interruption in his usual habits which his convalescence would have entailed.

In regard to maturity much is said at the present day concerning the possibility of the extraction of the lens, particularly in the case of aged people, in almost

any stage of opacity; nay, the removal of the transparent crystalline is seriously proposed as a remedy for extreme myopia. My own experience leads me to believe that the absence of perfect ripeness invariably diminishes the chances of success, in many cases complicates convalescence, and always renders the satisfactory performance of the operation more difficult. Of course there are occasions on which, of two evils, the lesser must be preferred, and times when it is better to encounter the risk of removing a cataract that is not wholly ripe than to leave an aged patient, who has wholly lost the power of reading and writing, to the depressing effect of forced idleness. It was but last summer that I operated on one eye of a gentleman, eighty-five years of age, in whom cataract had for three years past been gradually developing. He had slowly reached the point of being unable to go abroad without attendance, and all power of reading had been lost. Yet his vision in the worst eye was fully one-tenth, and a view of the fundus could still be obtained through the partially opaque lens. He was a man of acute intellect and active habits, his health was now beginning to suffer from lack of exercise, and his morale was much impaired. In this case, if any, an operation on an immature cataract was justifiable, it being reasonable to suppose that the yet transparent corticalis was closely connected with the large nucleus and would escape with it. On performing the extraction this certainly seemed to happen, an apparently clear pupil being left and vision being good, but on opening the eye eight days later I found the entire pupillary area filled with opaque cortical, and vision reduced to perception of light. His convalescence was a lengthy one, but absorption finally occurred without inflammation; no secondary operation had to be performed, and he now has a vision of five-tenths and has resumed the direction of his business affairs.

The matter of prognosis is one on which the surgeon is invariably approached, one of the first questions put by the patient or his friends being as to the chances of success. It may safely be stated that, in an uncomplicated case of mature senile cataract, occurring in a reasonably healthy patient under or not much past eighty-five, where the cornea is fairly large, the pupil readily dilatable, and the conjunctiva as well as the lachrymal apparatus free from disease, the chances of regaining useful vision are at least eighty-five per cent., while those of total loss of the eye may be estimated at two per cent. Where the above conditions are fulfilled, this certainly agrees with my own experience. We operate, however, in many instances where they are not, and no law as to the effect of complications on ultimate success can be formulated.

As regards the place of performance of the operation I see no reason for departing from the principle I have always laid down, that it should be away from home, preferably in a private hospital or else in one of the private rooms in a public one. Care at the hands of attendants and nurses familiar with such operations will thus be secured, while the advantage of a place constructed and arranged for this special purpose must be greater than that afforded by the ordinary private house. There remains, moreover, the fact that the patient is removed from the occurrences of home-life, is not annoyed by officious relatives or well-meaning visitors, and escapes possible household troubles and cares. I always prefer that the patient should pass the preceding night in the room in which

¹ Monatsbl. f. Augenheilkde., November, 1894.

the operation is to be performed, that he may gain a knowledge of his surroundings before the application of the bandage.

Preparation for the Operation.—The patient should take a warm bath the evening before. An hour or so before operating the parts about the eye and the outer surface of the lids should be thoroughly washed with soap and water. I then saturate a thick compress with a solution of corrosive sublimate (1–5,000), and suffer it to remain on the closed eye till the cocaine is applied. After a drop of a two-per-cent. solution of cocaine has been instilled into the eye and has exerted its anesthetic effect, it is my practice to wash out the conjunctival sac thoroughly with the above sublimate solution. The slight irritation caused, in many cases, by the application of a solution of this strength to an eye that has not been cocainized seems to me undesirable.

The instruments, with the exception of the fixation forceps the rubber tips of which would thereby be softened, are dipped in boiling water, carefully dried with a piece of carbolized linen which is taken from the sterilizer, and laid on a glass-topped table that has been washed down with the same sublimate solution. The fixation forceps are to be dipped in absolute alcohol. There is no objection to immersing all the instruments in a tray filled with this liquid, but I do not believe it to be necessary. The hands of the surgeon, having been thoroughly scrubbed with sublimate soap, should afterwards be dipped in the sublimate solution. Should there be an assistant, he ought to adopt similar precautions. But I do not find the services of an assistant necessary, and cannot remember having taken one to a cataract operation in private practice for the past twenty years. With the disuse of ether it would seem that all necessity for additional professional help has disappeared, the patient having now full possession of his faculties and being able to help the operator by turning the eye in the desired direction. If the operation be performed in a hospital a trained nurse will, of course, always be present, and can prepare and pass the various applications and dressings, removing the latter from the sterilizer as they are needed.

Shall Iridectomy be Performed or No?—This is the burning question of the present day. In favor of leaving the iris intact may be mentioned the lessened operative interference with the eye, there being but one wound to heal instead of two, the cosmetic effect of a round central pupil, and the protection afforded by its spontaneous dilatation and contraction. Against simple extraction are to be alleged the increased difficulty in removing cortical substance that may remain behind from the pupillary area, and the great danger of prolapse of the iris. And, in consideration of this, I see no reason for departing from the belief I have always entertained that the average patient at the hands of the average surgeon stands a better chance of an uncomplicated recovery, and in consequence thereof of attaining useful vision, if iridectomy be performed. It is true that great and practised operators obtain excellent results in the vast majority of cases from simple extraction, and that many of them at this time are inclined to make it the rule, and the combined operation the exception. But even they must accept the fact that no amount of experience in selecting cases, or of manual dexterity in operating, can enable the surgeon to declare that in any given

case iris prolapse may not occur. In a series of a hundred attempted simple extractions it will be found that six or eight iridectomies have to be done after the removal of the lens, on account of the difficulty experienced in maintaining reposition of the iris. And the performance of iridectomy at this stage is always a most delicate and difficult proceeding. And in from eight to ten other cases, out of the same hundred, iris prolapse takes place under the bandage, owing to some sudden motion of the patient or without assignable cause.

If this is the experience of the older surgeons, what might be that of the beginner? I maintain therefore that the young practitioner will do well to combine iridectomy with extraction.

After the instillation of cocaine, a two-per-cent. solution of which may be dropped in the eye at least twice before the operation, at three-minute intervals, the first step in the operation is the introduction of the spring speculum. That made by Weiss, of London, I consider the best. It is light and manageable, adapts itself to the face, has not too strong a spring, and can readily be withdrawn.

The cut being made upwards fixation is applied directly below the cornea. For this purpose I have discarded the ordinary toothed forceps, and employ the rubber-tipped ones used to hold the eyeball during the operation of tattooing the cornea. It is true that the hold we thus obtain is somewhat less firm, but it generally suffices, and unless the conjunctiva is very friable it is rarely wounded.

The cut is made at the sclero-corneal junction, and should extend over one-third of the periphery of the cornea, being crescentic in shape. Pagenstecher, whose view as to the cut I have here reproduced, advocates the formation of a conjunctival flap, from which I wholly dissent. He has already dwelt on the advantage of eliminating a second wound in the shape of the iridectomy, and yet now advises the infliction of one much larger and more external, involving a relatively large healing area. It has ever been my practice, on completing the corneal cut, to turn the blade of the knife forward and cut out as rapidly as possible, fixation being at once and finally desisted from.

Before proceeding to the iridectomy cocaine should once more be instilled. The patient then being requested to look down, and at the same time warned as to the possibility of slight momentary pain, as well as the necessity of avoiding any sudden movement at this critical moment, the iris is grasped at its pupillary edge and a small coloboma formed. In many cases no special pain is felt, the senile iris appearing to lose a portion of its sensitiveness. Should any iris tissue be caught in the corners of the corneal wound, it is well to free and replace it with the small flat rubber spatula before opening the capsule.

The speculum is now carefully withdrawn. If, in spite of the styptic action of the cocaine, any hemorrhage should now be present, it may be controlled by allowing the patient to gently close the eye, and by applying externally a wad of sterilized lint dipped in an ice-cold solution of the sublimate indicated above. From this time forth the operator himself raises the upper lid with the forefinger of the left hand, when it is desired to expose the eye. He is thus in a position to allow the eye to close at once, should a sudden loss of vitreous occur, and to avoid the aggravation of this accident which the removal of a speculum might

entail. The capsule is to be thoroughly incised in different directions with the cystitome. I see no advantage in the peripheric opening advised by some writers.

Removal of the Lens. — My own practice has always been to bring this about by pressure made at the base of the cornea, through the lower lid, the pressure being exerted by means of the back of the rubber scoop. After the escape of the lens any remaining fragments of cortical may be collected in the centre of the pupil, by judicious rubbing through the closed upper lid, and then chased to and made to escape from the wound by stroking the eyeball upwards through the lower lid, the patient the while looking a little down. If, as is often the case, the fragments are arrested at the wound by the coaptation of its edges, these may be held apart by means of the Daviel spoon, used simply to encourage separation and not introduced into the anterior chamber. Even here the services of an assistant are unnecessary. The surgeon holds the upper lid against the edge of the orbit by means of the little finger of his left hand, manœuvres the spoon between the thumb and forefinger of the same hand, and uses his right to propel the fragments of cortical substance towards the wound and out of the eye. The irrigation of the anterior chamber for cleansing purposes is a difficult and delicate proceeding, and, although in the hands of experienced operators it may sometimes be productive of good results, it is never to be advised the beginner, who had better run the risk of allowing a small amount of lens matter to absorb than follow a method the results of which are sometimes so harmful.

Should vitreous escape before the lens is removed, and especially if the latter shows a tendency to become dislocated backward or downward, the scoop (preferably that of Bowman) should be at once introduced and the lens extracted. As this is a contingency that may at any time occur, it is well to have the scoop in readiness and thoroughly disinfected before commencing the operation.

After the removal of the lens and the clearing of the pupil, the rubber spatula is to be passed into each corner of the wound, to free any fragment of iris or capsule that may have lodged there. A drop of a one-per-cent. solution of eserine, instilled into the conjunctival sac before closing the eye, tends to withdraw the iris from the wound and thus prevent prolapse. A sterilized bandage is then to be applied.

I always endeavor to operate in the early morning; and it is my custom to visit the patient again late in the afternoon and change the bandage, washing the outside of the eye with sterilized lint dipped in sterilized water, but not separating the lids. This is repeated thereafter once a day until the eighth day, when I make my first examination of the eyeball. It was in 1882 that I first² published my reasons for adhering to this plan of non-interference with the eye during the healing process. When students we had all been taught to examine the wound soon after the operation. Donders always did this the same evening. Graefe used to advise that, on the first removal of the bandage, the upper lid be gently raised and a hasty glance taken at the lower part of the cornea by the aid of a single candle. It was only by gradual degrees that I came to postpone the opening of the eye, the interval growing longer and longer, and I

ever found that, within certain limits, the more I postponed my first examination the better was the condition of things. Of course, the rule is not invariable; there are cases where the skin will not so long support the irritation of continued pressure and requires earlier exposure to the air. And where pain, swelling, lachrymation and discharge warn us that the normal healing process is not going on, an immediate examination must be made.

In order to secure dilatation of the pupil I frequently wet with the usual solution of atropine the small piece of linen that is placed directly on the eye and serves to prevent fragments of lint from getting in between the lids. This is done daily for several days previous to opening the eye, and is found in the majority of cases to affect the pupil. It is especially desirable to do this in cases where cortical substance is known to have been left behind.

In regard to the claim that, after the operation of extraction, only one eye need be guarded, the lids being lightly closed with plaster; that the patient may be allowed to remain in a light room, and even to use the other eye; it may be replied that undoubtedly some eyes recover under these or even more unfavorable conditions, and that accurate and extended statistics must be substituted for vague assertion before the average surgeon will be justified in so serious a departure from precautions which have stood the test of long experience.

I seldom find it necessary to confine the patient to the bed more than twenty-four hours. On the afternoon of the operation a bed-rest may be used under the shoulders, and a half-sitting posture indulged in, a change always productive of much relief. After dressing the eye the following morning the patient is allowed to leave the bed and occupy an easy chair, wearing a loose wrapper. On the third day the ordinary clothing may be resumed and a walk up and down the entry allowed, an attendant being of course at hand. The mild form of mania that occurs with some old people a few days after the operation is largely due to the combined effect of darkness and solitude. Hence pleasant society is always desirable. A friend or attendant should be in the room most of the time, and the patient conversed with or read to as much as possible. At the hospital where I generally operate we have deep windows with drapery hanging in front of the recess, leaving room for the reader behind the curtain. But in other places a screen may be used, with a light behind it. After the first day or two I do not regard darkness of the chamber as desirable, a moderate degree of light being allowed to enter. Sudden changes of light are to be avoided.

Such an article as the present might be almost indefinitely prolonged. It is a record of personal experience and is to be taken for what it is worth. I have seen flap extraction with the triangular knife, the operation generally practised during my student days, modified later by previous iridectomy, entirely superseded by the method of Graefe, this in its turn reinforced by local anesthesia and asepsis, as well as changed in various details. In the face of such mutations, occurring during the life of a single individual, it is not improbable that we are on the threshold of even greater changes, and that the teachings given in the present article will before long offer a simply historical interest.

² Anesthesia and Non-Anesthesia in the Extraction of Cataract.

APPENDICITIS.¹

BY GEORGE W. GAY, M.D.,
Surgeon to the Boston City Hospital.

MR. PRESIDENT AND GENTLEMEN:—No apology is required for bringing before you for discussion upon this occasion one of the most important surgical affections of the present day. Appendicitis is important by reason of its frequency; by reason of its character, serious in all cases, and fatal in many; and also by reason of the grave difficulties attending its management in numerous instances.

Inflammation of the vermiform appendix varies in degree from a simple catarrhal affection indicated by a slight and transient bellyache; to sudden and complete gangrene of the whole organ attended by symptoms of most profound collapse, which may terminate fatally in twenty-four to forty-eight hours in spite of any and all modes of treatment. In not a few instances the symptoms are so slight, and give so little discomfort, that their true significance is not suspected, until frequent recurrence, or increased severity reveals the real character of the affection.

The chief source of danger from inflammation of the appendix, as you all so well know, is the resulting peritonitis. The danger is usually in direct proportion to the extent of the inflammatory process, general peritonitis being one of the most serious affections with which we have to contend. Not infrequently insidious in its approach, remitting in its progress, devoid of alarming symptoms, the patient is beyond all help before his real condition is apparent to the attendants.

Sudden abdominal pain, aggravated by coughing and tenderness, are the characteristic symptoms of peritonitis, and peritonitis in the male in nine cases out of ten is due to inflammation of the appendix. In the female the Fallopian tubes, ovaries and other pelvic structures require consideration before arriving at a final diagnosis. A painful, tender belly, whether the tenderness be local or general, should always suggest peritonitis to the observer, whatever other symptoms may be present, or absent. Rigidity of the abdominal walls, and fever render the diagnosis more certain. Tenderness or muscular rigidity more marked on the right side of the median line, together with vomiting and tympanites, are additional evidence in favor of appendicitis. Previous attacks also suggest the nature of the affection. In some cases of undoubted inflammation of the appendix, as shown by operation or autopsy, there is no localization of symptoms at any time, so that we are compelled to fall back upon the general statement already made, that peritonitis in the vast majority of instances means appendicitis.

The diagnosis is made almost certain by the presence of a bunch. This is usually situated in the right lower quadrant of the abdomen, but may be located near the liver or even upon the left side, in fact in almost any part of the abdomen. Instead of a bunch there may be marked local resistance on the right side in strong contrast to the elasticity of the opposite side.

Occasionally the tender spot and the tumor may be detected by a rectal or vaginal examination, both of which should always be made. The appendix is at times located deep in the true pelvis alongside the rectum, in which case the characteristic symptoms might

not be apparent upon the surface of the abdomen, until late, or even not at all.

Again, a tumor may be obscured by distention, by rigidity of the muscles, or by great resistance to manipulations, so that its absence is of little importance, as regards the diagnosis. It is no unusual event to find large quantities of pus in the peritoneal cavity in the absence of a tumor, and of localized pain and tenderness. Even a tympanitic abdomen may contain a large amount of pus. Persistent pain, tenderness, and muscular tension tell the real condition of things inside. They indicate the presence of peritonitis, and that, as mentioned above, in the vast majority of cases met with in every-day work, means appendicitis, and should be recognized and treated as such.

The diagnosis being reasonably certain we next have to consider the management of the case. About half of the persons afflicted with this disease recover under simple treatment, such as rest, leeches, opiates, fomentations, etc. Of those, who undergo operation, from one-half to three-quarters recover. One of the most difficult questions arising in the treatment of the malady is to decide, what cases require operation, and also, when shall it be done. It is much easier for an experienced surgeon to decide these questions in his own mind at the bedside, than it is to lay down rules for others to follow. In a general way, however, it may be said, that the cases in which the symptoms are sudden, sharp and severe, thereby indicating perforation and gangrene of appendix, demand early and prompt operation, that is, on the second or third, and perhaps upon the first day of the disease. Cases of moderate severity had better be operated upon in three or four days, if there are no marked and sure signs of diminution of the symptoms. But frequent and careful observations are necessary to prevent one from being deceived by latent symptoms. No improvement is reliable until it has lasted for more than twenty-four hours. Too much reliance must not be placed upon the pulse and temperature, as they are often very deceptive in their character.

A patient with this affection is never safe until he can pass wind. I care not how favorable all the other symptoms may be, so long as he cannot get rid of the flatus in the natural way, he is in a condition to give anxiety to his medical attendant. Obstruction of flatus may be due to intestinal paresis, or to mechanical causes. Septic infection often produces paralysis of the intestines, and thereby allows of their great distention. In a fatal case at the Boston City Hospital last winter, Dr. Councilman, the pathologist, found that death was caused by portal thrombosis, that is, thrombosis of one of the mesenteric vessels, which produced paresis of peristalsis. The gravity of distention due to intestinal paralysis cannot be overestimated, as a fatal result is the rule. Rumbling of gas in the bowels is always a welcome sound, and one of the most favorable symptoms in peritonitis is a free escape of flatus.

Light cases of appendicitis require operation when the symptoms of improvement come to a standstill. I cannot agree with those, who say, that every case of appendicitis, however slight, should be operated upon. I still have some respect for the peritoneum. About half of the patients get well without radical measures, and unless time and experience shall prove that these people are pretty sure to have a recurrence, it is difficult to see any good reason for subjecting them all to

¹ Read before the White Mountain Medical Society at Hanover, N. H., July 30, 1891.

operation. I very much doubt if that practice will ever come into general acceptance by the profession.

Cases attended by frequent exacerbations are better treated by abdominal section. I should seldom, if ever, wait longer than the second relapse, before advising operation. Relapses and recurrences indicate a condition of things in and about the appendix which Nature cannot readily repair, and too much risk should not be incurred by waiting. I venture the assertion that more mistakes are made by late than by early interference.

It should be said that this question of operation might be affected by the patient's station in life. It is not as imperative that an early operation should be performed upon a person of means, who can command at any and all times the best professional skill, as it is in the case of one living a long distance from skilful aid, or of a poor man obliged to work for a living, and subject to all the risks and exposure incident to such a life. Moreover, the latter person can ill afford the time and expense for a long convalescence.

A tumor does not necessarily call for an operation. I know of several members of our profession, one of whom is an honored occupant of an important chair in your own medical school, who have recovered from attacks of this disease attended, among other symptoms, with a tumor. The bunch would indicate the site of the incision, rather than the necessity for an operation. In not a few of the worst cases, cases calling most imperatively for an operation, no tumor is present. To give exit to the pus, and to get rid of the source of irritation, is the object of the operation. In some instances there is no suppuration in the bunch. It is solid, and composed of inflammatory products, which do not soften and break down, but are removed by absorption. I would like to remark in passing, that an early appearance of the tumor indicates that the appendix lies close to the abdominal parietes, rather than deep in the iliac fossa, or true pelvis. In one of my cases the bunch made its appearance upon two occasions within twenty-four hours, and at the operation, after her recovery from the second attack, the appendix was found as above indicated.

For recurring appendicitis in which there is a distinct interval between the attacks, I believe most thoroughly in an operation for removal of the offending organ. This method of treatment is reasonably safe, and it is effectual. The risk of future, and perhaps of a fatal attack is thereby removed, and the mental anxiety, which is by no means an insignificant factor in the matter, is relieved. In short, the best of arguments, reason and experience are in favor of the operation, and nothing of importance can be brought against it.

Two attacks of appendicitis, even if slight, and not too far apart, justify an operation for removal. In one of our recent operations during the interval after the second attack in six months, the appendix was distended with a purulent fluid, threatening perforation at any time.

A patient with recurring, or "sleeping," appendicitis is in constant danger of an explosion, which may prove fatal in spite of the most prompt and skilful treatment; hence the very great importance of interfering at the proper time.

By way of summary then, I would say, that an operation is indicated: (1) In very severe cases, and immediately. (2) In moderate cases in three or four

days, if the symptoms are not progressing favorably.

(3) In slight cases, if they do not get well in a reasonable time, or do not steadily progress toward recovery.

(4) In cases attended with frequent exacerbation without any distinct interval. (5) In recurring cases, and, as a rule, in the interval after the second attack. (6) Cases of doubtful diagnosis, in which the symptoms do not subside within a reasonable time, may be subjected to exploratory incision, with the expectation, that more good than harm will be done in the long run.

(7) Patients who must live out of reach of competent medical attendance, as well as those in the humbler walks of life, may require operation under circumstances not otherwise advisable.

On the other hand, light cases, and those of moderate severity that show signs of improvement upon the third day, do not require operation during the first attack, providing convalescence is not interrupted or prolonged.

I would not advise operation during profound collapse, as I have never seen a person rally under these circumstances. General peritonitis does not necessarily preclude an operation, yet the prognosis is exceedingly grave in these cases. I have seen only one patient recover after laparotomy performed during a severe general peritonitis. As the result, however, is occasionally successful after operative treatment, as well as under the expectant method, the physician may be left to decide this very evenly balanced question for himself, according to his own notions upon the matter, with the assurance that he will find ample authority for whichever method he may select. My own custom is to recommend operation, if I think the patient's condition will enable him to get through it, and not succumb during its performance. I cannot urge too strongly, that each and every case of appendicitis should be watched very carefully until the fate of the patient is decided. He should be seen at least twice a day; and if the symptoms are very severe, he ought to be visited every four to six hours, if circumstances will permit. I fully appreciate the difficulties of carrying out these suggestions in thinly settled regions in the country, where the physician lives many miles away from his patient. Under these conditions operative measures might be resorted to at an earlier period, rather than run too much risk by waiting for further developments.

Peritonitis, as you know, is in many instances very rapid in its progress, oftentimes invading the serous cavity throughout its entire extent in a few hours. The shock and prostration under these circumstances is most profound, precluding in many cases any operative interference. Hence the importance of close and frequent observation, as well as prompt action, before it is too late to avail ourselves of the natural recuperative powers of the system.

I shall touch upon only a few points as to the manner of doing laparotomy for appendicitis. Two classes of cases are met with in our every-day work.

In the first, the incision leads directly into the abscess cavity, which may be a portion or the whole of the peritoneal space. In the most favorable conditions the disease is limited to a small part of this cavity by a retaining wall of lymph, and an operation is little more than opening a deep abscess. This may be done by the so-called Hilton method, which consists in dividing the tissues down to the transversalis fascia, puncturing the abscess with a blunt instrument, as a

director, and dilating the opening thus made to the desired extent.

In the second class of cases, on opening the peritoneal cavity, the disease is found to be walled off deep in the pelvis, or in a mass of intestines or omentum, and drainage is possible only through the general peritoneum. This is a very undesirable complication to encounter, as pus in the peritoneal cavity is one of the most dangerous conditions attending the affection. The peritoneum is to be protected by carefully packing sterilized gauze all about the abscess, leaving a space in the centre or to the outer side for the exit of the discharges and for drainage. Care is to be taken in the manipulations that the abscess is not prematurely ruptured, thus allowing the pus to escape into the peritoneal cavity among the coils of the intestines before the packing is complete. Everything being in readiness, the retaining wall can usually be broken down easily with the finger, and the examination carried to the desired extent.

The cavity of the peritoneum, or of the abscess, having been opened, several difficulties may now be expected. Naturally the first object to be sought for is the appendix. In the late cases it may have sloughed off, when it will very likely escape in the discharge, together with the little fecal mass so often found in these conditions. Not infrequently, however, it will be so covered over by exudation and adhesions, as to be indistinguishable from the other structures, either by sight or touch. And just here comes up the important question, as to how far the search for the offending member shall be carried. I think that the present consensus of opinion is in favor of doing much less violence to the parts in our endeavors to find and remove the appendix, than formerly. It is no easy matter to detect it, and to dig it out of a mass of adhesions, in which may be omentum, intestines, blood-vessels, etc., all located deep in the pelvis. Nor are such efforts, which are necessarily made in the dark, and largely by the sense of touch, free from danger.

So far as I can judge from the experience of others, as well as of my own, it makes little difference in the immediate result, whether the appendix is removed at the time of the operation or not. Dr. Miles F. Porter, of Fort Wayne, in the *American Journal of Medical Sciences* for December, 1893, gives a table of 448 cases of appendicitis treated in various ways. In 122 instances the appendix was removed at the time of the operation. The recoveries were, in round numbers, 80 per cent. One hundred and fifty-four cases were treated by simple incision and drainage; the results were 81 per cent. of recoveries. This difference is not of sufficient importance in itself to influence the operator's action. If future experience shall prove, as it now bids fair to do, that patients do as well when the appendix is left as they do when it is removed, the labors and anxieties of the operator, as well as the danger to the patient, will be very much diminished. For my own part I do not search half as curiously for this organ, as I formerly did. If it is pretty readily found, an effort is made to remove it; otherwise the case is treated like any deep suppuration.

Another important point requires a moment's notice here, and that is the future condition of the patient. Does removal of the appendix render him any less likely to recurrence? While time and experience will not yet allow us to decide this point too positively, I think that recovery is more sure and speedy, and re-

lapses rather less common in those cases in which the appendix has been removed, either by the surgeon or by natural processes. I have never seen a recurrence after removal of the tube; I have seen two or three relapses under the opposite condition.

According to our present light, however, relapses are not common enough to justify too earnest and thorough search for the appendix at the time of operation. The danger from infecting the peritoneum, and from too prolonged manipulations increasing shock and prostration, outweighs any benefit which may be expected from a removal of the appendix under the above circumstances.

In searching for this organ, experience proves herself to be a most valuable teacher. The practised finger in most instances is enabled to detect the hard, cord-like body of the appendix, and by careful manipulations to sever its attachments, and bring it up into sight. Its mesentery having been tied off, a ligature is applied as near to the base as possible, and the free portion is cut away.

Some surgeons invert the end of the stump, and bring the serous surfaces together with sutures, a plan that is feasible provided the tissues are not too friable. There are successful operators, however, who do not apply any ligature at all. They imitate Nature in the management of the stump by simply letting it alone, and allowing it to heal by granulation. As patients do well under both methods of treatment, one is not disposed to be too dogmatic in the matter. Personally I use ligatures and sutures in dressing the stump, as I believe in taking every precaution to prevent intestinal leakage, and also to hasten the repair of the parts.

I used to fear that silk placed at the bottom of a suppurating cavity tended to keep open the sinus, and thus to prolong convalescence by acting as a foreign body. I have no doubt that such is the fact in exceptional instances, but I do not think that it occurs often enough to influence our mode of treatment. The objections to catgut are that it is more uncertain in strength and durability, and is less readily sterilized. It is very good for ligation of blood-vessels, but in my opinion it is inferior to silk as a ligature for the appendix.

Fecal fistulæ are not very rare after the removal of the appendix in suppurating cases, but they usually close in one or two weeks of themselves. In rare instances, when complicated with tuberculosis, they do not heal, but serve as a factor in wearing out the patient by malnutrition, and exhaustion. The only permanent fistulæ I have seen in patients, who have in other respects regained fair health, have followed spontaneous rupture of the abscess. I cannot recall one after operation, although it doubtless may occasionally occur. In my own mind I have no doubt that fecal fistulæ and troublesome sinuses depend far more upon the want of vitality in the tissues involved, than upon any particular method of treatment. The key-note of the surgeon's duty is incision and drainage, and so long as that is fairly accomplished, we need not spend overmuch time upon the minor details.

For drainage I prefer the baked gauze, except in deep or large cavities requiring frequent irrigation, when two or more rubber tubes may be used in addition to the packing. In several of my later operations, I have not washed out the suppurating cavity at all, but have contented myself with making a free incision, removing the appendix, when feasible, and establish-

ing good drainage. Thus far the results have been as good as when treated by free irrigation. The latter is especially indicated in cases attended by abundant and fetid suppuration. The peritoneal cavity can neither be drained nor irrigated, when the seat of general adhesive inflammation. However freely the adhesions may be broken up, fresh ones will form within twelve hours, rendering irrigation and all methods of drainage ineffectual and unsatisfactory.

From the fact that many cases seem to be benefited by saline and other cathartics, there will always be a difference of opinion as to their real value in the early stages of appendicitis. The family physician has taught the surgeon some valuable lessons on this point. It is evident that cathartics can do only harm in cases of perforation with no external outlet for the discharges. They not only tend to liquefy the contents of the bowels, but they also increase peristalsis, and thereby may flood the peritoneal cavity with the most deleterious of all substances, liquid feces. Cases of distention from intestinal paresis are made worse by cathartics, as they may cause or aggravate the vomiting, which is a serious symptom in this affection.

After operation and the establishment of drainage, I know of nothing which relieves pain due to distention so surely and so effectually as salines given in small and oft-repeated doses. Few practitioners of experience deny the value of laxatives under these conditions. In the early stages of light or catarrhal cases they very likely are beneficial in establishing intestinal drainage by unloading the vessels of the portal system, as well as by removing irritating substances from the bowels. They are to be used carefully and judiciously, and only in mild cases, and always with the idea in mind that an operation may be necessary at any moment, even after the production of free catharsis. It is the opinion of many practical surgeons, that even the mild cases do as well under the opiate as under the cathartic treatment. While patients often recover under both methods, my own experience leads me to think, that, as a rule, the former is safer than the latter, and that the results are full as favorable.

Opiates are indispensable in the treatment of this affection, and yet the same objection to their use obtains as in strangulated hernia. They may obscure and cover up the patient's real condition. The amount of opiate required is an indication of the severity of the pain, and hence of the character of the attack.

In closing, allow me to say, as I said at the beginning, that this affection is one of the most important that comes to the physician's notice, not only because of its grave character, but because so much depends upon its proper management. Many of the worst cases will die in spite of the most timely and judicious treatment, but more will get well if promptly recognized and carefully managed. One of the most satisfactory reflections which a physician can have is, that he has shown good judgment in the treatment of his patients, and in no class of affections is this fact more evident, than in the prompt recognition and judicious treatment of appendicitis.

[Soon after presenting the above paper the writer was seized with his third severe attack of appendicitis. The first one occurred seventeen years ago; the second two years ago; each lasted about three months. The symptoms of the first two attacks were pain at the epigastrium, marked prostration and emaciation. There were no indications of trouble in the right side

of the abdominal cavity. Just a week after the commencement of the last attack, pain, tenderness and muscular rigidity were pronounced in the right iliac region. Three days later laparotomy was performed by Dr. M. H. Richardson. There was an abscess below the brim of the true pelvis and behind the cecum, surrounded by old and fresh adhesions, implicating the sigmoid flexure and the rectum. The appendix was found to be shrivelled up to a small cord, and being firmly incorporated in the dense mass of adhesions was not removed. The principal features of the case were its long duration and unusual location of the symptoms. It was only during convalescence that pain was located outside of the epigastric region. During this time moderate griping at stool was felt behind the pubes, due evidently to the adhesions found at the time of the operation.]

THE TREATMENT OF UTERINE FIBROIDS, WITH REPORT OF CASES.¹

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In the last four years, 1890 to 1893, I have made notes on 35 cases of uterine fibroids. I have seen, perhaps, 50. Of the 35 cases, I operated on eight—three hysterectomies, four tubo-ovariotomies—and made one exploratory incision. Four were methodically treated by electricity. Two hysterectomies by suprapubic amputation were cured. One complete hysterectomy died of shock. The four tubo-ovariotomies recovered perfectly from the operation—three are now well after nearly or quite two years. The fourth died, perhaps six months after operation, probably from sloughing of a submucous fibroid. Of the four treated by electricity, one remains relieved of dysuria, one flows about as before, one continues to have flowing and dysmenorrhea, and one has died of malignant degeneration.

CASE I. Large fibroid. Hysterectomy. Cure.

E. F., thirty-eight years of age, single. Entered Memorial Hospital December 3, 1892. Catamenia at fourteen, and normal up to present illness. Two years ago began to have pain in the right inguinal region, and noticed a hard tumor there. This grew slowly until nine months ago, since which it has rapidly increased. Has had severe hemorrhages, pain, difficulty in micturition, and has grown thin. Now the main tumor extends two inches above the umbilicus. Above this, and reaching to the ribs on the left, is a large, freely movable mass. Further to the right, two other smaller solid masses are felt. By the vagina the uterus is not felt separate from the tumor. Sound enters downward and to the left.

Operation, December 10th. Incision from pubes to a point half-way from umbilicus to xyphoid cartilage. Ascitic fluid four pints; no adhesions. The tumor was lifted out of the abdomen, the upper end of the incision closed with silk-worm-gut sutures, and the patient raised to the Trendelenburg position. The right broad ligament extended high upon tumor, its upper edge below the tube being occupied by an elongated, flaccid cyst, the size of small intestine. The ligament was tied off with two silk sutures on outside, clamps on tumor side, and divided. On the left, the broad ligament extended not nearly so high, and was sim-

¹ Read at the meeting of the Worcester District Medical Society, November 14, 1894.

ilarly treated. The wire clamp was applied around the pedicle thus made, pins inserted and tumor removed. The pedicle, something over an inch in diameter, was placed in the lower angle of the abdominal incision, the parietal peritoneum sutured around it and closed above. Skin, fascia and muscle were united with silk-worm-gut.

The wound was dressed and the clamps tightened every second day. The sutures were removed on the tenth day. On the eighteenth day the clamp broke, when the top of the stump was trimmed off with scissors, and the wire removed. She was walking about the room in four weeks, and discharged well in seven weeks. At one time there was a sinus through the cervical stump into the vagina, which entirely closed later. Temperature did not go above 101°. Patient has been in good health since.

CASE II. Fibroid, size of fifth month. Hysterectomy. Cure.

L. S., forty-three years of age. Entered Memorial Hospital March 18, 1893. Twice married. One child. Catamenia regular until seven months ago. Two months ago was in the hospital for pain and hemorrhages, and was sent home relieved. Symptoms soon returned, and were now so severe that operation was advised and accepted, the intention being to remove appendages if possible. The tumor extended three inches above the pubes; sound entered behind it. On making the opening into the abdomen, the left appendages were found accessible and removable; on the right side there was a small ovarian cyst with many adhesions. An attempt was made to remove these right appendages, but it was abandoned in favor of hysterectomy. It was difficult, first, to dislodge the tumor from the pelvis; then the pedicle was short, it was hard to get it into the abdominal wound; the bladder was at first caught in the wire loop and had to be peeled down.

The wound was closed and dressed in the usual way. The patient made a good recovery, and was about her room in five weeks. In this case the wire clamp bent, and was cut out of the stump at the end of the second week.

CASE III. Large fibroid. Hysterectomy. Death from shock.

A. J., forty-seven years of age. Entered Memorial Hospital November 18, 1892. Strong family taint of cancer. Catamenia at fourteen, and still regular. Tumor first noticed eight years ago in the left side, and supposed to be ovarian. Has had considerable difficulty in micturition, but the main symptom is a distinct failure in general health for the last four months. The abdomen is filled, from the pubes to the ribs and from ileum to ileum, with a hard, somewhat nodular mass; girth 32 inches. By vagina the tumor bulged the posterior wall far down. The sound passed backwards and to the right three inches.

Operation at 11 A. M., December 29th. The first incision failed to reach any peritoneal cavity. It was extended nearly to the level of the ribs, and the cavity entered above the tumor. The solid tumor was found to occupy the left broad ligament, splitting its folds and lifting the anterior layer from pelvic floor and anterior abdominal wall, carrying along with it the bladder, which was thus intimately attached to the tumor three or four inches above the pubes. This mass was attached to the uterus through its whole length, and crowded it far over to the right. The right broad lig-

ament was occupied by an elongated cyst of the ovary lying behind the uterus and fibroid, and serving as a fulcrum to tip the cervix above the symphysis. The diameter was, perhaps, three inches, length six or eight inches. This cyst separated the folds of the ligament, and was close against the uterus. The fibroid was lifted from the abdomen, the upper part of the incision closed to retain the intestines, and the patient put in the Trendelenberg position. The sigmoid flexure was found firmly adherent on the *right* side of the tumor posteriorly. It was necessary to leave a piece of the tumor on the intestine. In attempting to separate it, a little opening was made through the intestine. It was closed with four Lembert sutures. The peritoneum was separated from the tumor as far as possible, and with it the bladder in front. A small tear was made in the wall of the bladder, but it was immediately sutured. This separation could be very well done on the left, but on the right a massive, fleshy, broad ligament had to be tied off in its whole length. The uterine arteries were secured on both sides by these ligatures, and the whole uterus removed with the tumor. The wound now left from the extensive enucleation on the left side and the long, thick, broad ligament on the right was of wide extent. The peritoneal flaps, however, covered it well. An iodoform gauze drain was drawn through the vagina, and the abdominal wound closed without further drainage. After being put to bed a quart of salt solution was passed into the median basilic vein, in addition to the usual measures for the treatment of shock; but the patient did not recover, and died at 8 P. M.

CASE IV. Fibroid, size of fifth month. Tubo-ovariotomy. Symptoms relieved.

A. B., thirty-six years of age, married. Entered Memorial Hospital, December 20, 1890. Four children. Miscarriage five years ago, not well since. Menses irregular and profuse during this time. Patient has a hard, symmetrical fibroid, extending half way to the umbilicus. It was impossible to introduce a sound.

January 16th, the ovaries were removed. They were easily accessible, and there were no adhesions. She had considerable hemorrhage on the third and fourth day per vaginam. Patient was discharged well in three weeks. I have heard from her from time to time since; she has had no recurrence of symptoms.

CASE V. Large multilocular fibroid. Tubo-ovariotomy. No permanent relief.

M. M., colored, thirty-five years of age, married. First entered Memorial Hospital, December 30, 1890, when a fibroid double the size of a hen's egg was removed from vagina. It was attached to the lower part of the uterus by a pedicle one inch in diameter.

In May, 1892, she passed naturally, by the vagina, a fibroid as large, according to her own statement, as a man's fist.

August 28th of the same year, having just been admitted to the hospital, she was delivered in the same way of another fibroid as large as two fists. After this she was discharged, and readmitted September 24th. The record of physical signs October 12th, is as follows: Tumor reaches nearly to umbilicus, is in two large lobes—one anterior and nearly median, the other posterior and to the right.

October 22d, tubo-ovariotomy was done. The tumor, reaching nearly to the umbilicus, so occupied

the broad ligaments as to leave the pedicles very short, and in removing the ovary bits of ovarian tissue were left on the stump on each side; these were thoroughly cauterized. The patient made a normal recovery, and was discharged well in three weeks.

Four months later she had a considerable hemorrhage of three weeks' duration. Now, two years after the operation, the tumor has very much increased in size, and she is having a good deal of hemorrhage. A hysterectomy would have been the proper operation.

CASE VI. Fibroid filling the true pelvis, causing pressure symptoms. Tubo-ovariotomy. Woman two months pregnant. Goes to term. Symptoms relieved.

K. G., thirty-eight years of age. Entered Memorial Hospital, March 18, 1891. Married two years. Catamenia regular until nine weeks ago; none since. No symptoms until four days ago, when she became unable to pass water. She has required the catheter since. The pelvis was found to be quite fully occupied by a fibroid which crowded the uterus tightly forward against the pubes. Laparotomy was done March 24, 1891. The tumor filled the pelvis very closely, the ovaries lay so far behind it as to be difficult of access; still by twisting the tumor from one side to the other they were reached and tied off. The ligature on the left side slipped off, leaving a long wound along the upper edge of the broad ligament. Considerable time was spent in securing the bleeding points. A rubber drainage-tube was left in for two days. She was discharged well at the end of three weeks.

This patient was confined at term of a living child on November 8th following, and must have been about two months pregnant at the time of operation.

CASE VII. Fibroid, size of seven months. Tubo-ovariotomy. Temporary relief. Death, six months later, from sloughing fibroid.

H. K., thirty-five years of age. Entered Memorial Hospital, April 16, 1891. Married nine years. Catamenia at twelve, and regular till one year ago. Since that, increasing hemorrhages; pain, too, has been severe, requiring opiates. She is becoming exhausted by pain and loss of blood. The tumor was first noticed one and a half years ago; it now fills the pelvis, crowding the uterus forward, and extends above the umbilicus.

Operation, April 22d. The appendages were removed with considerable difficulty, there being a hemato-salpinx the size of a goose's egg on the left side, the right appendages being concealed far down behind the tumor, and both having adhesions.

The patient made a good recovery, and was discharged May 8th. She died six months later, probably from septicemia caused by a sloughing, submucous fibroid.

CASE VIII. M. W., forty-nine years of age. Entered Memorial Hospital, January 30, 1890. Twice married, the last time six years ago. One child thirty years old. Not so well since her last marriage. Fell one year ago, and since that has had pain in her side and back. Per vaginam, uterus deflected to the right. On the right of the uterus, and connected with it, is a rounded hard tumor the size of a goose's egg.

Laparotomy was done, and a small fibroid was found in the right broad ligament, attached along two-thirds the length of the uterus. The woman being past the menopause, nothing was done, the symptoms not being sufficiently severe to justify a complete hysterectomy,

which was the only way of removing the growth. The patient made a smooth recovery, and was temporarily greatly relieved by the operation.

I have used electricity, Apostoli's method, in cases of various kinds, but have records of only four cases of uterine fibroid, systematically so treated.

In one case, a woman of fifty-four, with a tumor the size of a child's head, where hemorrhage was the important symptom, sixteen applications relieved the flowing and greatly improved the condition of the patient. Three years later she died of malignant disease of the uterus and pancreas.

The second patient, forty years old, with a tumor of the same size, also with severe metrorrhagia, received no benefit.

The third case got temporary relief for very severe hemorrhage and pain.

The fourth case was quite relieved of dysuria.

The history of the surgical treatment of uterine fibroids begins with the publication of Kimball's (of Lowell) case in the *Boston Medical and Surgical Journal* in 1855. The first case was successful, and was followed by two unsuccessful cases operated on in the same way. The pedicle was tied with silk, dropped into the abdomen, and the ligature brought out at the lower angle of the wound. No further step was made for nearly twenty years.

In the early seventies Koeberle and Péan improved the operation, and established it on a scientific basis. The silk ligature was replaced by a wire clamp, and instead of being dropped back into the abdomen, the pedicle was fixed in the wound by long pins, and the peritoneum nicely sutured around it.

Then came the period of aseptic surgery, and renewed attempts at the intra-peritoneal treatment of the pedicle. These attempts resulted in what has been called Schroeder's method, where a wedge-shaped piece is removed, and the flaps of the pedicle thus left are united by tier sutures, the peritoneum being closed over all. Péan had obtained a mortality of 34 per cent. Schroeder reduced it a little, to 30 per cent. Martin, of Berlin, by the use of Schroeder's method with the addition of drainage through Douglas's pouch, got 22 per cent. Zweifel (Leipsic) in 1889 using a continuous chain suture of silk running across the pelvis from side to side, including both broad ligaments and the uterine stump, had a series of 22 successful cases.

At present the operation of abdominal hysterectomy is done in four different ways. The method by fixation of the stump in the abdominal wound still has followers, pre-eminently Bantock in England and Price in America. By several operators the pedicle is left in the peritoneal cavity. Others treat the pedicle extra-peritoneally on the floor of the pelvis, that is, after amputating the uterus the pelvic peritoneum is united over it, or finally a complete hysterectomy is done.

The results obtained by these different methods by large operators are all excellent, and vary astonishingly little. For instance, as reported at the International Medical Congress held this year in Rome, Martin reported a series of 26 cases, with one death, a mortality of 3.8 per cent.; de Ott, 24 cases, with one death; Bantock, 23 cases, with one death; Carle, 20 cases, with no death; Zweifel, 93 cases, with three deaths. Leopold² reports 20 cases, with no death, and mentions Brennecke's report of 19 cases with no

² Centralbl. f. Gyn., No. 28, 1894

death, making in all 225 cases with six deaths, a mortality of 2.6 per cent. These are selected statistics, and by no means represent the present average rate of mortality for the operation of hysteromyomectomy. Still it is a fact that five years ago the general mortality of the most frequent operators was 25 per cent., while now the same class of men have a mortality less than one-third as large.

In this country also the tendency is towards the operations of complete hysterectomy and supra-vaginal hysterectomy. At the meeting of the American Gynecological Society May, 1893, there were reported³ from Polk 30 cases, with two deaths; Mann, 13 cases, with one death; Krug, 25 cases, with two deaths. Baer, in September, 1893, reported 37 cases, with two deaths.⁴ Eastman,⁵ 79 cases with eight deaths; Kelly⁶ 50 cases, with three deaths; Baldy,⁷ 41 cases, with four deaths; Edebohl's⁸ six cases, with no death. In all, 281 cases, with 22 deaths, a mortality of 7.8 per cent. If I were able to bring the American reports to as late a date as the foreign ones, the showing would undoubtedly be somewhat better still. This operation has been especially promoted by Polk of New York. He first described it in a paper read at the annual meeting of the American Gynecological Society in 1892. It consists in tying off the broad ligaments, making anterior and posterior peritoneal flaps, by peeling the membrane from the uterus, tying the uterine arteries, cutting through the vaginal junction, uniting peritoneum with vaginal wall anteriorly, posteriorly and laterally, with long catgut sutures, drawing these ligatures into the vagina and filling the vagina with iodoform gauze. Polk's record in May, 1893, was 30 cases, with two deaths, as stated above.

On equal footing with this plan stands the method of amputation of the uterus just above the vaginal junction, thus leaving a small uterine stump. Some operators constrict this stump in one mass; others in two or three portions; while others still, tie the uterine artery just as in Polk's operation, putting no ligatures on the stump. The best results in this kind of operation have been published by Baer of Philadelphia, and Zweifel of Leipsic. Baer ties the arteries, leaves only the vaginal portion, and this unligated, does not touch the cervical canal, and unites the peritoneal flaps over the stump. Baer's latest statistics were 37 cases and two deaths. Kelly, after tying the uterine arteries, dissects the vesical peritoneum, amputates the tumor, cups the pedicle, brings the flaps together with silk sutures, and unites the peritoneal flaps over all with a continuous suture. He reports 50 cases, with three deaths. Zweifel, ties the broad ligaments with two interlocking silk ligatures, puts on an elastic ligature, removes the tumor by a wedge-shaped incision into the pedicle, then continues the interlocked suture, using catgut for uniting the stump flaps. He has published a series of 93 cases, with three deaths.

A few operators still adhere to the wire clamp and pedicle pins, but the results by total hysterectomy and supra-vaginal hysterectomy, with closure of the peritoneum over the stumps, have reached such a degree of excellence that the near future will probably

see the abandonment of the old extra-peritoneal method.

The figures which I have quoted bring the operation of hysterectomy up to a level in point of success with ovariectomy. This accomplished, the question of indications for the operation has to be reviewed. The surgeon who counts upon 90 per cent. of cures, looks at the question quite differently from one who expects only 75.

The rule used to be to operate only on those cases which threatened the life of the woman or made it unendurable, now the surgeon finds no little favor who advocates hysterectomy for a very moderate amount of discomfort caused by the presence of a uterine fibroid. As always happens in such cases the ardor of success carries men too far; and not only is operation advised where it seems unnecessary, but, on the other hand, the dangers of uterine fibroid are unduly exaggerated, and a bold attempt is made to shake our faith in the old established belief that the menopause has an inhibiting influence on its growth, and that spaying for a fibroid is a reasonable procedure. And this attempt is indeed, in a degree, successful, for we no longer believe a fibroid of the uterus to be quite the innocuous thing we have been taught. Matthews Duncan exclaimed, "Who ever knew a woman to die of fibroid tumor?" I can recall four in my own experience. Many of you will be able to remember such cases; and we all know how unreliable a mere effort of memory is in these matters. I have heard an old practitioner deny that he ever had a case of ruptured perineum in his practice. The indication for surgical interference, however, is not so often impending death as the incapacity for enjoyment or utilization of life, brought about by pain, hemorrhage or pressure sequelæ.

At present it is useless to lay down exact indications for the operation; they vary according to the skill of the operator and the circumstances of the patient. The tumor which incapacitates a poor woman for work or the care of a family must be operated on, while the same tumor in a woman not obliged to work could be taken care of symptomatically without trouble.

As to tubo-ovariectomy, it has a mortality among the best operators of five per cent.; its field of operation is necessarily limited, and its results more or less uncertain. Under these conditions its range of application must, I think, grow less and less as the success of hysterectomy increases, although Pozzi, writing in 1890, says, "The number of surgeons who still prefer the operation of hysterectomy in all cases is becoming continually smaller." So rapidly are changes taking place nowadays in the field of abdominal surgery.

The question of electrolytic treatment of fibroid has been the cause of vigorous argument, and is not yet settled. To me it seems as though much good can be accomplished by it in relieving symptoms and restoring general health, though there is no doubt that the relief will oftentimes be temporary. The hope that it can cause any important diminution in the size of the tumor must be given up. It is certainly the best treatment in cases where for any reason an operation is not admissible.

LONDON has sixty ambulance stations for the six thousand accidents that occur on her streets each year.

³ Transactions American Gynecological Society, 1893, p. 124.

⁴ New York Journal Gynecology and Obstetrics, 1893, p. 795.

⁵ Boston Medical and Surgical Journal, June 7, 1894.

⁶ Bulletin Johns Hopkins Hospital, October, 1894.

⁷ American Journal of Obstetrics, November, 1893, p. 596.

⁸ Loc cit., p. 610.

Clinical Department.

A CASE OF CONGENITAL DIAPHRAGMATIC HERNIA.

BY GEORGE G. SEARS, M.D.

THE subject of these notes was born in the Boston Lying-in Hospital during my term of service as resident physician, and for the privilege of reporting them, I am indebted to Dr. W. L. Richardson.

The child, an apparently perfectly formed, seven-pound boy, was born in December, 1885, after an easy labor, the second stage lasting but an hour. Immediately after birth it gave two or three short, sharp cries, and then, though it seemed to make every effort, it was unable to produce a sound. Respirations became gradually shorter and quicker, cyanosis deepened, and death resulted an hour later. The only abnormality found was the position of the apex-beat in the right axillary line. Only a most superficial physical examination, however, was made, as all our efforts were concentrated in encouraging his attempts to breathe. The autopsy was made by Dr. W. F. Whitney, who found the following condition:

"The greater part of the small intestine, with the stomach and spleen, were found in the thoracic cavity, into which they had passed through a hole occupying the greater part of the left side of the diaphragm. The left lung was reduced to a single lobe (the upper), and pressed upwards and forwards. The right lung was normal, but pressed upward by the heart which was in its pericardium in the lower part of the right pleural cavity. The lungs were compressed, but could be distended. Nothing else abnormal noticed."

Although similar conditions are comparatively rare anomalies, they are yet sufficiently common for Lacher,¹ in 1880, to have collected 276 cases, including both the congenital and acquired forms, while Thoma² two years later collected 291, and since then a number of others have been reported. They have been found in patients of all ages, and have frequently remained latent for years and even till death, neither preventing men from leading active lives nor women from passing successfully through a number of pregnancies. Others, however, have caused more or less distressing symptoms, which are referable to a disturbance of the functions of the thoracic or digestive organs. They have not always proved incompatible with long life, even when the defect in the diaphragm was apparently as great as in this case, for Thoma gives the history of a man, fifty years old, in whom its left half was almost entirely wanting and the thorax contained the fundus of the stomach, at least half of the small intestine, a considerable portion of the transverse colon, the spleen and a greater part of the omentum. The direct cause of death was a right pleuro-pneumonia. From the limited respiratory area acute pulmonary affections not infrequently terminate these cases, when death does not result, for mechanical reasons, immediately or a very short time after birth.

Much less frequently strangulation has proved the cause of death, since diaphragmatic hernia are subject to the same accidents as those in other situations, and its possibility should therefore always be considered in obscure cases of intestinal obstruction. One such case,

reported by Abel, is especially interesting because the correct diagnosis was made and surgical relief attempted, but the patient unfortunately died three hours and a half after the operation.

The size and contents of these herniæ have varied from a small bit of omentum to half the contents of the abdomen. According to Lacher the only organs, which have never been present, are the urinary bladder, the rectum and the genitals, but diagnosis is not possible clinically, unless the stomach or bowels have invaded the thoracic cavity. Typical cases—where the abdomen is retracted; the affected side of the chest expanded, tympanitic, and with little or no respiratory movement; the intercostal spaces bulging; the apex-beat and area of cardiac dulness absent or displaced; and on auscultation the possible presence of metallic tinkling or other musical sounds—would seem easy of diagnosis, confusion with a pyo-pneumothorax being the most likely source of error; but practically only about half-a-dozen cases have been correctly made out, and in most of these the diagnosis was considered only probable. The most reliable and constant sign is cardiac displacement, especially in left-sided herniæ, which are six times more frequent than right, since the usual causes can always be readily eliminated. Congenital transposition of the heart might lead to mistake, but the more frequent error seems to have been made in taking the displacement due to herniæ for a simple dextro-cardia. The amount of dislocation may vary at different examinations, according to the amount of distention of the thoracic portion of the stomach or bowels; and in doubtful cases Abel suggests the careful introduction of water into the stomach by means of a tube, and noting the position of the heart as water is added or withdrawn. Failure to arrive at a diagnosis has not always resulted so much from a lack of distinctive signs and symptoms as from oversight on the part of the physician; yet when over 300 reported instances can be collected, it is not so rare that the possibility of its occurrence should be forgotten in making a differential diagnosis between conditions which it may simulate.

A FATAL CASE OF POISONING BY MAYO'S VEGETABLE VAPOR.

BY F. E. SWEETSIR, M.D., MERRIMAC, MASS.

JOHN S., the patient, was a boy nineteen years of age, strong, well developed and muscular, never having been ill before. He was given Mayo's vegetable vapor December 20th, at 9.30 A. M., for the purpose of having two teeth extracted. The amount given was rather less than the average dose, about eight gallons, which he seemed to take easily. The teeth were extracted without pain and he apparently came out of the anesthetic normally.

After talking with the dentist about having some teeth filled, he left the office, apparently a well boy, and walked to his home a quarter of a mile distant. When he arrived there, however, he complained of feeling ill, and his condition was such that his mother became alarmed and sent for me.

I saw him at ten o'clock, about half an hour after he had inhaled the vapor. He at that time was apparently in a dying condition. His face and extremities were deeply cyanosed, and covered with cold

¹ Deut. Arch. f. Klin. Med., xxvii, p. 268.

² Virch. Arch., lxxxviii, p. 515.

perspiration; pulse 170; respiration 34. He was conscious, and answered questions intelligently; but he was stupid, and was raising much frothy mucus and saliva. I immediately gave him hypodermically one-thirtieth of a grain of sulphate of strychnine, one-fiftieth of a grain of digitalin and half an ounce of brandy. Hot-water bottles were placed around him; and with plenty of coverings his couch was moved near an open window, although it was a very cold day. The dentist who gave him the anesthetic worked with me over the patient about four hours giving him in the meantime all the heart stimulants at hand, including nitroglycerine, aromatic spirits of ammonia and digitalis. The circulation improved; and at noon the pulse was 130, cyanosis less marked, and he said he felt better.

At 2 P. M. the heart-beat was 120 to 130, and the cyanosis had largely disappeared. At this time (2 P. M.) I left him, with instructions to the dentist to see him in an hour, and if he did not seem as well to call in a fellow practitioner, as I should not be able to come again until six o'clock.

His attendants said that he seemed improving until four o'clock P. M., when he slipped from the couch on which he was lying to the floor. They told him to let them aid him; but he insisted he was all right, sprung to his feet, and died in a very few moments of paralysis of the heart.

Personally, I have always denounced Mayo's vapor, it being prepared by a secret process; and as such I think it should not be used. In this section of the country dentists tell me it has been advertised to such an extent that a dentist has to have it in order to do business. Patients call for it, and will have nothing else.

This same dentist took from the same cylinder, the Sunday before, two gallons more of the vapor than this unfortunate boy inhaled, with no ill effect, while I lanced an ulcerated tooth for him.

The autopsy upon the patient showed great venous congestion of the lungs, the heart a third larger than normal; and the mitral valve consisted of practically only one large flap, which condition seemed to be congenital. This flap closed the orifice very well, so that there could have been but little leakage during life; and the closest questioning of the mother could bring forth no evidence pointing to any heart trouble. Other organs were normal.

I have never read or heard of an accident of this kind. All the fatalities from this anesthetic that have occurred have been in the chair and while under the anesthetic, not six hours afterward and after a walk of a quarter of a mile apparently in a normal condition.

Medical Progress.

RECENT PROGRESS IN DISEASES OF THE NERVOUS SYSTEM.

BY PHILIP COOMBS KNAPP, A.M., M.D.

(Concluded from No. 4, p. 83.)

SYPHILIS OF THE SPINAL CORD.

THREE years ago Erb⁷ described a form of spinal paralysis of syphilitic origin characterized by spastic paralysis of the lower extremities, marked increase of

the tendon reflexes, slight muscular spasticity, disturbances of micturition, and comparatively slight disturbances of sensation. Sachs⁸ emphasizes the fact that there may be other forms of syphilitic spinal paralysis. In one case there was a flaccid atrophic paralysis with rapid recovery, and three cases were of a spastic type, with marked contracture, pronounced atrophy and sensory disturbances, and varying vesical symptoms. Sachs considers that the characteristic features of spinal syphilis are the distribution of the morbid process over the entire cord, with simultaneous involvement of all three portions; the slight intensity of the morbid process compared to its extent, some functions of the cord being retained while others are lost; a rapid change in some symptoms with obstinate persistence of others; and the frequency of earlier symptoms in the cord or in other parts of the nervous system. These conditions may permit the diagnosis of syphilis.

Gerhardt⁹ thinks that most cases of spinal syphilis are due to disease of the vessels and membranes, which later involves the cord. Important symptoms for diagnosis are rigidity of the spine, shooting pains, girdle pains, paraplegia, and Brown-Séquard's paralysis. The cause of Erb's type of syphilitic paralysis is thought to be due to multiple lesions of the roots. Only rarely does syphilis give rise to symptoms of muscular atrophy, poliomyelitis anterior, or Landry's paralysis.

Lamy,¹⁰ after a study of several cases of spinal syphilis, concludes that the commonest affection is a diffuse meningo-myelitis, accompanied by disease of the blood-vessels. The changes in the meninges and vessels are primary. There may be a syphilitic leptomeningitis and pachymeningitis; the latter is most commonly situated in the cervical region. Spinal meningitis is often accompanied by cerebral meningitis, which is usually situated at the base of the interpeduncular region and about the chiasma. The changes in the blood-vessels are first noted in the adventitia of the veins. The symptoms of meningeal disease are to be distinguished from those of disease of the cord. The prodromal period is characterized by meningeal pains in the back or head, ocular paralysis, and more or less severe cerebral symptoms. The second stage is characterized by spinal paralysis, usually presenting the type of a moderate transverse myelitis, spastic paresis of the legs with slight impairment of sensation and slight involvement of the sphincters. In the minority of cases the paralysis is acute and severe, and, if not treated, leads rapidly to death.

Kuh¹¹ has collected 62 cases of Erb's type of syphilitic spinal paralysis and allied forms with six autopsies, and he considers that syphilis is not infrequently a cause of myelitis. The disease began in 36 out of 52 cases within six years after the infection. In some cases cerebral symptoms are first noticed, but usually the trouble begins with increasing weakness and stiffness of the legs, often accompanied with paresthesia, or a girdle sensation. Pain is seldom severe. Anesthesia is less common. With the weakness of the legs there is very apt to be some disturbance of micturition, and loss of sexual power. The weakness is very apt to be greater in one leg, and seldom increases to complete paralysis. Contractures

⁷ Brain, Part lxiii, 1893.

⁸ Berliner klin. Woch., No. 50, 1893.

⁹ Nour. Iconographie de la Salpêtrière, No. 4, 1893.

¹¹ Deutsche Zeitsch. f. Nervenheilk. iii, 359, 1893.

are rare, but the reflexes are always increased. The course of the disease is very chronic and progressive. The prognosis, under proper treatment, is much more favorable than that of ordinary myelitis; 11 per cent. recovered, 70 per cent. were improved, and 7 per cent. died. Relapses, however, may occur. The lesions are chiefly in the dorsal cord, and in the posterior part of the lateral columns; later the posterior cornua and posterior columns may become involved. As a rule, the meninges are little affected, the trouble being due to syphilitic changes in the smaller vessels of the cord—the marginal vessels of Adamkiewicz.

LIGATURE OF THE CAROTID.

In an appendix to a study of tumors of the parotid Kopfstein¹² has studied the cerebral symptoms which may follow ligature of the carotid, which is of much interest on account of the occasional necessity of tying the carotid as a preliminary to certain operations on the brain.

Pilz observed cerebral symptoms after ligature of the carotid in 165 out of 520 cases; Ehrmann in 22 per cent., Lefort in 30 per cent. Among the symptoms are headache, paresis, paralysis, coma, etc. One of the rarest symptoms is aphasia, which occurred only twice in Pilz's cases; once there was no paresis, and once there was hemiplegia on the opposite side. In general the cerebral symptoms after trauma are more common than those after ligature rendered necessary by any other special cause. In most cases the trouble is due to a simple ischemia of the hemisphere. The symptoms cease when a collateral circulation is established. Paresis or paralysis does not come on at once, because the brain is still saturated by the nutritive liquid. If the basal arteries are not sufficiently developed, or if they are atheromatous or occluded, the insufficient nutrition may lead to changes of structure. In such cases the autopsy shows cerebral softening. In other cases the cerebral symptoms may be due to purulent processes or to embolism. Maydl gives the following data for prognosis: When hemiplegia comes on at once or within twenty-four hours, the prognosis is bad, especially in alcoholism, syphilis, and subjects with spontaneous aneurism; hemiplegia coming on long after ligature suggests suppuration on the surface or within the brain. Death may occur suddenly or after some weeks of apparent health, as in all cases of cerebral abscess. Hemiplegia after thrombosis of the carotid extending to the basal arteries usually comes on in from three to eleven days after the ligature, and it may disappear slowly or lead to death in a few hours or eighteen days.

EYE-STRAIN AND EPILEPSY.

Dodd¹³ has studied the relation between errors of refraction and epilepsy in 100 epileptic patients. He found much less hypermetropia than in normal individuals, and much more astigmatism. In 100 epileptics there was 42 per cent. of simple hypermetropia, and 42 per cent. of astigmatism; in 50 normal persons there was 70 per cent. of simple hypermetropia and 16 per cent. of astigmatism. Twenty-five patients did not need glasses; 75 were ordered to wear glasses, and of these 52 reported. Thirteen had no fits while wearing glasses, during a period of from four months

to a year; three remained *in statu quo*; and 36 improved while wearing glasses. Dodd claims that errors of refraction may excite epilepsy, and that in many cases the correction of such errors, combined with other treatment, will cure or relieve the epileptic condition. In some cases, where the error of refraction has been corrected the epilepsy will continue, generally in a modified form, in consequence of other irritation, even though the error of refraction may have been the exciting cause of the fits in the first instance.

Hern¹⁴ in five cases of epilepsy, by partial correction of the error of refraction succeeded in diminishing the number of attacks in two cases, and in checking them entirely in one, the attacks returning when the patient no longer wore glasses. Stephenson, in the discussion that followed, urged the necessity of distinguishing between epileptic and hysterical attacks. In the latter any new form of treatment will often act favorably for a time.

Martin,¹⁵ as the result of a series of observations, thinks that neither astigmatism nor hypermetropia can often be regarded as a cause of epilepsy, and that the correction of these conditions by proper glasses have no influence on the disease. Nevertheless he thinks that Stevens's observations indicate that epilepsy can in many cases be benefited by optical means, and that we should therefore in every case of epilepsy investigate the refraction.

[Dodd's statistics are apparently very encouraging, but we must remember that none of his cases were under observation for more than a year, and few of them more than a few months, and that most of them were given bromides; and also that many cases of epilepsy do very well for a short time under any change of treatment. Martin's conclusions from his own work seem far more in accordance with the best views upon epilepsy, than do the later conclusions which he is led to draw from Stevens's statistics. The influence of eye-strain in producing epilepsy seems to us extremely problematical.—REP.]

ANGIONEUROTIC AND HYSTERICAL EDEMA.

Higier¹⁶ discusses the acute circumscribed edema of the skin, first described by Quinke, which may accompany various neuroses, but which is more commonly an independent and obstinate affection. It may affect both the skin and the mucous membranes. Among the etiological factors are heredity, the neuropathic predisposition, local chilling of the skin, alcoholic excess, and physical and mental emotions. Vomiting, colic, hemorrhages from the mucosa, hemoglobinuria, and effusions into the joints are observed in the recurring forms. Rarely it has the character of an infectious disease. It lasts from a few hours to several days. It is probably of nervous origin, as is shown by the following facts: its preference for neuropathic individuals, the occasional direct inheritance, its onset after physical exhaustion or psychical trauma, the nervous symptoms which accompany it (paresthesia, neuralgia, colic), its occasional unilateral localization, and its improvement with the improvement in the nervous condition. Four cases were reported, three men and one woman. In one the edema was localized on the glabella and often came on after emotional disturbance; in another it affected the mucosa

¹² British Medical Journal, Sept. 30, 1893.

¹³ Journal de médecine de Bordeaux, No. 13, 1893.

¹⁴ Casopis českých lékařů, Nos. 4 to 6, 1894. Ref. in Revue Neurologique, No. 14, 1894.

¹⁵ Brain, Part Ixiv, 1893.

¹⁶ 66 Versammlung deutscher Naturforscher und Aerzte in Wien. Neurolog. Centralblatt, Oct. 15, 1894.

of the mouth and pharynx, and came on after taking even a very small dose of antipyrine. In three cases there was a neuropathic condition, but no heredity. In the fourth case the patient was perfectly sound, but he had obstinate constipation with increased intestinal putrefaction. In only one case was there no recurrence. One case had slight albuminuria during the attack, and the edematous spot was warmer and white or reddish. Fever was never observed. Unless there is a removable cause the prognosis is bad, one case having seventy attacks in a year. Treatment is often futile.

The chronic form of angioneurotic edema is seen almost without exception in hysteria, but it is quite rare. The four cases reported occurred in young women, and in two cases it was diagnosed as phlegmon, and once as osteomyelitis. No cause could be determined. It began with pain and paresis, and once with redness and local heat. The localization is unilateral, or in the region of the ankle, the forearm, or the hand and wrist. Its characteristic features are a hard swelling, elasticity, a pale color, and an increase of the edema in the morning, but these symptoms are not constant; in one case the edema at first was soft. Pallor is much less important. Sydenham speaks of a white hysterical edema, but in Higier's cases it would be proper to speak of it as red or variegated. The swelling is not always cold; the one case where the edema was reddish the temperature was increased. In only one case did the edema vary in intensity. When the cardinal symptoms are absent the diagnosis is difficult. One case seemed like an arthritis, and the diagnosis was established only by hypnosis and the occurrence of an hysterical attack. The swelling is often accompanied by local arthralgia, myalgia, paresis, cutaneous hyperesthesia or anesthesia, or vaso-motor and trophic disturbances. In two cases there was recurrence. The shortest duration was three months, the longest a year. In one case the edema recurred three times by auto-suggestion.

Reports of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

TWENTIETH ANNUAL MEETING, AT HOT SPRINGS, ARK., NOVEMBER 20-23, 1894.

(Concluded from No. 4, p. 89.)

THIRD DAY.—MORNING SESSION.

DR. FRANK P. NORBURY, Jacksonville, Ill., read a paper entitled

THE MENTAL SYMPTOMS OF CEREBRAL SYPHILIS: A CLINICAL STUDY.

He drew the following conclusions:

(1) Somnambulism and allied states; lapses of intelligent conceptions, with associated loss of memory, are mental symptoms of cerebral syphilis.

(2) Sudden somnolence, with ocular spasm or paralysis, points to syphilis; when preceded by headache and monoplegia, it is almost pathognomic. Headache, quasi-periodical, as defined by Gray, with marked insomnia, suddenly ceasing and followed by psychical disturbance, is due to syphilis.

(3) Melancholia or mania, when following periodi-

cal headaches, insomnia, or somnolence, is to be classified thus:

(a) With ocular spasm or other form of monoplegia or heterogeneous paralysis, it is due to syphilis. (b) Pseudo-paranoia. By this he means that cases presenting all the symptoms of paranoia, systematized delusions depending on hallucinations of sight, hearing, taste or smell, with slight impairment of general mental functions, are due to syphilis; as we know that syphilis causes isolated local losses of power, and it is noteworthy when the special senses are involved that mental derangement usually results. (c) Pseudo-paresis, characterized by fibrillary tremor of tongue, indistinct speech (partial or complete aphasia), uncertain and trembling gait, with delusions of grandeur, and occasional outbursts of maniacal excitement, pupillary involvement, all characteristic symptoms of paresis, but which yield readily to antisyphilitic treatment, may be said to be due to syphilis.

(4) Class four have had epileptiform and apoplectic attacks. We find cases in which treatment was undertaken too late. The symptoms are those of terminal dementia, only occurring in patients of previously sound mental condition and with no special hereditary history.

DR. CHAS. B. PARKER, of Cleveland, O., contributed a paper on

THE SURGICAL TREATMENT OF INJURIES OF THE HEAD,

in which he presented the following conclusions:

(1) In any case of doubt as to the character of a head injury, explore by incision, if necessary.

(2) In the case of wounds, especially the smaller and punctured, enlarge them for exploration and cleansing.

(3) In all cases of fracture, depressed or fissured, operate, elevating the depression and exploring the fissure for a depression of the inner table, which so often occurs.

(4) Leave the principal fragments of bone after elevation, if surgically clean, even if entirely detached from the dura mater and pericranium, thus averting cerebral hernia, vertigo and other cerebral disturbances.

(5) All these operative measures should be conducted under the most rigid aseptic and antiseptic measures.

DR. B. MERRILL RICKETTS, of Cincinnati, read a paper on

(A) CASTRATION FOR HYPERTROPHIED PROSTATE; (B) REMOVAL OF HEAD OF FEMUR FOR DISLOCATION INTO LESSER SCIATIC NOTCH; (C) TREPHINING FOR PRESSURE AS A RESULT OF FLUID IN ACUTE CEREBRAL MENINGITIS.

In a case of castration for hypertrophied prostate, the author said he was inclined at first to make a suprapubic operation, possibly combining the suprapubic and perineal. After thoroughly considering the matter and explaining to the patient the probable results of the various operations, he decided to remove the testicles. After having the patient under observation for ten days, he proceeded to operate, removing the testicles. The arteries were twisted, the wound closed, and integument coapted with a continuous silk-worm-gut suture. The patient rallied well from the chloroform, and suffered no inconvenience or pain

thereafter. The wound was examined on the fourth day, and primary union was found to have taken place. The patient left Dr. Ricketts's private hospital at the end of the sixth day. On the second day after the operation the patient told him that he could urinate with greater ease, and that the pain was slight; that he could sleep four hours at a time during the night, whereas formerly he had been getting up once every hour. This condition continued to improve during the patient's stay in the doctor's hospital.

TUMOR ALBUS OF THE KNEE-JOINT.

This paper was read by DR. WILLIAM E. WIRT, of Cleveland, O. The object of the paper was to present a summary of the points to be observed in the treatment of tumor albus of the knee-joint, and to call attention to the fact that most excellent results are obtained by the use of conservative measures. The author classified the treatment under the two headings of constitutional and local measures, and the local under the subdivisions of conservative and operative treatment.

DR. A. H. MEISENBACH, of St. Louis, read a paper on

RESECTION OF THE KNEE FOR SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

The case was of two years' standing in a patient thirteen years of age. The author said separation of the epiphysis is a condition that may occur either on account of trauma or disease. There seems to be a difference of opinion among writers as to the frequency of its occurrence, especially as the result of trauma. As the result of disease of the bones (osteomyelitis), it is considered a not infrequent accident. Traumatic separation of the lower end of the femur occurs in about from one-fifth to one-third of all the reported cases, and in the majority of instances previous to the sixteenth year, seldom later. The forces that are necessary to produce this separation are various. Thus, during childbirth traction may produce it. Volkmann states that he has produced it when the hip is diseased, when making rotation in seeking for crepitation, or extension in the application of plaster-of-Paris dressings. Other forces are indirect external violence, usually of a twisting character, or lateral or at right angles to the axis of the limb. The readiness with which the dislocation of the separated diaphysis into the popliteal space occurs can be explained (1) on account of the anatomical structure of the surrounding parts; (2) the force and position of the patient, the popliteal space being in the direction of least resistance, while on the anterior aspect we have the quadriceps tendon, the patella, and the ligamentum patellæ. The occurrence of pathological separation of the epiphyses is regarded by the latest writers on surgical pathology and diseases of the bones as a not infrequent accident in diseases of the bones and joints. It is noted in osteomyelitis of the long bones.

THIRD DAY.—AFTERNOON SESSION.

TREATMENT OF TRAUMATIC CATARACT, ATTENDED WITH RAPID SWELLING OF THE LENS,

by JAMES M. BALL, of St. Louis, Mo.

For years the subject of traumatic cataract has been a *bête noir*. Cases of lenticular opacity caused by a foreign body which remains within the eye, are always extremely dangerous, owing to the introduction of

pathogenic germs on the one hand, and the danger to the sympathetic ganglia on the other. Such cases must always remain the opprobrium of ophthalmology. There are many cases, however, of traumatic cataract attended by rapid increase of intraocular tension, with the production of iritis or irido-cyclitis, and ultimate excavation of the optic-nerve head in which the foreign body either lodges in the lens or is withdrawn at the time of the accident.

The proposition the author desired to advance was this: In cases of traumatic cataract with rapid increase of intraocular tension, an operation should be performed, and that operation should be not linear extraction, but an extraction made with the Graefe knife, and with the incision located in the corneo-scleral junction. The knife should cut from one-third to two-fifths of the corneal circumference, according to the extent to which the softening process in the lens has advanced. If glaucomatous symptoms supervene with softening of only a small part of the lens, the corneal incision should be large. If the softening involves the whole of the lens, the incision should be of less extent. The extent of the incision in the cornea, as far as healing is concerned, is of little importance provided we make an aseptic operation. The chief merit of the operation lies in the avoidance of the valve which is produced by the linear methods. In other words, the author's method permits of free evacuation of all the lenticular substance with the least amount of traumatism. An iridectomy is not made. All *débris* is removed at once. This cannot be accomplished by the linear method. The author then reported two very instructive and interesting cases.

DR. J. H. KELLOGG, of Battle Creek, Mich., demonstrated by diagrams and illustrations the deformities of American women resulting from neglect of physical exercise and the conventional mode of dress.

DR. LEWIS C. CLINE, of Indianapolis, Ind., read a paper entitled

SOME OBSERVATIONS ON SORE THROAT DUE TO CONCRETIONS IN THE TONSILS.

Cases of recurring tonsillitis or sore throat often develop without any apparent cause, but are doubtless due to chronic inflammation of the follicles, altered and retained secretions. Follicular concretions predispose to attacks of quinsy, and in the author's judgment are the cause of the majority of these cases, and they can be permanently cured by carefully hunting out and destroying all the crypts and pockets in which these bodies are formed. The writer reported several interesting cases which emphasized the point that he wished to make, namely, that perverted secretion of the follicles of the tonsils from catarrhal inflammation resulting in cheesy concretions, which remain as a smouldering fire ready to be fanned into a flame by the least exposure, is the cause of more sore throats and quinsy in adults than any or all other causes combined.

FOURTH DAY.—MORNING SESSION.

DR. ROBERT C. HEFLEBOWER, of Cincinnati, read a paper on

THE REMOVAL OF THE AUDITORY OSSICLES FOR THE RELIEF OF CHRONIC DEAFNESS AND OTHER ABNORMAL CONDITIONS.

After a thorough and exhaustive review of the history of operations to relieve chronic deafness from the earliest date to the present time, the author passed to

the indications for the operation. He believes that it is indicated in deafness caused by chronic catarrhal processes, as well as headache, vertigo, tinnitus, etc., accompanying this condition, adhesions and chronic suppuration from the middle ear, especially when the ossicles are necrotic. In seven cases reported, where the operation was made to relieve either deafness or tinnitus, or both, there were good results.

In closing, the writer would draw the following conclusions from his experience with this class of ear cases:

(1) No bad results attend the excision of the malleus and the incus; but removal of the stapes is not without the most serious danger, both to life and hearing.

(2) That the removal of the malleus and incus alone is far preferable to the removal of the stapes.

(3) The operation is of extreme service in chronic suppuration in suitable cases, frequently avoiding mastoid and other serious disturbances of an equally serious nature.

(4) It should be performed in cases where there is a high perforation, or where the membrana flaccida is perforated and where the ossicles are necrotic.

(5) Tinnitus, headaches of ear origin and vertigo are relieved.

(6) In suitable cases it is invaluable for relieving deafness, whether from chronic suppuration or from chronic catarrh and sclerosis.

THE NEATEST CIRCUMCISION.

DR. BRANSFORD LEWIS, of St. Louis, detailed a new and convenient method for doing this operation, which he practises.

DR. H. C. DALTON, of St. Louis, contributed a paper on

STAB WOUNDS OF THE PERICARDIUM; RESECTION OF RIB AND SUTURE OF PERICARDIUM; RECOVERY.

DR. G. FRANK LYDSTON, of Chicago, contributed a paper entitled

REMARKS ON THE RELATION OF RESIDUAL URINE TO VESICAL IRRITATION, ESPECIALLY IN PROSTATICS.

The writer said it is generally accepted that most of the symptomatic disturbances incidental to certain chronic bladder diseases, especially in cases of prostatic enlargement, are dependent upon the accumulation of residual urine. He has long been impressed with the idea that residual urine *per se* is not as important a factor in genito-urinary irritation as is ordinarily believed. He is satisfied that in a large proportion of adult males there is always a greater or less residuum of urine remaining in the bladder after micturition. If prostatic enlargement or other obstruction attacking the mouth of the bladder develop, we have the typical accumulation of residual urine characteristic of such cases. It will then be seen that there may be at varying periods of life extreme differences in the degree of accumulation of residual urine. The author believes that the residual urine is simply an incident upon which, if taken alone, the symptoms of vesical irritation in no wise depend. Ideally perfect drainage of the *bas fond* can only be accomplished by thorough drainage from above the tube through the trigone and out of the rectum. There were certain objections to this method which the author said it was necessary to

dilate upon. He simply stated as his opinion that only by some such procedure can the *bas fond* be thoroughly drained.

DR. HANAU W. LOEB, of St. Louis, reported a case of

DOUBLE NASAL ATRESIA DUE TO SMALL-POX.

He spoke of the present failures in the treatment of webbed fingers and conditions due to the deposit of scar tissue. We realize quite readily the frequent futility of the treatment for the permanent relief of cicatricial contractions and adhesions resulting from syphilitic lesions of the pharynx, palate and larynx; so that while no great skill was claimed in the management of the case reported in the paper, yet the patient's condition after a year and one-half of observation merited attention.

LAPAROTOMY FOR PELVIC DISEASES NO LONGER A NECESSITY

by DR. R. STANSBURY SUTTON, of Pittsburgh.

The assertion found in the text of this paper was founded upon the following argument: (1) We have a substitute for laparotomy in total extirpation of the uterus and appendages by the vagina, either with or without morcellement. (2) The operation has already proven to be effectual and successful by Péan, Segond, Jacobs, and others in Europe, and Henrotin, Engelmann, Sutton, Edebohls, and others in the United States. (3) Total extirpation of the uterus and appendages per vaginam gives a lower mortality than does laparotomy for the removal of the appendages alone. Morcellement of small fibroid tumors gives a lower mortality than laparotomy for the removal of similar tumors. (4) These operations by the vagina shorten the convalescence of patients, who are out of bed on the seventh day. (5) In all cases of gonorrheal, tubercular, or other infectious type of endometritis with chronic salpingitis and chronic ovaritis, a cure is not effected save by total extirpation of the uterus and appendages. The vaginal route is the best. (6) In all cases of fibroid tumors of the uterus, not reaching above or quite to the umbilicus, when the uterus must be sacrificed, total extirpation of the organ, tumor and appendages by morcellement can be best effected per vaginam. (7) Small cysts of the ovary or broad ligament, or solid tumors of the ovary can be reached and by morcellement and puncture be removed through the vault of the vagina, leaving the uterus and opposite ovary and tube intact. (8) In all cases of pyosalpinx or of multiple pus centres with coexisting solidification of the pelvic roof, total extirpation by morcellement per vaginam is the only feasible operation, and it cures the patient. (9) Total extirpation per vaginam is followed by a cure in the greatest majority of cases as compared with laparotomy. (10) The following sequelæ after laparotomy do not occur after total extirpation per vaginam: Cancer of the uterus, adenoma of the uterus, tuberculous of the uterus, gonorrheal infection, hemorrhages of the uterus, filthy catarrhal discharges from the uterus, ventral hernia, fecal and other fistulas, the mark of a wound on the abdomen. The nerve storms subsequent to total extirpation are not as great as after laparotomy. The patient is restored to perfect health; this is not the case in more than fifty per cent. of laparotomies for pelvic diseases. (11) The bacteriology of infectious disease demands removal of the

uterus with the appendages. (12) Total extirpation per vaginam is in strict conformity to anatomical relation. (13) The physiological results following total extirpation are free from jarrings, and the patient is functionally a smoothly running mechanism. (14) Laparotomy for these diseases is followed by all manner of physiological disturbances which affect the vascular, muscular, nervous and digestive systems. (15) In the face of this argument, laparotomy for pelvic disease is no longer a necessity, but in the author's opinion should be abandoned excepting in very rare instances indeed.

DR. HENRY O. MARCY, of Boston, read an essay on

MODERN SURGICAL TECHNIQUE.

This paper first emphasizes the importance of a most careful bacteriological training on the part of him who would become proficient in surgical practice. In the preparation of the operating-room, Dr. Marcy points out the ease and safety with which an ordinary living-room, by preference the kitchen, is made comparatively sterile, when from necessity the surgeon is called upon to act promptly and suddenly. In abdominal wounds, where irrigation is not advised, he substitutes for it a slowly flowing stream of oxygen gas from a compressed cylinder. This sterile gas is heavier than atmospheric air which it displaces, and as a consequence renders the wound less likely to infections from the products of respiration and atmospheric contamination. Dr. Marcy reiterates his well-known views upon the value of tendon sutures, buried in all aseptic wounds for the approximation and reinforcement of the structures, emphasizing the importance of abandoning the drainage-tube in all aseptic wounds and hermetically sealing the same with iodoform collodion. Aseptic wounds made in aseptic structures, aseptically closed and sealed, are always followed by primary union.

The Committee appointed to consider the

RECOMMENDATIONS CONTAINED IN THE PRESIDENT'S ANNUAL ADDRESS

submitted the following report:

(1) While this Association is loyal to the last degree in its affiliations and associations with the members of the regular profession, it still believes that it is not derogatory for a scientific physician to hold a patent on a mechanical or surgical device that proves of benefit to suffering mankind. It sees no reason why the genius and talent of an inventive physician should not be protected by law as well as that of any other man.

(6) This Association unites in urging upon the Congress of the United States the propriety of appropriating sufficient funds for the proper maintenance and support of a medical school at Washington, whose purpose shall be the instruction and training of physicians entering the army in regard to requirements of the practice of medicine and surgery in the military service of the United States.

(7) This Association believes that in the proper education of physicians by adequate preliminary training, and a college curriculum of four years and a final examination for license by the State, lies a true solution of many, if not all, the much controverted questions of ethics; and that at the present day a further agitation of these questions by debate on the floor of societies

met together for scientific advancement is unwise and injudicious.

The report was signed by the Chairman, Dr. William Warren Potter, and by Drs. I. N. Love, T. H. Stucky, A. S. Garnett and Chas. B. Parker.

The Committee on Nominations made the following report: President, Dr. W. N. Wishard, of Indianapolis; First Vice-President, Dr. Thomas E. Holland, of Hot Springs; Second Vice-President, Dr. Chas. B. Parker, of Cleveland; Secretary, Dr. Frederick C. Woodburn, of Indianapolis; Treasurer, Dr. Harold N. Moyer, of Chicago.

Judicial Council — Drs. W. F. Barclay, of Pittsburgh, and A. H. Meisenbach, of St. Louis.

The next meeting will be held in Detroit, in September, 1895. Chairman of Committee of Arrangements, Dr. H. O. Walker, of Detroit.

Recent Literature.

Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie, l'idiotie et l'hydrocéphalie. Compte rendu du service des enfants idiots, épileptiques et arriérés de Bicêtre pendant l'année 1893. Par BOURNEVILLE, médecin de Bicêtre, avec la collaboration de MM. BONCOURT, CORNET, LELOIR, JULES NOIR et P. SOLLIER. Vol. XIV. Avec 89 figures dans le texte, et une planche. 8vo, pp. lxiii, 372. Paris: aux bureaux du *Progrès Médical*. 1894.

The annual volumes of reports from the department for idiotic, epileptic, and backward children at Bicêtre, edited by Bourneville, always contain much of interest and value, but the present volume is more important than most of its predecessors. The first part contains the usual tables, reports on a new building for the Fondation Vallée to contain a hundred beds, and notes as to therapeutic and educational measures employed. In Bicêtre and the Fondation there are over six hundred children. The second part contains clinical studies of some of the more unusual cases, with reports of autopsies, and three elaborate papers by Bourneville, Cornet, and Noir. The first paper is devoted to a study of the surgical treatment of idiots as contrasted with the medico-pedagogical. After an analysis of eighty-two craniectomies reported by different writers, and of twenty-two autopsies of idiots at Bicêtre, Bourneville shows conclusively that craniectomy does not rest upon any substantial basis. The premature synostosis of the cranial sutures, upon which Lannelongue based his theory of the operation, does not exist, and there are deep and extensive changes in the brain not amenable to surgical treatment. The results of operation are slight, whereas medico-pedagogical treatment usually gives rise to considerable amelioration. Bourneville and Cornet report thirty cases of epilepsy treated with testicular juice; in eight cases the attacks were a trifle diminished; in twenty they grew worse; there was sometimes a slight increase in weight, but there was no improvement in the mental condition. The last article, by Bourneville and Noir is an elaborate study of chronic hydrocephalus, with many pictures of the brains and skulls of the cases reported. Here, again, surgical interference is deprecated, the best results being obtained by compression, revulsives, and educational methods.

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THE PATHOGENY OF DIABETES.

THE pathogeny of diabetes, long wrapped in complete obscurity, is being elucidated by the researches of many modern investigators. We have alluded in former numbers of the JOURNAL to the labors of Pavy, of Mehring and Minkowski, of Lépine and others; and to-day we call attention to the recent communications of Chauveau and Kauffmann.

In 1886 these authors published a memoir in which they showed by experiments on horses the relation of glucose production and glucose combustion to thermogenesis and muscle-work in the animal economy. They conclude as follows: "In the glands as in the muscles, the work of the organs increases the destruction of glucose proportionately to the heightened activity of the combustions of which they are the seat. Where there is but little functional activity, there is only slight augmentation of the sugar consumed. Where the work is considerable, the consumption of sugar is equally considerable."¹

In a subsequent paper read before the Academy (December 13, 1886), they point out the rôle of the liver in calorification and muscular work, and conclude that the glycogenic processes (especially glucose formation in the liver) are the more active the more any one or more of the organs and tissues are exercised, and *vice versa*. As long as the liver furnishes glucose to the blood in sufficient amount, the animal continues to produce the quantity of heat necessary for the work of the organs and the maintenance of the bodily temperature. Let the glycogenic function become retarded and glucose disappear from the blood in the vessels, then the organic combustions languish and death takes place by arrest of calorification. It is in animals subjected to inanition that this fact becomes most apparent at the time when the depleted and exhausted organism can no longer furnish to the liver the materials which enable it to perform its function of glucose-storer and distributor.

In a third communication to the Académie des Sciences, February 13, 1893, the same experimenters have given the results of a series of experiments on dogs rendered hyperglycemic by lesions of the central nervous system; then of another series of subjects rendered glycosuric by extirpation of the pancreas. In all these cases the comparative analyses of the arterial and venous blood showed that the latter is always more saccharine than the former, as it is in the normal state. In fact the proportion of glucose consumed in the capillaries during the hyperglycemic and during the normal state, as shown by their estimates, is about the same and seems to justify their conclusion "that the fundamental phenomenon of the consumption of glucose in the nutritive movements is not lessened when there is hyperglycemia, nor exalted when there is hypoglycemia."

In a fourth article published in the "Bulletins" of the Academy of Sciences, March, 1893, they sum up their conclusions concerning the relation of the pancreas to sugar formation in the liver:

- (1) The glycogenic function of the liver is under the control of a certain regulating mechanism.
- (2) The pancreas is an important part of this mechanism, as is indicated by the experimental diabetes of Minkowski and others.
- (3) The influence of the pancreas is not exerted directly on the liver, but through the medium of the nervous system.
- (4) The regulating centres are: (a) a check centre in the bulb; (b) an excitatory centre in the upper cord between the bulb and the origin of the fourth pair of cervical nerves. The nerves concerned are certain *rami communicantes* of the spinal nerves to the great sympathetic.

In brief (for we must pass over many ingenious and interesting considerations advanced to establish their positions), these writers believe that the pancreas secretes a product which diminishes glucose formation in the liver and increases glucose fixation. Their hypotheses differs somewhat from that of Lépine, who thinks that this product of the pancreas is a "glycolytic ferment" which destroys glycogen in the blood. These hypotheses may or may not be true, but the fact remains that destructive lesions of the pancreas are attended by a severe and permanent glycosuria. If now (as our authors believe, and as the French school of medicine generally teaches), every form of diabetes is due to a fault in the regulating mechanism of the liver whereby glucose formation is intensified above the needs of the economy, it is hard to escape the conclusion that the pancreas has an important part in this regulation, whether by a secretion stimulating glucose fixation or inhibiting glucose formation, or by some reflex nervous influence.

In a recent number of the *Semains Médicale*,² Kauffmann returns to the subject of the pathogeny of diabetes, affirming in opposition to the School of Bouchard, "that the facts compel us now to abandon entirely the theory according to which chronic diabetes is due to a diminution of the destruction of sugar in the economy." He believes that it has now been experimentally established "that diabetic hyperglycemia is always due to excess of glucose production and not

¹ Mémoires de l'Académie des Sciences, January, 1895.

² January 16, 1895.

to an arrest or retardation of carbohydrate-destruction in the capillaries of the tissues."

It will thus be seen that the French pathologists are insisting with renewed emphasis on the truth of Claude Bernard's fundamental tenet as to the glycogenic function of the liver and the hepatic origin of saccharine diabetes. It is the especial function of the liver to store up glucose under the form of glycogen, and to yield it up to the blood when needed, and it is by virtue of the regulating power which this organ possesses that in health the amount of glucose in the blood never exceeds one and a fraction per 1,000 parts. There is evidence that this storage power of the liver over glucose may be exceeded by excessive ingestion of carbohydrate, and the person may be temporarily diabetic. Or a more or less permanent condition of glycosuria may be brought about by nervous influences, poisons, etc., acting on the liver and increasing glucose production. "Diabetes," says Lecorché, "is a neurosis of the liver," and its causes may be central, peripheral, or reflex. The proximate pathological condition attending it is active hyperemia of the liver.³ He reports numerous cases; in all tumefaction of the liver was persistently noted. This view is also held by Klebs, and apparently endorsed by Senator.⁴ In passive congestion, however (as in chronic disease of the heart), the diabetes generally disappears. This is also the case with cirrhosis, cancerous, fatty, and other destructive diseases of the liver, at least when the lesions are far advanced; the diabetes no longer exists.

It might almost be a matter of wonder that these destructive diseases which abolish the glycogenic function of the liver should also cause cessation of the diabetes for they certainly destroy the power of the liver to fix glucose. At first sight this might be adduced as an argument against the hepatic origin of diabetes. But there can be little power in the organism to appropriate carbohydrate material when the liver is so profoundly altered. There is a general repugnance for sweets and starches, and appetite and digestion are at a low ebb. Perhaps also in these cases, there may be a compensatory action on the part of the intestinal villi, as Pavy intimates. He believes that no sugar is assimilated by the organism that is not first intimately blended with peptone and synthesized as proteid by the protoplasm of the villi of the intestines. What escapes the villi is stored away as glycogen by the liver. The protoplasm of the villi, as well as of the hepatic cells, must first be overcome before the person can become diabetic.⁵

THE SURGICAL TREATMENT OF GENERAL PERITONITIS.

In a paper read before the Philadelphia Academy of Surgery (October 1, 1894), Dr. Oscar H. Allis suggested a treatment for general peritonitis as striking as

it is original. He points out the necessity of obtaining permanent drainage — simple washing of the septic peritoneal cavity will, and usually does, prove inefficient. We have the problem of the removal of the pus, fibrin, and inflammatory products which in a general septic peritonitis will certainly continue to form after a single washing — a problem of the greatest difficulty — and one as yet unsolved. The best practical methods so far suggested are drainage of the bottom of the pelvis by tubes or gauze brought out through the lower end of a median incision. This method, however, though efficient in draining blood and serous effusion after laparotomy, does not afford permanent drainage in septic peritonitis, for adhesions soon form between coils of intestine, abdominal wall, etc., transforming the peritoneal cavity into a series of pus pockets, the adequate drainage of which requires that extensive adhesions be broken up, only to re-form again with rapidity. Whether continuous flushing with warm sterilized water through tubes carried to the most dependent parts of the abdomen will be efficient can only be learned by trial.

The method suggested by Dr. Allis, however, is far more radical. He proposes that a long, median incision be kept open by packing, that rubber dam covered with cerate be tucked in between the abdominal wall and the intestine to prevent adhesions, that the whole cavity as far as possible be lubricated, and that the patient be kept, except at the times of dressing, in the prone position. The doctor states that this method is pure theory; with this we would agree, and add that the theory was admixed with very little regard for mechanical, anatomical or physiological facts. In the first place it is necessary to remember that patients with general peritonitis are sick, and that the prone position is never taken by a sick patient, as it adds the weight of the vertebral column and viscera to the amount to be lifted by the muscles of respiration, at each expansion and contraction of the chest and diaphragm. It is a thoroughly uncomfortable position for a patient with severe abdominal disease, and one which would be sure to hasten a fatal termination. Our author suggests that a thin well-padded strip of wood about three feet long, strapped transversely to the pelvis, might serve to keep the patient in the prone position. The details of arranging the matter he does not go into. The wisdom of keeping a patient critically ill from lying in a comfortable position by strapping him to a stick of wood so that he cannot turn on his back, might, it would seem, admit of question.

Another objection of equal weight would seem to be the impossibility of preventing the intestines from prolapsing through this wound, and becoming spread out in an artistic tangle inside the dressing. Every surgeon knows by experience what care is required to prevent intestine, if not adherent to the edges, from prolapsing through a long, unsutured wound, even with the patient on the back, especially if there is a slight cough. Dr. Allis must be a skilful dresser, if

³ *Etudes Médicales*, p. 20.

⁴ *Ziemssen's Cyclopædia*, vol. xvi.

⁵ *Physiology of the Carbohydrates*, London; See also *Boston Medical and Surgical Journal*, August 23, 1894, p. 197.

he is able to keep intestines from slipping outside the abdominal wall against gravity as well as grease. It would, in our belief, be impossible to adjust so tight a binder as to prevent this untoward result.

Dependent drainage is undoubtedly what is wanted; but we should certainly confine our efforts to methods which would not be almost certain to kill the patient. Dependent drainage by incision in either flank, added to drainage of the pelvis, would according to our present knowledge be far preferable to Dr. Allis's theoretical method. If he ever puts his method in practice, we hope he will report his results.

CASTRATION FOR HYPERTROPHY OF THE PROSTATE.

RELIEF from the distressing symptoms caused by prostatic hypertrophy has long been a surgical desideratum. A very large proportion of men who attain to the age of fifty-five and over, instead of spending the last years of their life in active pursuits, or rest and recreation earned by a well-spent life, are rendered thoroughly miserable from the effects of enlargement of this gland, and compelled to give a large part of their time and attention to the care of their urinary apparatus. There have, heretofore, been for these unfortunates but two alternatives: one, the temporary relief afforded by catheterization, necessarily continued for the remainder of life, and almost always bringing sooner or later infection of the bladder, with all its attendant and sequent results, which finally, after a time of gradually increasing misery carry off the patient; the other, prostatectomy, either suprapubic or perineal, promising at the risk of a formidable and dangerous operation, relief which is perhaps only temporary. Often on account of the dread of the operation it has been put off till cystitis, pyelitis, etc., have almost worn out the patient, and gained so firm a hold that the operation is either fatal, or fails to give relief.

Of late years, the observation that animals — dogs, sheep, calves, etc. — castrated when young have no prostates or only rudimentary ones, has led to experiments on animals, performed in this country by White, of Philadelphia, which have shown that castration causes atrophy of the prostate. If this operation could be applied to man, so as to diminish the size of an hypertrophied prostate, it was recognized that it would have obvious advantages over the old operation of prostatectomy. With modern aseptic methods the operation is almost devoid of danger. It is very easy and simple of performance. The only disadvantage attached to it is a sentimental one, which it would seem ought to have little weight in comparison with the severity and danger of the symptoms it is designed to relieve.

The first surgeon to perform the operation was Ramm, of Christiania, who in 1893 did two castrations for hypertrophy of the prostate. Since then it has been performed by Mausell-Moulin, in England, White, Ricketts, and others in this country; in all,

thirteen cases have been reported. Other operations have been performed, but not yet published. In the reported cases the results have been almost uniformly favorable. Some men, previously obliged to lead a "catheter life," have been enabled by the operation to dispense with catheterization, others have been obliged to resort to the catheter much less frequently, and have not had to get up at night. An actual diminution in the size of the prostate has been noted.

A striking point about these cases is the short interval after the operation at which improvement begins. Greater ease of urination has been noted as early as the second day.

In view of the inherent objections of patients to castration, the operation of the division of the vas deferens has been suggested and tried, but we are informed with less satisfactory results.

As stated above, the suffering from the results of enlarged prostate is so severe, that sufferers might easily consent to lose testicles, or almost any other organ of their body, if relief were promised without serious danger. It is probable, in view of what has been already done, that cases will continue to be reported in the near future. The results will be awaited with interest.

MEDICAL NOTES.

THE GERMAN CONGRESS OF INTERNAL MEDICINE will be held this year at Munich from the 2d to the 5th day of April. Professor von Ziemssen will preside.

A STATE EXAMINATION IN GEORGIA.—The new law providing for a State board of medical examiners (really, three boards — regular, homeopathic, and eclectic), went into effect on January 1st.

A PUGILIST IN A NEW RÔLE.—"The Medical Department of Vanderbilt University recently distinguished itself by inviting pugilist James Corbett to lecture to its students on physical culture. Even astonished comment pales before the shameful fact."—*Medical Record*.

JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.—No. 1, Volume 1, of this journal, published quarterly, has appeared. It is a handsome and well-printed periodical. The papers in this issue comprise the larger proportion of those read at the Montreal meeting.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.—At the annual meeting of the Harvard Medical Society held January 26th, at Harvard House, the following officers were elected for 1895: President, Dillou Brown, M.D.; Vice-President, Charles L. Gibson, M.D.; Secretary, Theodore Dunham, M.D.; Treasurer, George E. Brewer, M.D.

THE DIAGNOSIS OF DIPHTHERIA IN PHILADELPHIA.—The Laboratory of Bacteriology of the Philadelphia Polyclinic is ready to undertake this examination and to report to physicians the bacteriologic

diagnosis of suspected cases, thus offering to perform for Philadelphia the same office which the Bacteriological Laboratory of the Harvard Medical School does for Boston.

CIGARETTE ROLLER'S CRAMP.—According to the *Medical Press*, "cigarette roller's cramp" must now be added to the list of acquired professional paralyses. Both in Spain and France it is said to be very prevalent. Intense pain in the joints of the hands and fingers of the workers, who are girls, supervene, and there is often inability for some time to approximate the thumb and index finger.

THE ANTITOXIN TREATMENT IN FRANCE.—The sum voted by the French Legislature for the carrying out of the antitoxin treatment was 100,000 francs. It is intended to make a grant in aid of the antitoxin treatment a permanent item in the French budget. In the estimates for 1895 appears a subvention of 80,000 francs to the Pasteur Institute for the preparation of antitoxin, together with one of 20,000 francs for the general purposes of the inoculation service.

COLOR BLINDNESS AMONG ASIATICS.—Among the publications of the German Asiatic Society of Tokyo, Japan, for 1894, is a paper by Dr. F. B. Stephenson, U. S. N., under the title of "Color Blindness in Asiatics," giving the result of observations among the natives of Hawaii, Unalaska (Aleutian Islands), Japan, China, Annam, Siam, including the mixed nationalities from Borneo and India, which inhabit Singapore and other parts of the peninsula of Malacca. It appears that none of these races are free from defective color sense.

A CASE OF LONGEVITY.—According to the *Lyon Médicale* there has just died at Saratov, Russia, at the age of 125½ years, a veteran of the campaigns of Napoleon I. This remarkable personage, Lieutenant Nicolas Savin by name, was born in Paris in 1768, enlisted in a regiment of huzzars in 1798, and took part in the most important campaigns of the Consulate and the Empire. Having been taken prisoner by the Cossacks during the retreat from Beresina, Savin took up his residence, eighty-two years ago, at Saratov, where he was married, and lived during the last years with his eighty-two-year-old daughter. In 1887 the Czar Alexander III, made the old soldier a present of a thousand roubles.

DEATH FROM A GLOVE FIGHT.—A sparring accident is reported from London in which death followed an unusual chain of events. The victim of the accident was disabled in the second round of a glove contest by a blow on the jaw. At King's College Hospital he was found to have a fractured right jaw, for which he was treated. Seventeen days later, a second fracture was found at the angle of the left jaw, in connection with a foul abscess cavity. Deceased died of septic pneumonia. The gloves used in the fight were said to have weighed six and one quarter ounces. This appears to have been a contest for money with all the characteristics of a prize fight, save that light

gloves were used. From the medical evidence both fractures were caused by the same blow, and the undetected second one was rendered septic by contact with the fangs of a decayed tooth. The spleen contained an infarct about the size of a hen's egg, which was breaking into an abscess.

PROFESSOR WIDERHOFER ON THE ANTITOXIN TREATMENT.—In summing up his paper on serum therapeutics at the St. Ann's Hospital in Vienna, a brief *résumé* of which was given in the *JOURNAL* for January 17th, Professor Widerhofer makes the following statement: "To my mind there does not remain the slightest doubt that Behring's *Heilserum* influences certain classes of diphtheria cases, and not the mildest forms either, so favorably that Behring's serum therapy deserves the name of a specific remedy against diphtheria, with which no other so far discovered deserves comparison." A consideration of his cases also fully confirms the statement of Behring that, "when postponed till after the third or fourth day of the disease, the effect of the antitoxin will be doubtful." This statement, however, does not mean that it is not worth while to try the serum treatment in these cases. *Apròpos* of these statements and certain others which have been omitted from lack of space, the author says: "With regard to these points my mind is made up. What I have written I have seen, and what I have seen I believe. Therefore I fear no contradiction." The article, as a whole, is thorough, careful, and bears evidence of an honest and critical study of the facts. It will well repay perusal in the original.

BOSTON AND NEW ENGLAND.

THE PRODUCTION OF ANTITOXIN FOR BOSTON.—Five horses were inoculated with diphtheria toxin at Gallop's Island on January 25th, as a first step toward the production of antitoxin by the Boston Board of Health.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, January 30, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 69, scarlet fever 54, measles 58, typhoid fever 10.

BOSTON CITY HOSPITAL CLUB.—The annual dinner of the City Hospital Club will be held at Young's Hotel on the evening of Wednesday, February 6th, at 6 o'clock. The annual meeting, postponed from June last, will precede the dinner, and will be held in the reception rooms provided for the Club, at 5.30 o'clock.

THE DANGERS OF A LINEMAN'S EXISTENCE.—The spectacle of a man hanging apparently lifeless from the top of an electric-light pole on Cambridge Street, Boston, on November 26th, must have reminded those who saw it of the danger to life, which at present attends the business of a lineman for electric light and power companies, unless constant caution is exercised. It is only a short time since a man was burned to

death at the top of a pole on Congress Street, while another who went to his assistance received the shock of the current, fell, and fatally fractured his skull.

NEW YORK.

APPOINTMENTS TO CITY BOARD OF HEALTH.—At a meeting of the Board of Health held January 24th, the following appointments were made: Assistant chemist, James H. Miller; assistant bacteriologists, Drs. Alexander Lambert, C. B. Fitzpatrick, A. M. Williams, and John S. Billings; assistant pathologist, Dr. George P. Biggs. These appointments were made from over thirty applicants, who were required to pass a civil-service examination, and the field of duty of the new officials will be in the Board of Health's antitoxin laboratory. The salary of each is \$1,200 per annum.

MORTALITY.—During the week ending January 27th there were reported 933 deaths, of which 62 were attributed to influenza. In the week ending January 20th the number of deaths was 949, with 79 from influenza.

FIRE AT THE COLLEGE OF PHYSICIANS AND SURGEONS.—Fire was discovered on Sunday morning, January 27th, in the flooring between the second and third stories of the College of Physicians and Surgeons. The alarm was promptly given, the flooring was cut away, and the portion of the building in which the fire occurred was deluged with water. A number of pathological specimens in the museum were damaged, and the total loss from fire and water is estimated at \$10,000. The cause of the fire is unknown.

Miscellany.

RESOLUTIONS ON THE DEATH OF DR. A. L. LOOMIS.

UNIVERSITY OF THE CITY OF NEW YORK.
January 25, 1895.

At a meeting of the faculty held this day the following preamble and resolutions were adopted:

Whereas, In the wisdom of Almighty God it has been decreed to remove from among us our esteemed and honored associate, Dr. Alfred L. Loomis, who has been for thirty-three years identified with the progress and development of the Medical Department of the University of the City of New York, and to whose untiring energy and zeal that institution largely owes its present high position, we, the members of its faculty, hereby

Resolve, That in the death of Dr. Loomis we have met with an irreparable loss, in one whom we have ever valued as a friend, respected for his judgment and wise counsel, and admired for his strength and firmness of character, for his professional skill, his scientific learning and his literary attainments; that, while overcome with a sense of personal bereavement, we are not unmindful that the medical profession throughout the country has lost its foremost leader and the public a distinguished citizen.

And be it further

Resolved, That this resolution be spread upon the minutes of this meeting, and that a copy be suitably engrossed and sent to the family of Dr. Loomis in token of our profound sympathy and sorrow. CHAS. INSLEE PARDEE, *Dean*.

OBITUARY.—A. L. LOOMIS, M.D., LL.D.

Dr. A. L. LOOMIS died in New York of pneumonia, Wednesday, January 23d, after a very short illness. He was ill less than four days.

Dr. Loomis was born in Bennington, Vt., in 1831. He was graduated at Union College in 1851. Soon after graduating he went to New York and studied medicine under Dr. Willard Parker. In 1853 he took his medical degree at the College of Physicians and Surgeons. He served as an interne for two years at the charity hospitals on Ward's and Blackwell's Islands. He then began general practice in New York.

He was appointed visiting physician to Bellevue Hospital in 1859, and retained that position until his death. He was visiting physician to the Charity Hospital on Blackwell's Island from 1860 to 1875 and to Mount Sinai Hospital from 1870 to 1880.

He was lecturer on physical diagnosis in the College of Physicians and Surgeons from 1862 to 1865, and was then made adjunct professor of the theory and practice of medicine in the University of the City of New York. He was appointed professor of pathology and practice of medicine in the same institution in 1867, and held that chair until his death. The degree of LL.D. was given him by this University.

A friend of the University gave \$100,000 to the medical department through Dr. Loomis in 1886 for the purpose of building and equipping the laboratory known as the Loomis Laboratory in East Twenty-sixth Street.

Dr. Loomis was a member of the principal local and national medical societies. He had been President of the Medical Society of the State of New York, of the New York Pathological Society, the New York Academy of Medicine, the New York County Medical Society, the American Climatological Society, the Association of American Physicians.

He was at the time of his death consulting physician to the Charity Hospital, Mount Sinai Hospital, the Hospital for the Ruptured and Crippled, the New York City Asylum for the Insane, and the Northern, Northwestern, and De Milt Dispensaries, and the Out-door Poor Department of Bellevue Hospital.

He wrote a number of books on medical subjects well-known and much used as text-books, among the principal of which were: "Lessons in Physical Diagnosis," ten editions between 1872-1893; "Diseases of the Respiratory Organs, Heart and Kidneys," 1875; "A Text-Book of Practical Medicine," 1884.

It is as a practitioner rather than as a writer or scientific student that his reputation will stand. He thoroughly understood the practice of medicine, and inspired much confidence in patients. He was greatly in demand as a consultant, and his income from his practice is said to have been very large. He was an excellent man of affairs, and this gift enabled him to be of much service as its President to the New York Academy of Medicine.

His place in the profession will not be easily filled.

Correspondence.

ETHICS OF THE METROPOLITAN SURGEON AND THE METROPOLITAN HOSPITAL.

HAVERHILL, MASS., January 23, 1895.

MR. EDITOR:—Have you room in your valuable journal for the following wail? And can you, out of the richness of your experience, suggest anything to help us?

It appears that the Massachusetts General Hospital, and, to a less extent, the other hospitals of Boston, are being conducted in a manner prejudicial to the interests of many members of the medical profession in this State.

We have, for instance, a patient who needs and desires a certain operation. Having "taken lessons" from the

distinguished surgeons of Boston, New York, Philadelphia; some of us also from the distinguished authorities in foreign lands; having had years of practice and a considerable record of cases operated upon with about the usual percentage of success which our teachers have had, we have no hesitancy in assuring our patient of our willingness to undertake the surgical care of his case. Now comes the question of fee. We offer our services for somewhat less than the metropolitan surgeon's charge, always with the mental protest that we really ought to have as much when we render the same service and are as successful. What then often happens? Our patient finds in some way that he or she can go to the Massachusetts General Hospital and get the treatment absolutely free, so far as the surgeon's fee is concerned. This fee we cannot compete with and we respectfully submit that we are grievously injured thereby.

This is bad enough; but, Mr. Editor, I was lately shown a letter received by a patient of this kind from one of the surgeons to the Massachusetts General Hospital wherein he confides to the patient, *my* patient, that in his opinion there is no medical man in my town sufficiently competent to treat her case surgically, and advising her to come to him. This is worse.

Will you kindly put yourself in my place for a moment, or will the surgeon referred to put himself in my place, and see if there is not just cause for complaint?

A fellow-practitioner, a fellow-member of the State Society, feels so desirous of securing my business that he is impelled to cast reflections upon my professional attainments in order to obtain it. I would like just here to say that this gentleman is not acquainted with me, or he would know better than to subscribe his name to such a statement, and that he appears to want a case much more than the honorable gentlemen of our noble profession should. This is our wail, Mr. Editor. Is there any help for us?

Is it necessary that the Massachusetts General Hospital should treat cases for nothing, when they are able to pay us a fair fee?

Must we continue to subsist upon the exquisite enjoyment of the fame which our metropolitan brothers get from patients who would give us some money and some reputation? And is it true charity, is it broadly ethical to pauperize these people and lower the standard of the medical profession outside of the city of Boston? S.

[Plain justice demands the publication of our correspondent's cry for light and help in a perplexity and distress which has troubled others besides himself. He asks questions which he has a right to ask, if asked, as his are, in a straight and manly fashion. They are, however, easier asked than answered. The golden rule is a simple, good and safe rule for all, whether of the profession or not. As to the line at which gratuitous hospital relief should be drawn, it is neither easy to fix it theoretically nor to enforce it practically. That many and grave abuses exist at present cannot be denied: abuses which work an injury to the public, and a wrong to many of the profession—to those holding hospital appointments as well as to those who do not. Some change will follow the increase of local hospitals; the right to charge fees at the metropolitan hospitals is a problem which has received much attention from trustees and from medical staffs, and much has been adduced both for and against the granting of such a right. Perhaps there are those who have information and opinions which would give some satisfaction to our correspondent in his perplexity. It is not an unknown thing that a practitioner in a small town or in the country should arrange with a *metropolitan* surgeon to take *all* his surgery—that which pays and that which does not. Is this ethical? There are other questions which might be asked; but we have already confessed it is easier to ask than to answer. —ED.]

"FOR THIS RELIEF MUCH THANKS."

AVON RANCH, WYOMING, Jan. 2, 1895.

MR. EDITOR: Did Edward Courtenay, Earl of Devonshire, ever have his seminal vesicles stripped by a *medico*? Is his epitaph to be interpreted as an argument *pro* or *con* the practice?

"What we gave, we have,
What we spent, we had;
What we left, we lost."

Dr. Fuller Seed (an enthusiastic student and ardent admirer of Shakespeare), whom I met at round-up last week, quoted to me a passage in which he claims that the immortal William refers (prophetically) to this burning topic:

"But man, proud man,
Drest in a little brief authority,
Most ignorant of what he's most assured,
His glassy essence—like an angry ape,
Plays such fantastic tricks, etc."

Yours in perplexity, MAVERICK.

1 Geneological History of the family of Courtenay, p. 142.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 19, 1895

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.	
New York . .	1,956,000	949	308	9.90	24.97	.22	4.95	1.87	
Chicago . . .	1,600,000	—	—	—	—	—	—	—	
Philadelphia .	1,139,457	472	173	11.55	18.50	2.10	6.72	.42	
Brooklyn . .	1,043,000	508	142	10.80	25.40	.80	8.20	—	
St. Louis . .	540,800	—	—	—	—	—	—	—	
Boston . . .	501,107	191	64	9.36	22.88	—	5.72	2.60	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Washington .	285,000	110	31	4.55	7.28	.91	—	—	
Cincinnati .	325,000	125	28	9.60	12.80	5.60	1.60	—	
Cleveland . .	325,000	99	43	19.00	5.00	3.00	4.00	11.00	
Pittsburg . .	272,000	94	36	18.02	19.08	4.48	5.30	4.24	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,764	26	6	7.70	23.10	3.85	—	—	
Charleston . .	65,165	30	7	33.33	33.33	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	100,410	33	7	15.15	15.15	—	3.03	3.03	
Fall River . .	92,233	—	—	—	—	—	—	—	
Lowell . . .	90,613	29	9	13.80	13.80	—	3.45	3.45	
Cambridge . .	79,607	20	7	30.00	20.00	—	15.00	—	
Lynn	65,123	13	—	—	15.38	—	—	—	
Springfield .	50,284	18	8	16.66	22.22	—	11.11	—	
Lawrence . .	49,900	16	5	6.25	25.00	—	—	6.25	
New Bedford .	47,741	19	7	5.26	26.30	—	—	—	
Holyoke . . .	43,348	—	—	—	—	—	—	—	
Brookton . .	33,939	9	4	—	11.11	—	—	—	
Salem	33,155	11	—	9.09	18.18	9.09	—	—	
Haverhill . .	32,925	6	0	16.66	—	—	—	—	
Malden . . .	30,209	—	—	—	—	—	—	—	
Chelsea . . .	29,806	14	2	14.28	14.28	—	7.14	—	
Fitchburg . .	29,383	12	3	16.66	—	—	8.33	—	
Newton . . .	28,837	7	1	—	14.28	—	—	—	
Gloucester . .	27,293	—	—	—	—	—	—	—	
Taunton . . .	26,964	7	4	42.84	—	—	42.84	—	
Waltham . .	22,058	0	0	—	—	—	—	—	
Quincy . . .	19,642	—	—	—	—	—	—	—	
Pittsfield . .	18,802	4	0	—	—	—	—	—	
Everett . . .	16,586	4	2	25.00	25.00	—	25.00	—	
Northampton	16,331	3	2	—	—	—	—	—	
Newburyport .	14,073	4	2	25.00	25.00	—	—	—	
Amesbury . .	10,920	2	2	—	—	—	—	—	

Deaths reported 2,940: under five years of age 831; principal infectious diseases (scarlet fever, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 314, acute lung diseases 649, consumption 326, diphtheria and croup 156, scarlet fever 47, typhoid fever 38, diarrheal diseases 21, measles 16, cerebro-spinal meningitis and whooping-cough 13 each, erysipelas 7, malarial fever 2, small-pox 1.

From diarrheal diseases Philadelphia 7, New York 4, Brooklyn and Cincinnati 3 each, Cleveland, Charleston, Fitchburg and Newburyport 1 each. From measles New York 9, Philadelphia 3, Brooklyn 2, Washington and Cambridge 1 each. From cerebro-spinal meningitis Worcester 3, New York, Lowell and Somerville 2 each, Washington, Cambridge, New Bedford and Chelsea 1 each. From whooping-cough New York 8, Philadelphia, Brooklyn, Boston and Cambridge 1 each. From erysipelas Brooklyn 3, New York 2, Boston and Haverhill 1 each. From malarial fever Washington 2. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 12th, the death-rate was 20.1. Deaths reported 4,091: acute diseases of the respiratory organs (London) 389, measles 109, whooping-cough 68, diphtheria 66, diarrhea 45, fever 39, scarlet fever 33, small-pox (Liverpool) 3.

The death-rates ranged from 14.6 in Derby to 28.9 in Liverpool; Birmingham 18.4, Bradford 16.8, Croydon 16.8, Hull 18.5, Leeds 22.3, Leicester 16.9, London 19.3, Manchester 23.9, Newcastle-on-Tyne 22.7, Nottingham 20.2, Plymouth 18.7, Portsmouth 21.5, Sheffield 18.6, Swansea 18.3, West Ham 20.3.

METEOROLOGICAL RECORD.

For the week ending January 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...13	29.63	43	52	34	100	86	93	N.E.	S.W.	21	19	O.	N.	.02
M...14	30.01	26	37	15	68	58	63	S.W.	S.W.	15	10	C.	O.	
T...15	30.13	28	35	20	70	56	63	W.	S.W.	9	9	O.	O.	
W...16	29.96	36	39	32	62	95	78	S.W.	N.	5	7	N.	N.	.49
T...17	29.98	29	36	22	84	65	73	W.	W.	14	11	C.	C.	
F...18	30.05	24	30	17	68	60	64	W.	W.	9	10	C.	O.	
S...19	30.01	22	27	16	88	57	72	W.	W.	11	9	C.	C.	.14

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threstning; N., snow. * Indicates trace of rainfall. ** Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 19, 1895, TO JANUARY 25, 1895.

Leave of absence for twenty-one days, to take effect upon being relieved from duty at Fort Warren, Massachusetts, is granted CAPTAIN EDWARD R. MORRIS, assistant surgeon.

FIRST-LIEUT. ASHTON B. HEYL, assistant surgeon, is relieved from duty at Columbus Barracks, Ohio, and ordered to Fort Thomas, Kentucky, for duty.

MAJOR JOHN V. LAUDERDALE, surgeon, will be relieved from duty in the Department of the East, to take effect upon the expiration of his present leave of absence and will then report for duty at Fort Omaha, Nebraska.

LIEUT.-COL. HENRY R. TILTON, deputy surgeon-general, is relieved from duty at Fort Omaha, Nebraska, and will report in person to the commanding general, Department of Dakota, for duty as medical director of that Department, relieving COLONEL CHARLES C. BYRNE, assistant surgeon-general.

COLONEL BYRNE, on being thus relieved, will report to the commanding general, Department of the East, for duty as medical director of that Department.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 26, 1895.

O. D. NORTON, passed assistant surgeon, ordered to Naval Laboratory and Department of Instruction, Brooklyn, N. Y.

T. A. BERRYHILL, passed assistant surgeon, detached from Naval Laboratory and Department of Instruction and ordered to the Naval Hospital, Brooklyn, N. Y.

J. S. HOPE, assistant surgeon, ordered to examination preliminary to promotion, March 4, 1895.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, February 7th, at 8 o'clock, by Dr. F. H. Davenport. Subject, "The Disorders of Menstruation." Physicians are cordially invited.

SPECIAL NOTICE.

Dr. Ernst having been unable to give his lecture on "Tuberculosis" last week, will give it on Thursday evening, March 21st, at the end of the already announced course of lectures.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 4th, at 8 o'clock.

Dr. F. M. Briggs will exhibit a new Self-Retaining Drainage Canula.

Dr. F. S. Watson will read on "Castration for Hypertrophied Prostate." Discussion opened by Dr. A. T. Cabot.

Dr. George H. Monks on "The Muscles of Expression." Discussion opened by Dr. Thomas Dwight.

JAMES G. MUMFORD, M.D., Secretary.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section of the Suffolk District Medical Society will hold its regular monthly meeting at 19 Boylston Place, on Wednesday evening, February 6, 1895, at 8 o'clock.

The subject of discussion will be "The Treatment of Trigeminal Neuralgia." Dr. Louis M. Tiffany, of Baltimore, Md., will open the discussion by a paper entitled "The Treatment of Trigeminal Neuralgia by Intracranial Neurectomy," followed by Dr. N. P. Dandridge, of Cincinnati, O., who will read a paper entitled "Rose's Operation for the Removal of the Gasserian Ganglion." C. L. SCUDDER, M.D., Secretary, 1 Marlboro Street.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—A stated meeting of the Society will be held on Wednesday, February 6, 1895, at 12.30 P. M., in the hall at 19 Boylston Place, Boston.

The following papers will be read: "A Case of Criminal Abortion Presenting Some Unusual Features," Dr. W. S. Birge, of Provincetown.

"The Post-Mortem Signs of Drowning," by Dr. G. DeN. Hough, of New Bedford.

"The Murder of James Farrer," by Dr. J. A. Mead, of Watertown.

F. W. DRAFER, M.D., Recording Secretary.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The annual meeting of the Society will be held at the City Hall, Albany, commencing at 9.15 A. M., February 5, 1895, and continuing in session until 1 P. M., February 7th.

The Committee on Credentials will be at the Kenmore Hotel, Monday evening, February 4th, and members and delegates, so far as possible, are requested to register there.

WENDELL C. PHILLIPS, Chairman Business Committee, 350 Madison Avenue, New York City.

NEW YORK STATE MEDICAL ASSOCIATION, FIFTH DISTRICT BRANCH.—The eleventh annual meeting will be held in Brooklyn on Tuesday, May 28, 1895. All Fellows desiring to read papers will please notify the Secretary.

AUSTIN FLINT, M.D., President.

E. H. SQUIBB, M.D., Secretary, P. O. box 760, Brooklyn, N. Y.

RECENT DEATH.

CYRUS MENTOR FISK, M.D., M.M.S.S., formerly of Lowell, Mass., died at Bradford, N. H., January 21, 1895.

BOOKS AND PAMPHLETS RECEIVED.

Mysophobia. By S. V. Clevenger, M.D. Reprint. 1894.

A Location Reaction Apparatus. By Prof. G. W. Fitz. Reprint. 1894.

An Undescribed Heart-Murmur. By J. N. Hall, M.D. Reprint. 1894.

On the Relation of Urea to Epilepsy. By J. Nelson Teeter, M.D. Reprint. 1895.

The Home Treatment of Hay Fever. By A. L. Hall, M.D., Fair Haven, N. Y. Reprint. 1895.

Defective Speech and Deafness. By Lillie Eginton Warren. New York: Edgar S. Werner. 1895.

Charity Organization and Medicine. By George M. Gould, M.D., of Philadelphia, Reprint. 1894.

The Nature and Treatment of Leprosy. By R. H. L. Bibb, M.D., Saltillo, Mexico. Reprint. 1894.

On the Relations of Some Occupations to Eyesight. By Simeon Snell, F.R.C.S., Ed. Reprint. 1894.

Operative Treatment of Myofibroma Uteri. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprint. 1894.

Intestinal Anastomosis, with the Report of a Case. By Frederick Holme Wiggin, M.D. Reprint. 1894.

Curies of the Spine followed by Compression of the Cord. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1894.

A Remarkable Case of Suppurative Otitis with Hemiplegia. By Arthur H. Coe, M.D., Spokane, Wash. Reprint. 1894.

Hypertrophy of the Pharyngeal or Luschka's Tonsil. By E. Fletcher Ingals, A.M., M.D., Chicago, Ill. Reprint. 1894.

Address.

ADDRESS AT DEDICATORY EXERCISES OF THE FREE HOSPITAL FOR WOMEN.

BOSTON, JANUARY 1, 1895.

BY W. H. BAKER, M.D.

It seems appropriate on this occasion, which marks an era in our hospital life, to review the work of the past nineteen years, with a view to establish in our minds what has been accomplished by our efforts, as well as to serve as a guide to direct us in the larger field of work upon which we have now entered. We began in the small house No. 16 East Springfield Street, with a capacity for the treatment of five patients. We were able within two years to increase the number of patients to fifteen, because the financial aid of our early friends supplied us with the necessary means.

But in 1877 we had outgrown these accommodations and moved to the larger house No. 60 East Springfield Street, where we very soon increased our number of resident patients to twenty. Two years later the Out-Patient Department was established, and we became again crowded for room, when the adjoining house was added to the hospital. The growth of the work during these years is well shown by the fact that during the first two or three of them, one surgeon was able to attend to all the active work of the hospital. Of late, fourteen surgeons and physicians have been in constant attendance throughout the hospital year.

The adaptation of the principles of asepsis to gynecological surgery wrought a great change in the work of our hospital. It became more essentially a surgical institution; and under the influence of this method of treatment, we find that the number of operations quadrupled. The safety in the performance of this work offered the patient a more speedy relief with less risk than by the older methods. This fact is conclusively shown, when we consider that our capacity of twenty beds has not changed in the past fifteen years, yet the number of patients admitted and treated during that time doubled, and this without the death-rate increasing. The whole number of patients treated in the wards of our institution since its organization has been 2,309, while in the out-patient department in fifteen years there has been 46,655.

Although these figures would seem to justly indicate a cause for encouragement in our work for the relief of suffering, yet it is really but a small part of the work accomplished. I refer to the extension of knowledge in the special class of disease treated which has resulted from it. Take, for instance, the young men who have served us in the capacity of house-surgeons. Of these, two are acknowledged leaders in the department of diseases of women in New York City, having services in the Woman's Hospital, the Cancer Hospital and the Maternity Hospital. One is at the head of a hospital for women in Denver, Colo. One organized and presides over the department of gynecology in the hospital at Grand Rapids, Mich. Another established and is doing an excellent work in a hospital for women in Detroit, Mich. Still another has lately started a hospital for the treatment of women in Providence, and is attached to the staff of the Rhode Island Hospital. Three others have services in the department

for women in general hospitals in this city. Thus, when we think of the hundreds of women who are being relieved at their hands and add to these the thousands that are relieved by the great number of physicians who have been instructed in this department in this institution, we can begin to realize the amount of good accomplished by the hospital as an educational organization.

The hospital, born in 1875, has already passed through the trying ordeal of youthful existence, and will obtain its majority this coming year. May we not expect that in the next decade the full strength of its manhood will be established, and the success which has crowned our labors in the past not only be continued but increased in a manifold degree? We cannot, however, imagine our work ever passing into a worthless dotage, for the ever-present call to relieve poor suffering women is constantly before us. Our best and most zealous effort will ever be demanded to meet this necessity.

As we look about us to-day and see the faces of those who have grown familiar in the unity of our work, we miss from our number some that we had hoped would be with us on this occasion. We mourn the wise counsel of Dr. Storer and the skilled touch of Dr. Strong in the active work of the hospital. But even this sorrow is turned to joy as we recall the good work for which they labored, for which we still labor, and for which others will continue to labor who succeed us. For we are united with them in carrying on this great work of relieving the suffering of the sick, of extending hope and courage to the poor, and giving of our abundance to the needy, and so fulfilling this great and noble purpose of life.

Original Articles.

ON SOME OF THE CLINICAL FEATURES OF PRIMARY TUBERCULOSIS OF THE GENITO-URINARY ORGANS.¹

BY FRANCIS S. WATSON, M.D., BOSTON.

THIS communication does not aim at treating the subject at all completely, but is intended merely to call attention to some of the more suggestive symptoms of this disease as it occurs in the urinary organs, and especially as it affects the bladder and kidneys, and is prompted by the belief that the disease is frequently overlooked. I have recently asked six or eight general practitioners of fifteen or twenty years' standing, with opportunities for wide observation, how often they had seen cases of primary tuberculosis of the urinary organs. The answers varied from "four or five times," to "practically never." In some cases I have been asked to see, in consultation, patients with "obstinate cystitis," which have proved to be examples of tuberculosis, generally renal, which had not been suspected.

Since reporting a case of tuberculosis of the kidneys and bladder, and showing the specimens obtained at the autopsy, at a meeting of this Society six years ago, I have had twenty others, in which the nature of the disease was demonstrated by autopsies, or by the discovery during life of the characteristic bacilli, and four or five more which although such proof was

¹ Read before the Suffolk District Medical Society, April 28, 1894.

lacking, I am convinced were also examples of tuberculosis. In all but two of these cases the disease, so far as could be determined, originated in some part of the genito-urinary tract, as follows: in seven cases the disease originated in the epididymis; in four in the prostate or seminal vesicles; in three in the kidney; in the remainder the origin was undetermined. In two cases the autopsies showed apparently that the disease was confined to the genito-urinary tract. In two it was doubtful whether the disease had not originated in other organs, with this exception the evidence was wholly in favor of its being primary in the genito-urinary organs. One case of tuberculous epididymitis, and one of prostatitis started in gonorrheal inflammation.

Fifteen of the cases were males; six were females. The oldest patient was a man fifty years of age at the time of his death, in whom symptoms referable to the prostate and bladder, were first noticed two years' before. The youngest patient was a girl six years of age, in whom the disease was primary in the kidney, probably the first symptoms (irritable bladder and pyuria) being noted two years ago; this patient has been subjected to a right-sided nephrotomy, and is still alive.

The average duration of life after the appearance of the first symptoms which indicated that the kidneys or bladder were involved, was a little more than three years. There are two patients, one a man and one a woman, in whom the disease seems to have been arrested, one having been almost free from symptoms for two years, and the other for nearly four years. The urine of both, however, still contains a few blood-globules and from time to time a small quantity of pus. Tubercle bacilli were found in the urine of both patients; no examinations have been made for them recently. Both patients appear to be in excellent health, and are free from all subjective symptoms.

It is not probable that this series of cases represents more than a small proportion of those occurring in this neighborhood.

Perhaps the reason, that more than any other leads genito-urinary tuberculosis to be overlooked, is the readiness to rest content with a diagnosis of "idiopathic cystitis" in cases in which pyuria and irritable bladder are the conspicuous symptoms, and in which a few microscopic examinations of the urinary sediment fail to show casts, renal epithelium, or crystals, the latter fact being often assumed, under these circumstances, to free the kidneys from suspicion of being involved. "Idiopathic cystitis" in the sense of a spontaneously occurring inflammation of the mucous membrane of the bladder—an inflammation without a well-defined cause, that is to say—I do not believe exists. If inquiry is pushed far enough, some conditions of which such as the following are the most familiar examples, will be found to have originated the trouble: gonorrhea; stone; lithiasis; stricture; prostatic hypertrophy, and its consequences; the use of instruments; acute overdistention of the bladder, such as occurs sometimes in childbirth, or by voluntary effort, as with the insane; profound narcosis from opium or alcohol; the injection of certain irritating drugs, for example, cantharides; in connection with certain diseases of the spinal cord, etc.

If, in the absence of these or other well-defined causes, a patient has symptoms of cystitis, it is strongly suggestive of tuberculous disease in the genito-urinary

tract, probably located in the kidneys, the prostate, the seminal vesicles, or possibly in the bladder itself; but this is thought to be rarely the starting-point of the disease.

It should be borne in mind that bladder irritability is sometimes the most conspicuous sign of certain conditions in the kidney, the bladder itself being at the time free from disease. This is notably true of calculous pyelitis, of malignant and of tuberculous disease of the kidney. It is also seen in connection with simple, and more markedly with tuberculous, inflammation of the seminal vesicles and the prostate.

With regard to the method of entrance of tubercle bacilli and their lodgement in the genito-urinary tract, I will not speak, but merely note that the disease may take any of its organs as a starting-point, and that in the majority of cases in the male it begins in the epididymis, testis or prostate, and ascends more or less rapidly to the other organs. It rarely begins in the bladder; more frequently than in the latter in the kidneys, and descends.

The disease may remain localized in the epididymis or testis for a long time (several years), but it is more usual for the extension to take place more rapidly; and in some cases its progress is very rapid.

To return to symptoms. The presence of a hard lump in one epididymis, especially if the patient has never had gonorrhea or received an injury, is suggestive of its being of tuberculous nature,² this suspicion is heightened if the urinary sediment contains, pretty constantly, blood-globules, and is further increased if there is irritability of the bladder.

An outline of the following case will serve as an example. Four years ago a young man consulted me for a slightly increased frequency of urination and a "teasing" desire to urinate often. This had begun two months before, and had very gradually increased. The physical examination showed nothing except a hard lump in the right epididymis—this the patient had never noticed. The urine contained a very faint trace of albumin constantly, and there were always a few blood-globules in the sediment. I think the patient's statement that he had never had any venereal disease or received any injury to the parts, was true. He subsequently developed tuberculosis of the prostate, bladder and kidneys, and died.

Bryson has called attention to the existence of small, shot-like bodies to be felt in the hilus of the testis as the first evidence of tuberculous deposit in these organs. They pass unnoticed by the patient, and often by the physician.

Induration of the seminal vesicles and an uneven, furrowed prostate, or small areas of softening and indistinct fluctuation in the prostate, can often be felt by rectal examination when the disease occupies these organs. Cabot calls attention to the presence of hard, pea-like bodies to be felt in the prostate by rectal examination, in some cases as being suggestive of tuberculosis in that organ.

These features are dwelt on in order to emphasize the importance of systematic examination of the epididymes, testes, seminal vesicles and prostate in every case.

Blood in the urine is often the first sign of the disease. It is generally seen in the form of small

² As has been noted by Guyon and others, tuberculous disease seems not infrequently to grow out of an attack of gonorrhea. An induration in the epididymis is, however, less significant after a clap, than where there has been none.

clots. It is most noticeable in the early stages of the disease, as a rule. It is rarely profuse, as it generally is with tumors of the bladder and in some cases of malignant disease of the kidney. It is not increased by exercise, as it is apt to be in cases of stone, nor by instrumental examination of the bladder, as it often is in cases of bladder tumors. I have never seen blood-globules absent from the urine on microscopic examination at any time. In one of my cases blood never appeared except microscopically. Exceptionally there are profuse hemorrhages; this I saw in one case. Tuffier has reported a case in which there were attacks closely resembling paroxysmal hemoglobinuria.

Pus in the urine is more rarely the first symptom, but it is often coincident with blood when the latter is first noticed. When it arises from the bladder, it is continuously present; when from the kidney, it is often variable in quantity; and if only one kidney be involved and its ureter becomes plugged, pus may disappear for a time, the freeing of the ureter being followed by its reappearance in the urine in large quantity. Occasionally small masses of caseous matter are seen in the urine; and it is to the lodgement of these or of a blood-clot in the ureter that its temporary plugging is due. As a rule, these plugs are dissolved or pressed onward into the bladder too soon to allow of the formation of a very marked pyonephrosis, but sometimes they are too large and firm to be so readily pushed down, and an extensive pyonephrosis is produced, advancing sometimes to the point of threatening rupture of the pelvis of the kidney. Such a threatening occurred in one of my cases on three separate occasions, producing the following phenomena: the sudden disappearance of pus from the urine, a diminution in the quantity of urine, pain in the left side, the appearance of a large tumor in the left loin, extending forward to the abdomen, and evidently connected with the kidney, and a marked rise of temperature. Twenty-four hours later there was a sudden reappearance of pus in great quantity in the urine, a disappearance of the tumor and of the pain in the side, and a dropping of the temperature. In the first flow of urine, following the reappearance of pus, there were numerous cheesy masses, of various shapes and sizes, one or two being quite large enough to have blocked the ureter. Occasionally such stoppage of the ureters will produce attacks of renal colic simulating those produced by renal calculus.

There are two points in connection with the pyuria of renal and bladder tuberculosis that I do not remember to have seen noted by writers on the subject, which I have observed in several of my cases, namely, that the pus has a peculiar dirty-gray color, and that these tuberculous urines even when loaded with pus, do not, in many cases, have the exceedingly foul smell that is often noticed in the urines of some cases of chronic cystitis in connection with prostatic hypertrophy, and more especially of malignant disease of the kidney and bladder.

Unlike blood the pus generally increases in quantity as the disease progresses, although in some instances it undergoes marked temporary diminution.

Painful and frequent urination are also early symptoms. Very often the first thing that attracts the patient's notice is a slight increase in frequency of, and a teasing desire for, urination; this may precede the appearance of pus or blood in the urine by several weeks or months, and be the only symptom. There is nothing

especially characteristic with regard to the pain in the earlier stages; later, however, the occurrence of very marked remissions, when they take place, as they do in some cases without any apparent cause, is a very suggestive feature. These remissions of pain are usually associated with a diminution of pus in the urine. Unlike the pain in cases of stone, that of tuberculosis, when the bladder is involved, is worst when the bladder is full; and it is not so markedly increased by exercise as it is in stone.

Bladder irritability is often very marked when the disease is still confined to the kidney; and it is this, as I have said, which sometimes causes the mistakes in diagnosis, through considering the trouble to be an ordinary cystitis.

Before leaving the symptom of pain, let me say that as the disease advances it becomes almost intolerable; it is worse than that of stone because almost incessant. I think I have never seen greater suffering, except in cases of cancer of the bladder or prostate; and yet, even up to the last, there continue to be unexcepted periods of relief in some cases.

Two strikingly characteristic features of renal and bladder tuberculosis are (1) the extraordinary remissions in the severity of many or all the symptoms, and (2) the entire failure of the ordinary medicinal remedies to relieve the bladder symptoms, and the positive aggravation of the latter by local treatment, such as bladder washes, deep urethral injections, or the passage of instruments. The remissions are very deceptive, and often raise false hopes.

There is one other thing that I have observed in this series of cases, and that is, the comparatively rare occurrence of chills and profuse sweats that are so frequently seen in connection with cases of suppurative nephritis, of the so-called surgical kidney. In concluding these notes on some of the especially suggestive symptoms of this disease, let me repeat what I said at first, that the appearance in the manner described of bladder irritability, of blood in the urine, and of pus, is, in the absence of any of the special causes mentioned, particularly if occurring in a male under fifty years of age, highly suggestive of renal or bladder tuberculosis. To establish the diagnosis, there remain the discovery of the tubercle bacilli, and the cystoscopic examination of the bladder.

SURGICAL TREATMENT.

Of this I shall only give a very brief outline. The outlook is not hopeful for surgical interference, but it can often avert immediate danger, and relieve pain sometimes. If I should judge from my own experience, I should say that local treatment of the bladder when it is the seat of the tuberculous process is for the most part unavailing. I have had no success with applications to the bladder, and have tried thoroughly emulsions of iodoform, solutions of nitrate of silver, boracic acid, permanganate of potash, and so on through the whole list. Dilatation of the female urethra sometimes gives short periods of relief, but often fails to do so. Deep urethral injections are, so far as I have seen, injurious. Long-continued drainage of the bladder through the perineum has failed to relieve, in my hands. In two cases in which suprapubic cystotomy was done for the relief of most distressing vesical tenesmus, the operations were partially successful, especially when supplemented by applications. Iodoform applications after curetting

the ulcerated surfaces of the mucous membrane of the bladder, afforded very considerable relief in both cases. Guyon has reported two cases of what he considered to be primary tuberculosis of the bladder, which he treated by suprapubic cystotomy, and by burning the ulcerated surfaces with the actual cautery; one of these he reports as cured, the bacilli having disappeared from the urine, and the patient being freed from all symptoms one year later. The second patient did well, but the bacilli did not disappear.

With regard to the prospect of success attending operations on the kidney, the statistics published by Newman and others are of interest. Facklam³ reports as follows:

He collected 108 cases of tuberculosis of the kidney, in 20 of which nephrotomy and in the remainder nephrectomy was performed.

Two-thirds of the patients were women. The percentage of cases with reference to age is shown below:

1 to 10 years	7 per cent.
11 to 20 years	9.4 "
21 to 30 years	37.6 "
31 to 40 years	37.6 "
41 to 50 years	7 "
Over 50 years	1.2 "

In 38 cases out of 72 the diagnosis was correctly made before operation.

The following conclusions are drawn from a study of the operations and their results:

The mortality attending the operations in the 20 nephrotomies was about 60 per cent.

Of the eight patients who recovered, four only are claimed as cures; and of these but one resulted in a well established cure.

Of the patients who died within a short time after the operation, five had had the disease for several years previously; two of them developed acute miliary tuberculosis immediately after the operation; one died of uremia (the other kidney was seriously involved by the disease); one died of acute septicemia; and in the remainder the disease was far advanced, or had involved other organs beside the kidney.

From this evidence the author concludes: "Thus far the results of nephrotomies in cases of renal tuberculosis are not favorable."

In 16 additional cases in which nephrotomy had been performed without improving the patient's condition, nephrectomy was done—resulting, in 10 of them, in very marked improvement.

Nephrectomy was performed in 88 cases, with a mortality of 28 per cent. In 13, the operation was performed through an abdominal incision, with four deaths (about 30 per cent. mortality). In 75, the operation was extraperitoneal, 21 deaths resulting (or about 28 per cent. mortality); but of these latter 16 can be said not to have died as a direct result of the operation, whereas the four deaths resulting from the abdominal operation were all due to shock, and followed immediately upon the operation.

Of the cases which recovered from the operation 62, or 70 per cent., are reported as wholly cured or greatly relieved, but of these only 14 had been under observation for over one year after the operation. Of these 14 cases, five are entirely cured, so far as can be seen; the rest are not wholly free from evidences of the disease.

As Vigneron⁴ has pointed out, the success of nephrot-

omy in these cases depends on the thoroughness with which the pus cavities are opened into each other and cleansed, and freely drained. It should be remembered that hemorrhage is very profuse in resections or cutting of the kidney substance, but it is usually readily controlled by firm packing. A summary of the article of Vigneron above referred to, relative to these operations on the kidney in cases of tuberculosis is here submitted.

Dr. Vigneron points out that surgical interference in cases of renal tuberculosis dates back only twenty-five years, and that the subject has been exhaustively treated only since 1890. He refers to the articles of Tuffier, Facklam and Heydenreich as the most recent and important contributions to the subject; and he compares his own conclusions—arrived at independently—with those of the other surgeons just named, as follows:

NEPHROTOMY IN RENAL TUBERCULOSIS.

Facklam: 38 cases, general mortality 33.33%, operative mortality, 13.88%.
Vigneron: 54 cases, general mortality 38.18%, operative mortality, 12.72%.

Vigneron advises against early surgical interference in renal tuberculosis, following in this respect the teachings of Professor Guyon.

His conclusions in regard to nephrotomy are, that the operation affords relief in many cases, and that radical cure may follow its performance in some rare instances. In this connection, he cites the case of a child upon whom Guyon performed a nephrotomy six months before, and whose general and local conditions showed such remarkable improvement that a permanent cure is looked for.

He considers nephrotomy indicated when the patient is suffering, is losing ground, and when both kidneys are affected.

The success of the operation depends upon the manner of its performance. It is essential to open freely all pus cavities, and to remove, so far as possible, all cheesy masses; to drain freely; and to suture the edges of the renal wound to the lumbar incision, so as to allow the interior of the kidney to be easily cleansed and dressed. If these steps are not taken, the operation is useless.

The following figures are given in regard to nephrectomies:

(1) ABDOMINAL.

Tuffier	11 cases,	mortality, 26.2%
Facklam	13 "	" 30.0%
Vigneron	19 "	" 26.84%

(2) LUMBAR.

Tuffier	45 cases,	mortality, 28.2%
Facklam	75 "	" 28%
Vigneron (primary)	65 "	" 40%
Vigneron (secondary)	20 "	" 35%

Vigneron accounts for the higher rate of mortality in the series of cases which he has collected by the fact that it includes a larger number of cases operated on in the earlier days of nephrectomy, when the technique of the operation was less perfect.

The author urges secondary nephrectomy rather than primary, and considers that if it is so done the mortality is much less than with primary nephrectomy. The best time to choose is a few weeks after a nephrotomy, as soon as the general condition of the patient has improved.

Nephrectomy should be considered only in those cases in which the disease is unilateral. Vigneron considers that renal palpation and the endoscope will,

³ Arch. für klin. Chir., 1893, B. 45, H. iv.

⁴ Annales des Maladies des Organes Genito-Urinaires, September, 1894.

in most cases, make a decision in this respect perfectly possible.

Nephrectomy should not, of course, be undertaken unless there is satisfactory evidence that the other kidney is not involved, which is not always an easy matter to determine. It is impossible to lay down any general rule that shall be applicable to all cases, that is to say, it cannot be asserted that nephrectomy should always be done in preference to nephrotomy, or *vice versa*. The rational plan would seem to be to make an exploratory nephrotomy, and to act according to the conditions found; for example, if the disease should be confined to a well-defined area of the kidney, not too extensive, a resection of that portion of the organ may be the best thing to be done, as recommended and practised by Czerny, Kummel, Bryson, and others. The patient's strength and the usual considerations that govern the surgeon in deciding whether it is safe to proceed to a grave operation after an exploratory one, will determine his course. It is thought by many surgeons that it is much safer to do a secondary nephrectomy in all cases; and the records of that operation so performed seem to point to that conclusion.

THE HISTOGENESIS OF THE PLASMODIUM MALARIÆ.¹

BY F. A. ROGERS, M.D., CHATHAM, MASS.

THE only break in the chain of evidence which would establish beyond a doubt the fact that malaria is caused by a specific micro-organism is the one criterion that the parasite has not as yet been successfully cultivated upon artificial media. But the observations of many trustworthy investigators conclusively prove that such is the case, although we cannot as yet successfully watch the wonderful changes which occur in the plasmodium when in its natural element, the blood, in the test-tube.

The parasites belong to the sporozoa, and have the definite name of plasmodia malarie. They are always found in the blood of persons who are suffering from malaria and are not found in the blood in other conditions.

Malaria is perhaps the best example we have of a purely miasmatic affection, never appearing as an infectious disease, and cannot be communicated directly from one person to another except by inoculating a healthy individual with the blood of one sick with the disease. This fact, which has been successfully demonstrated by experimenters, proves that the infectious matter exists only in the blood.

The forms which have been discovered in this disease are peculiar to it alone, yet one point remains undecided, namely, whether there is only one kind of a micro-organism or whether several kinds give rise to the varying conditions known as tertian or quartan fever.

Laveran maintains that a single parasite causes malaria, and that the various forms met with have no connection with the various clinical phenomena found in this disease.

Golgi, on the other hand, is of the opinion that the diverse forms of malaria are caused by several different morphologically distinct species of plasmodium. He further maintains that upon the cycle of develop-

ment of each parasite the various clinical manifestations of malaria depend.

Meade Bolton, in a short article upon plasmodia malarie, has carefully compared the different views of these observers, and, according to him, Golgi regards the ameba or plasmodium of Marchiafava and Celli as the fundamental form of the organism. It is described as a more or less round mass of protoplasm, an irregularly formed structure, containing no pigment granules, and endowed with ameboid movement. He further maintains that the parasite occupies a position inside of the red blood-corpuscles, where it has been found by Councilman in sixteen cases, deriving its nutrition from the hemoglobin, and that it goes through many or all of its phases of development, even to reproduction, therein.

On the other hand, Laveran holds that the plasmodia are not found inside of the blood-corpuscles at all, that at most they are simply attached to them, whereas many forms are found floating around free in the blood plasma. He further maintains that the fully developed organism is represented by moving filaments which are developed within small cystic bodies; afterward becoming detached from these they move about freely in the blood.

To Laveran, in 1880, belongs the credit of first discovering the parasitic nature of malaria, but a different interpretation of the phenomena observed has given rise to the different views as outlined above.

The ease and certainty with which an examination can be made when one possesses a microscope is indeed novel. No elaborate apparatus or expense is entailed except a slip of glass, a thin cover-glass and a sterilized needle which complete the outfit. Different observers select different parts of the body from which to obtain a drop of blood for examination. Sometimes it may be the lobe of the ear, finger-tip, wrist, or even an organ like the spleen. With a view of obtaining blood as free from pain as possible I know of no method better than the following: after cleansing the left forefinger apply a handkerchief like a tourniquet tightly around the finger between the second and third joints, then directing the patient to strongly flex the finger it becomes so filled with blood that a very light prick with a sharp needle made at the junction of the palmar and dorsal surfaces of the finger will without pain give a plentiful supply of blood.

Two methods of procedure are now before us: the immediate, or examination of the fresh blood; and the mediate, or examination of a properly prepared, stained, and mounted cover-glass of blood. Both methods are very easily practised, and both should be tried in a given case. For the immediate examination, after wiping away the first drop of blood which appears, simply touch the centre of a clean cover-glass to the drop of blood and apply it to the glass slip, when it is ready for examination. If an appliance for warming the stage of the microscope be at hand the ameboid movements will be more apparent.

For the other method a different procedure, though one nearly as simple, is needed. It is necessary to have a thin, even layer of blood spread upon the cover-glass and properly fixed in this condition. Nothing in my hands has worked so well for a blood-spreader as a square cover-glass mounted in the handle. The split end of a match answers well for a handle. The free edge of this cover-glass is dipped in the blood and then drawn across the face of a clean cover-glass when,

¹ Read before the Barnstable District Medical Society, November 20, 1894.

if properly done, a thin, even layer of blood, scarcely more than the thickness of one corpuscle, will be left upon the cover-glass. This is now fixed by being placed in equal parts of absolute alcohol and sulphuric ether for twenty to thirty minutes, after which it is to be stained in an aqueous solution of methyl-blue or in Biondi's triple stain; then, after washing in water and drying, it is to be mounted in Canada balsam, when it is ready for observation. If no special or prolonged study of a case is needed, then the first method is to be commended, and especially if simply a diagnosis is all that is required. A satisfactory examination of the plasmodia can only be made by employing a high-power objective; a one-twelfth or one-fifteenth-inch objective will not be too ample to show the various forms well.

An excellent summary of the facts established in regard to the etiology of malaria is given by Marchiafava as follows:

(1) Malaria is a parasitic disease caused by a hematozoon belonging to the protozoa and not by a bacillus.

(2) The malarial hematozoa are amebæ which develop inside the red blood-corpuscles, changing the hemoglobin into melanin.

(3) The amebæ complete their cycle of life in the red blood-corpuscles. Beginning as unpigmented moving bodies they develop, becoming pigmented, and multiply by segmentation into spores which becoming amebæ enter again into the red blood-corpuscles, thus completing the cycle.

(4) This cycle corresponds to the periodicity of the attacks.

(5) During the course of their development a poison is produced which effects a change in the blood-corpuscles as well as the organs.

(6) Each type of fever has its own peculiar variety or species of amebæ — and these differences are apparent upon close observation.

Up to the present day these facts have become quite well established; yet, could we furnish a medium outside the body upon which the plasmodium would successfully grow and reproduce the cycles as observed in the body, and use the parasites for experiments of transmission, a clear insight into the pathology and epidemiology of malaria might be obtained.

On the protozoa theory intermittence is readily understood. The apyrexial period is equivalent to that of incubation; the onset of fever is the period of accumulation, while the subsidence of fever corresponds to the period of elimination of the poison. The amount of poison generated at one time is proportionate to the severity of the fever.

As all varieties of malarial disease may prevail at the same time and in the same place, as the sequelæ of all the manifestations are identical in character, and as likewise the acute manifestations of all varieties are amenable to the action of antiperiodic remedies, it might be inferred that there is but a single noxious germ which, under varying conditions, causes the various forms of malaria. Having demonstrated that the cause of malaria is a protozoon, the question naturally arises, whence its origin and how is it communicated to man. In the widest acceptance of its meaning malaria signifies bad air, or air which has been rendered so impure by noxious exhalations, or from any cause, as to produce injurious effects in the human system.

An analysis of the gaseous products of decaying vegetable matter reveals the fact that they consist chiefly of carbonic acid, carburetted, sulphuretted and

phosphoretted hydrogen and ammonia. Experiments with each and all of these gases fail to produce the effects ascribed to malaria. Thus far eluding all methods of investigation, there appears to remain in the exhalations from certain soils a subtile, poisonous agency which cannot be isolated and experimented with, but which is only found after it has entered the blood.

The agents necessary to produce these emanations are said to be heat, moisture and dead vegetation. Heat alone is not sufficient to induce malaria, as in some countries where the heat is extreme there is freedom from this disease. Neither is the sudden transition from heat to cold sufficient to cause it, as instanced in the sandy deserts where cold nights succeed hot days. Moisture alone or associated with certain temperatures, will not induce this malady, for we find in fogs occurring at sea a harmless condition. But dead vegetable matter, in connection with a certain degree of heat and that proportion of moisture favorable to the processes of decomposition, is regarded as essential to the evolution of this parasite. The presence of low grounds, marshes and swamps in temperate climates afford that conjunction of agents most favorable to the evolution of this poison.

This miasm is assumed to arise during the retrogression of organic matter to the inorganic state under the favorable conditions of heat and moisture. But there must be a certain relation of these factors, one to the other, as in case of excessive moisture when the ground is wholly covered with water there is no malaria; it is not during the period of the overflow, but during the subsequent period of drying up of the water, with the needful conditions added, that this disease prevails.

Again, it is not necessary for an inundation of a previously dry soil to produce this result, but the artificial draining of ponds or the accidental breaking of dams has been followed by an outbreak of this malady in their vicinity. The vicinity of a miasmatic marsh may not be an insalubrious locality for habitation, for where a steady wind prevails during the sickly season people living to the windward side may not be affected. The direction of the wind, especially if it be across a malarial area, may affect persons living in the adjacent upland country several miles distant. If one of the factors which cause malaria be removed, an improvement in the general condition ensues, as in drainage, which from remote ages has been regarded as the best method of improving malarial soil. In order that malaria should be generated, it is necessary to have a certain degree of humidity, a soil containing decaying organic matter, and a temperature of over 60° F.; yet when these conditions exist, malaria does not always abound. How then shall we account for the apparent exception to this rule? One other factor is supposed to wonderfully influence the evolution of this parasite, and that is the effect of growing vegetation. Dr. H. C. Wood, in his chapter on miasmata, mentions the fact that living vegetation destroys malaria during the process of its growth. When the proper relation exists between the miasm generated and the capability of the growing plants to dispose of it, no malaria prevails, although the factors necessary for its generation are in abundance. Either through the roots or leaves, or probably both, the whole or a greater part of the malaria generated may be assimilated, and thus there will be no evolution of the

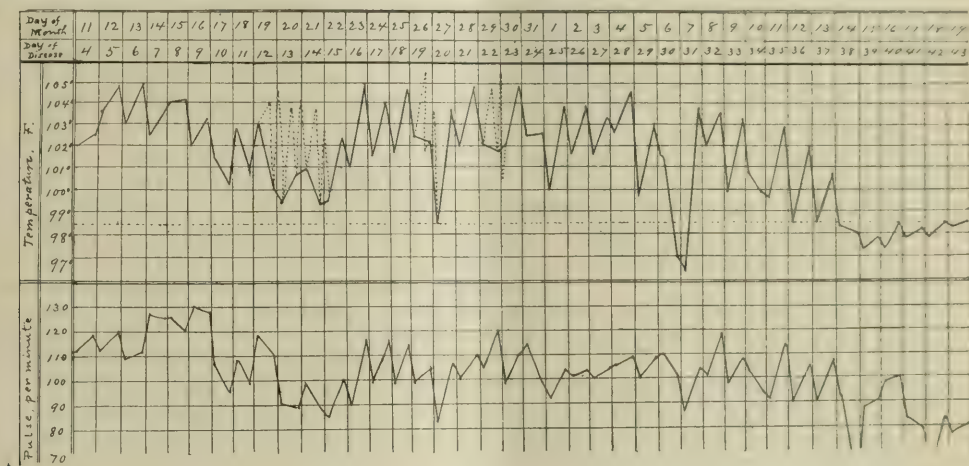
miasm. It is only when this relationship between the malaria on the one hand, and the assimilative power of the verdure on the other is disturbed that the malarial poison affects the human organism. Several observers have in times past announced the discovery of this protozoon outside the body, but in no instance could it be proven.

Malaria is frequently combined with another poison in the human economy. One frequent combination is with typhoid fever. It has been thought that these two diseases were antagonistic; but the truth seems to be that they may be and are often combined in the same individual at the same time. How then shall it be determined? Those who have had large experiences in typhoid fever are prepared for wide clinical variations, so that not alone upon the clinical manifestations can we rightly judge. No other way is left but a microscopical examination of the blood.

cording to the symptoms and clinical chart, the disease pursued a typical course for typhoid fever up to July 19, 1894, or the twelfth day of the disease, when the patient complained of "feeling cold" and of cold chills running down the back. At this time and subsequently there were marked fluctuations of the temperature during short intervals, followed by profuse sweating.

In the chart the continuous line marks the regular morning and evening temperature, and the broken or dotted line indicates the fluctuations observed between the regular times of taking the temperature. As will be observed, in many instances there were several degrees variation in a very few hours.

In the last week of typhoid fever we may expect marked variations of temperature, but occurring as it did in this case during the second week or median stage of the disease and without any clinical symptoms which would account for it, I was in doubt as to the cause



The term "typho-malarial" fever does not designate a new or distinct type of disease, but is a term which is conveniently applied to the combination of malaria and typhoid fever in the system at the same time. We should at least expect that there would be as large a mortality from the combination as from either alone; but such is stated not to be the case, for, according to a certain author, there were in a certain district forty deaths to every one hundred cases of typhoid fever alone, yet from the combination, typho-malarial fever, there was a mortality of only seven per cent. in the same locality. On the other hand, there can be no doubt but that numerous cases of so-called typho-malarial fever are simply mild cases of typhoid fever, so that considerable allowance must be made for the reports.

During the past season I have had quite an interesting case of the combination which we have just been discussing, and herewith present the clinical chart for inspection. It is not often that the physicians upon Cape Cod have the privilege of witnessing these cases, and this one did not originate there.

The patient, a boy of thirteen years, came from some part of Pennsylvania about one week before he was taken sick. Up to the day before I was called he had shown no unusual symptoms, in fact had been in bathing the second day previous. This case was fortunate in having a trained nurse, who carefully took the temperature and pulse at the prescribed time. Ac-

until I had made a microscopical examination of the blood. There were found plenty of the plasmodia malarie, which accounted for the symptoms and led to the employment of antiperiodic doses of quinine, which was followed by an amelioration of the symptoms. A chance was also given to study the effects of medicine upon the plasmodia. The spores, mature forms, and old cast-off shells, so to speak, of the blood cells, afforded interesting and profitable study for a long time. This, together with the fact that a positive diagnosis had been made, and also that the patient completely recovered after a trying and extended sickness, all produced in my mind a pleasant and valuable experience.

THE VALUE OF THE STOMACH-TUBE IN FEEDING AFTER INTUBATION, BASED UPON TWENTY-EIGHT CASES; ALSO ITS USE IN POST-DIPHTHERITIC PARALYSIS.¹

BY WILLIAM ALEXANDER MORRISON, M.D., EAST BOSTON.

ONE of the most serious difficulties met with by the physician who is called upon to treat the diseases affecting the throat is the inability of the patient to take a proper amount of nourishment. The cause of this is to be found partly in the mechanical obstruction produced by the swelling of the parts in certain diseases, or by paralysis of certain muscles in others,

¹ Read before the Suffolk District Medical Society, April 28, 1894.

and in part also by the fear of the pain or discomfort produced by the attempt to swallow.

This is especially true of cases after the operation of intubation of the larynx, where, owing to a mechanical interference with the act of swallowing, regurgitation of the food into the larynx may occur, causing a violent paroxysm of coughing. This is frequently quite sufficient to cause a child to absolutely refuse all forms of nourishment. As it is in diphtheria that we find these conditions present more than in any other disease, the importance of the subject becomes at once apparent.

We have in this disease an active and deadly infection which rapidly destroys the vitality of the patient, and a lack of nourishment at a critical time may baffle our attempts to aid the system to resist this poisoning, and may result in the gravest disaster.

Many attempts have been made to nourish patients under these circumstances. Rectal alimentation has proved useful in many cases, but has fallen short of the desired effect because of the inability of the bowel to retain or absorb the proper amount of nourishment. We are, therefore, forced to rely upon some method of feeding which will permit food to be carried into the stomach without the act of swallowing, and for this purpose the systematic use of the stomach-tube possesses advantages over any other method.

The first case in which I had the opportunity of using this mode of feeding occurred while I was house-officer at the Boston City Hospital, in the service of Dr. A. L. Mason.

The patient was four years old, and was suffering from diphtheria; large glandular abscesses formed and purulent otitis was present.

During the fourth week after recovering from diphtheria, post-diphtheritic paralysis developed, and the child could not swallow: The respiration was eight to the minute; the pupils were contracted; the face was pale; the condition torpid. Rectal enemata proving ineffectual, I resorted to the stomach-tube, at first using only a gag, and passing the tube through the mouth into the esophagus, but afterward found it more easily accomplished by lubricating the tube and passing it through the nose.

By this method I fed the child with the tube for four weeks, giving six ounces of cream, two ounces of brandy, three drops, three times a day, of tincture of *nux vomica*, and a digestive ferment. The patient was unable to cry aloud or speak during this time, but gradually made a complete recovery. Without this treatment, the child would undoubtedly have died.

The result in this case was so satisfactory and the method of application so relatively easy that I have continued this treatment for the past four years in my private practice. In cases of intubation it has proved especially satisfactory. During this time I have performed the operation twenty-eight times. Twelve children have recovered, or forty-three per cent. I have personally attended to every detail without the assistance of a trained nurse in any case.

To obtain satisfactory results, and to prevent undue exhaustion in the child, certain precautions must be observed. Two assistants are required. The child is rolled in a blanket with the hands by the sides. The first assistant sits in a chair near the bedside, and holds the child firmly in a reclining position upon his left knee. The second assistant holds the patient's head immovable. A soft-rubber catheter, to which a fun-

nel is attached, is lubricated and introduced into the nostril with the eyelet on the under side, as it offers less resistance in entering the naso-pharynx.

For nourishment, cream with about twenty per cent. of fat is used; and to aid digestion, Metcalf's liquor pancreaticus and Fairchild's essence of pepsin in equal parts are used, also brandy, tincture of *nux vomica*, and tincture of digitalis. Any preparation of iron or any other liquid medicine may be added according to circumstances.

If bichloride of mercury or calomel has been employed, it is omitted after intubation, owing to its tendency to irritate the stomach and intestines. On several occasions iron or digitalis has caused some nausea after being administered through the tube, but on omitting them, this symptom has disappeared.

The following case proved very interesting on account of the emaciated condition of the patient, a child of six years who had just recovered from whooping-cough. The pulse was very weak; the urine contained one-eighth per cent. of albumen. The hygienic surroundings were very poor, the patient sleeping on a lounge in the kitchen. In fact, the poor child was suffering from neglect as well as from abject poverty. A grayish-white membrane covered the tonsils and uvula; respiration was very rapid; and the patient was unable to speak above a whisper. One-sixtieth of a grain of bichloride of mercury was administered every three hours; the throat was swabbed with hydrogen peroxide. The child passed a very restless night, refusing nourishment. On the following day it was much cyanosed, and had almost ceased to breathe. Intubation was performed at once, giving immediate relief; and one hour after, I gave through the stomach-tube six ounces of cream, one ounce of brandy, essence of pepsin and liquor pancreaticus, each half an ounce, continuing this four times daily. On the fifth day the tube was removed, and the patient made a good recovery, although in this particular case, she was unable to speak aloud for six weeks.

Another illustrative case was as follows: A child six years old had been ill for forty-eight hours without medical attendance. I found her breathing badly, and it was very evident that mechanical interference was needed. Half an hour after, intubation was performed with instant relief.

Having ascertained that during the last twenty-four hours the patient had only taken one teaspoonful of brandy with water and four teaspoonfuls of milk, I introduced the stomach-tube and gave at each feeding eight ounces of cream, two ounces of brandy, liquor pancreaticus and essence of pepsin, each two drachms; the pulse being rapid, five drops of tincture of digitalis was given.

Eight hours after, in coughing, the child expelled the tube. The breathing then appeared natural for a time, but in about ten hours I found it necessary to intube again, replacing the expelled tube with a larger one.

On the following day the patient coughed up a large amount of mucus having a disagreeable odor, and soon after most of the cream that was taken in the previous feeding was vomited. At the next regular hour for feeding, only four ounces of cream was given and liquor pancreaticus and essence of pepsin, each one-half an ounce, which were retained. From that time the patient took the full amount of nourishment, and at the expiration of five days was perfectly well.

To show the advantages of the stomach-tube in cases where intubation is not performed, the following case is interesting: A child four and a half years old was taken ill May 17, 1891. The tonsils and uvula were covered with membrane, the former unusually swollen, and in a few days a fetid odor was discernable. Ten days after formation of membrane, post-diphtheritic paralysis ensued, and the patient could not swallow. The pulse was very weak, the child could not rest day or night, crying incessantly. The mother became discouraged and said, when I mentioned stomach-tube, that she did not wish to torture the child, as she considered it a hopeless case. After much persuasion I resorted to feeding with the tube, through which was given on an average daily thirty ounces of cream, six ounces of brandy, essence of pepsin and liquor pancreaticus, two ounces each, twenty drops of tincture of nux vomica, and twenty drops of tincture of digitalis. During the following week, the glands of the neck became very much swollen and discharged a great amount of pus; paralysis of hands and feet followed. Treatment with the tube continued for about ten

weeks, four times daily, when the patient was able to take some liquid food without regurgitation. At the expiration of four months, the child could walk quite well, but it was fully six months before he had entirely recovered. Now these few cases illustrate fairly well the results obtained in all cases that have come under my observation during the past four years. In all my cases of intubation, this method and no other has been used. No nourishment has been permitted by the mouth in any case. There has been no difficulty in most cases in the digestion of the amount of food given, and, after the first few times, the child has suffered little or no discomfort during the passage of the tube. In comparison with the ordinary method of feeding these cases, it possesses the advantage of permitting a definite amount of food to be given to the child at regular intervals, thus giving the stomach its natural periods of rest. It is quite true that the Casselberry postural method permits food to be swallowed fairly well, but the great difficulty lies in the impossibility of making the parents or nurses

No.	Date.	Age.	Causes of Death.	Tube Worn.	Termination.	Remarks.
1	November 16, 1889	4 years	Septicemia	48 hours	Fatal	
2	December 3, 1889	3 years	....	5 days	Recovery	
3	December 24, 1889	5 years	....	4 days	Recovery	
4	January 14, 1890	4½ years	Extension	12 hours	Fatal	Tracheotomy. Death in 20 hours.
5	February 27, 1890	2½ years	Extension	24 hours	Fatal	Refused tracheotomy.
6	March 6, 1890	3 years	....	5 days	Recovery	
7	April 18, 1890	14 months	Extension	16 hours	Fatal	Tracheotomy. Death in 6 hours.
8	May 2, 1890	6 years	....	5 days	Recovery	
9	September 5, 1890	6½ years	Extension	48 hours	Fatal	Refused tracheotomy.
10	November 20, 1890	4 years	Extension	16 hours	Fatal	Tracheotomy. Lived 10 hours.
11	January 30, 1891	5½ years	....	5 days	Recovery	
12	March 15, 1891	6 years	....	5 days	Recovery	Eight hours after intubation coughed out tube. Ten hours after introduced larger one, as dyspnea had returned.
13	May 10, 1891	6 years	....	5 days	Recovery	
14	October 12, 1891	2½ years	Septicemia	2 days	Fatal	
15	November 28, 1891	3½ years	....	3½ days	Recovery	Complained of constant pain while tube was in larynx.
16	February 29, 1892	2 years	Broncho-pneumonia	18 hours	Fatal	
17	April 13, 1892	4 years	Tube plugged	30 hours	Fatal	Tracheotomy. Death.
18	June 5, 1892	3 years	Pneumonia	3 days	Fatal	
19	September 11, 1892	20 months	Extension	36 hours	Fatal	Refused tracheotomy.
20	October 12, 1892	4 years	Extension	24 hours	Fatal	Tracheotomy. Lived 10 hours.
21	November 16, 1892	3 years	Exhaustion	3 days	Fatal	
22	November 27, 1892	1 year	Extension	24 hours	Fatal	Refused tracheotomy.
23	January 3, 1893	4 years	....	4 days	Recovery	
24	March 18, 1893	4 years	Heart failure	24 hours	Fatal	
25	October 15, 1893	4½ years	....	5 days	Recovery	
26	November 19, 1893	16 months	Heart failure	12 hours	Fatal	
27	January 23, 1894	5 years	....	5 days	Recovery	
28	February 25, 1894	5½ years	....	5 days	Recovery	

Between 1 and 2 years	4	Secondary tracheotomy performed in five cases; all died.
Between 2 and 3 years	6	Septicemia, two cases, both died.
Between 3 and 4 years	7	Extension of membrane, eight.
Between 4 and 5 years	4	Broncho-pneumonia, one. Pneumonia, one.
Between 5 and 6 years	6	Tube plugged, one; tracheotomy performed.
Between 6 and 7 years	1	Exhaustion, one.
		Heart failure, two.

realize the importance of this, and the child is permitted to take its food sitting up, with the result already stated. If a nourishment chart is accurately kept in these cases, the small amount actually taken is often appalling.

While this method of feeding is best carried out by the physician, it may, nevertheless, be taught to any intelligent nurse or parent.

In conclusion, we have, in feeding by the stomach-tube after intubation and in all other cases where there is interference with the act of deglutition, a method which is easy of application; which permits a definite amount of food to be placed in the stomach, thus fortifying the system against combined exhaustion and septic infection; which obviates both the discomfort and pain produced by the futile attempts to swallow; and which will also prevent the danger of deglutition, pneumonia or suffocation. Now, if extended experience shall show that it possesses these merits, it seems probable that we shall find an increase in the percentage of children saved from this most insidious and deadly disease, and much of the incessant care and trouble in their management prevented.

THE DANGERS IN REMOVING FOREIGN BODIES FROM THE CORNEA.¹

BY N. DARRELL HARVEY, M.D., PROVIDENCE, R. I.

THE subject of foreign bodies in the cornea is one which to most of us is so familiar and the treatment in the majority of instances so simple, that it may seem too insignificant a matter to bring to the attention of this Society this evening. But as there are not a few here who are called upon at times to treat this class of injuries, and as there are grave and serious dangers attending their removal in the ordinary way, a few words in that relation by me may not be out of place.

In a community like this, interested as it is in extensive manufacturing pursuits of various kinds, injuries to the eye from flying particles of metal and dust form a very large percentage of accidents; so much so is this the case, that in most of the large factories and mills, especially where the emery-wheel is used, some one man is to be found who from long experience has been looked upon by the other employes as possessing special skill in the removal of the foreign particles from the eye, no matter what their location. To such a man every injury of this kind is usually brought and an attempt at removal is made, which is often successful and leaves no permanent damage, especially if the particle be upon the lid or in the conjunctiva. But, as is more frequently the case, the foreign body is embedded in the cornea. This "skilled" mechanic, ignorant of the anatomical structure of the part and knowing still less of the first principles of cleanliness in such a case, to say nothing of antisepsis, with dirty hands, often pulls from his pocket his jack-knife (generally in use for cutting tobacco), and proceeds to attack the eye. Herein lies one of the most serious dangers to such a procedure. The foreign body itself is usually not aseptic, while the instrument which is often made to penetrate quite deeply into the corneal tissue reeks with filth. The dangers of suppurative infiltration of the cornea are

thus certainly very great, and many eyes are lost by such infection.

I have seen several cases treated in this way in which the entire cornea was the seat of a suppurative inflammation starting from a pin-point wound caused by the impaction of a small piece of steel and subsequent botching attempts at removal.

Another cause of permanent damage to the sight is the resulting scar which follows such a wound, no matter how small. For the destruction of every particle of corneal tissue there is a resulting formation of connective tissue which remains as an opacity and affects the vision according to the size and density as well as its proximity to the centre of the cornea. So that we see the greater the area of cornea which has been injured the more extensive the scar, and the deeper the penetration of any instrument, the greater the resulting density.

Now the plan usually followed in these factories where such accidents are frequent is to locate the foreign body, and then without the use of cocaine (although in some places I believe this is now used) to jab at the particle or what looks like it, the patient endeavoring often at the same time to close the eye and dodge the impact of the knife, so that the instrument often falls short of its aim, impinging on and wounding a more remote portion of the cornea and laying it open to a resultant scar. I have seen many corneae which have been the seat of several injuries of this nature so speckled with opacities from unsurgical procedures as to have the vision very markedly interfered with. I remember seeing a patient, who had gotten a small piece of steel in his eye and which had come out, with a hole in the cornea which almost involved its entire thickness. He had been operated upon by a fellow-workman, who had mistaken a pigment spot on the iris for a small foreign body in the cornea, and had punched away at the cornea until he had almost entered the anterior chamber. These are only a few of the many cases which all who have had to deal with such injuries see from time to time. Only a few days ago I saw the case of a man, an employé of one of the largest mills in this city, who had lost his left eye, and had gotten a piece of dirt into the right cornea directly over the pupil. A fellow-workman had worked at it, and scratched the cornea so that pain and inflammation arising, the man had become alarmed and been forced to seek medical advice.

I found the eye inflamed, and several scratches on the cornea near the site of the foreign body. A few drops of cocaine instilled into the eye soon relieved the sensibility, and a slight brush with a wisp of absorbent cotton immediately dislodged the foreign body. Had a camel's-hair brush or something of that sort been used in the first instance, it would have been enough to have removed the dirt and saved the patient the subsequent pain, to say nothing of the scars which will result from the needless knife scratchings of the cornea, and diminish the already poor vision in the only eye the patient had.

In view of the above dangers, I think the Society will agree that no cutting procedure, especially in unskilful hands, should be performed unless other means at removal have failed.

As quite a large proportion, if not a majority, of the foreign bodies in the cornea project beyond its surface and are not very firmly embedded, they can be easily brushed away. A very simple means which I have

¹ Read before the Providence Medical Association, December 3, 1894.

used for some years, and which I have no doubt many others have also made use of, is to take a wisp of sterilized absorbent cotton, and roll it on the end of a tooth-pick or cotton carrier, and simply wipe the cocaïnized cornea in the region of the injury. In a very large number of cases this simple means will dislodge the particle by its becoming caught in the loose fibres of cotton; and that is all, in a large number of such cases, that is necessary. The area around its point of impaction is not attacked, the least possible amount of injury has been done, and the resulting scar is reduced to the minimum. A plan used by Dr. Gould, of Philadelphia, and one which offers special antiseptic precautions is to dip the cotton in some antiseptic solution, as a solution of bichloride of mercury (1 to 5,000) or a solution of boracic acid (three per cent.) before applying it to the cornea, in this way also cleansing the wound caused by the foreign matters. This is all I claim that non-professional hands should attempt, for a large proportion of these injuries can be relieved in this way, and those cases in which further aid is needed, such as a cutting or a magnet operation, should be referred to a medical man who has the proper means and skill for such procedures.

Now, how shall we overcome this evil? As there are not a few members of this Society who have professional connections with many of the largest manufacturing establishments in this city, a great deal can be done by you gentlemen in pointing out to those in authority the dangers of using any instrument on the eye, and in suggesting the above much simpler and less dangerous method.

It would be a very easy matter for each establishment to provide itself with a bundle of tooth-picks, a small package of absorbent cotton and a little vial of a solution of bichloride of mercury (1 to 5,000). Then when an accident takes place, a perfectly safe attempt on the part of the employé can be made at removal; and in case of his failure to dislodge the offending particle, the patient can be sent to some skilled physician, and thus suffer as little permanent damage to his sight as is possible.

I trust I have been able to impress upon the Society the importance of avoiding these dangers in the treatment of this class of ocular injuries, and hope that others here to-night will express their experience and opinions, and add to the stress which I have endeavored to lay upon their proper treatment.

Clinical Department.

NOTES OF A CASE OF TUBERCULAR DISEASE OF THE KIDNEY.¹

BY GRACE WOLCOTT, M.D.

M. L., twenty-five years of age, was seen at my office January 31, 1893. The mother and father were healthy. One sister had died of phthisis, and two sisters had died in infancy from unknown causes.

The patient said she had suffered for five years with offensive urine, for which she had received medical treatment at different times.

Her general condition was good, and the heart and lungs were normal.

The urine at this time had a specific gravity of

1.010; was cloudy in appearance, which did not clear on boiling; acid in reaction; contained no albumin, but considerable pus, and had a very offensive odor. Microscopically it showed abundant crystals of calcium oxalate, innumerable pus cells, a few vaginal epithelial cells, with fatty renal epithelium. The total quantity was three pints. Upon examining the bladder with a sound, a sensation was conveyed as of stone; accordingly that diagnosis was made, and the patient advised to enter the hospital for operation.

On March 6, 1893, she entered the Vincent Memorial Hospital, and two days following she was etherized, Dr. A. T. Cabot being present in consultation with myself and Dr. Ingraham. Examination showed the passage of the sound about eight inches, and a gritty sensation was conveyed by it. Operation was decided upon, and accordingly I made the usual median incision through the anterior vaginal wall, and long enough to give ample room to thoroughly explore the interior of the bladder.

The exploration showed an unusually capacious bladder, with no stone nor incrustation. The mucous membrane was somewhat rough, and small quantities of bloody mucus were brought away. A drainage-tube was introduced through the wound, and the bladder washed out with a solution of boric acid, the tube being held in place by silkworm-gut sutures.

The irrigation was kept up twice daily; but the urine continued offensive, and contained much blood and mucus, the blood, however, ceasing seven days after operation.

Five days after operation the wound had closed to the size of the tube; and on the twelfth day the tube was removed, and digital stretching of the fistula was begun.

On April 5th, just four weeks after operation, the temperature, which had been normal, rose to 103°, pulse 110; and she had chills, nausea, pains all over, and the conjunctivæ were much injected. The following day the pulse was 120 and weak, the temperature still 103°. She was cyanotic in appearance, had epistaxis, much pain in precordia, and her mind wandered. Examination of the heart showed a systolic murmur, with accentuation of the pulmonic second sound.

The question which presented itself to our minds was, Had we not a case of septic endocarditis to deal with?

She was closely watched, and fortunately soon began to improve. The urine still remained purulent; and on examination made April 18th showed the presence of tubercle bacilli. On the 26th, as the patient was opposed to allowing the fistula to remain longer, and as the urine contained no sediment, although it was alkaline and had a specific gravity of 1.010, the edges of the fistula were bevelled and sewed up with silkworm-gut and wire, union being perfect when the sutures were removed.

She was seen April 1, 1894, and reports that the urine, although still somewhat offensive, is not as bad as before the operation, but that her general condition is not very good.

I report this case as of interest after hearing Dr. Watson's paper. Our notice was called to the disease by a case which was under the care of Dr. Ingraham and myself in which Dr. Watson was called in consultation and which he has mentioned to-night.

In both cases the symptoms were those of bladder

¹ Read before the Suffolk District Medical Society, April 28, 1894.

disease; but in both we suspected the primary disease to be in the kidney, and in one of them the suspicions were confirmed. The case in which Dr. Watson was called in consultation was not verified by the actual finding of the tubercle bacilli, but in the other it was.

Medical Progress.

RECENT PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D.

SCOLIOTIC SCIATICA.¹

A NUMBER of articles which have been collected on the subject of this unusual affection would show that the symptoms are very varied in the different cases, so that it is almost impossible to classify them. There is usually a scoliosis with the convexity towards the lame side, the scoliosis being chiefly in the lumbar region and the upper portion of the spinal column has a less compensatory curve. The whole trunk is turned towards the sound side, and the lower ridge of the ribs press upon the pelvis. The upper portion of the body is inclined forward. The leg on the affected side touches the ground but the patient is not inclined to throw the whole weight upon it. The attitude is quite characteristic. Treatment of the affection is not always satisfactory. The scoliosis disappears usually after the sciatica has passed away. The galvanic current appears to be of value in these cases, as well as massage of the muscles of the affected limb. Stretching of the sciatic by forced manipulation and appropriate gymnastic exercises are of benefit. Kocher, in more severe cases, cut down upon the nerve and stretched it with apparent benefit, although the case is reported only a month after the operation.

Sachs² reports a case of what is called crossed form of sciotic sciatica with a convexity towards the affected side, and which is due to an extension of neuralgia from the sacral to the lumbar plexus. Scoliosis develops itself gradually, first in the painful stage and second in the subacute stage. Pain is due to the pressure of the muscles in activity upon the irritated nerves. Besides the treatment of the sciatica the scoliosis should be treated by suspension and correction. Ranzier³ reports a case of the sort where scoliosis remained after the cure of the neuralgia, and only gradually disappeared. Francon reports six cases treated at Aix les Bains.⁴

MALPOSITION OF THE VERTEBRAL COLUMN OCCASIONED BY THE PRESENCE OF A TUMOR, AND CURED BY EXCISION.

Dr. Gerard Marchant⁵ reports two cases of fibrolipoma, situated near the spine in the lumbar region, which caused a lateral deviation of the spine, and was attended with marked subjective symptoms during locomotion. The first occurred in a large man, twenty-three years of age, appearing some time after a strain, which was supposed to be the starting-point of the

tumor. The tumor was the size of one's fist, situated in the left lumbar region, and easily felt, the skin being movable over it, but attached below. Locomotion was extremely painful, the pain extending down the leg; but during recumbency there were no subjective symptoms. At the time of removal the tumor was found to be adherent to the muscle, which was also found to be atrophied to a marked degree. The recovery in this case was uneventful, the symptoms entirely disappeared, and health was restored.

The second case was that of a man of fifty-three years of age. The tumor was situated in the left lumbar region, with symptoms much the same as in the former. The tumor was removed, and at the time found to be adherent to the aponeurosis of the vertebræ. The recovery was uneventful, and the symptoms entirely subsided. Both tumors were found to be fibrolipoma. In the second were found several nerve filaments, which probably explained in a measure the severity of the symptoms.

CASE OF PRIMARY TUBERCULOSIS OF THE LAMINÆ AND SPINOUS PROCESSES OF THE VERTEBRÆ.

Dr. John C. Roberts⁶ reports a case of disease which by autopsy was proved to be a case of primary tubercular disease of the laminæ. The case presented prominent symptoms of pain in the sides and abdomen during the earlier stages, with early paralysis of the legs and sphincters, and early development of bed-sores. The deformity was slight, and differed from the ordinary kyphosis in that the swelling was on either side of the median line, and there was a depression over the spinous processes. An operation was performed to relieve the paraplegia, which was supposed to be due to pus in the canal; but the child died soon after, and in the autopsy it was found that the disease was a tubercular process which had attacked and destroyed the laminæ and had involved the base of the spinous processes.

A CASE OF ANCHYLOSIS OF THE SPINE.

Mr. William E. Miles⁷ reports a case of ankylosis of the entire spinal column, the origin of which is not explained. The boy, at the age of twelve, was treated for cervical caries, with plaster-jacket and head-support for eighteen months, after which the spine is said to have been in the same condition of ankylosis as at the time of reporting, when the patient was twenty-one years of age. After the removal of the jacket he was able to do hard labor without ill effect, and the spine remained in the same condition. The three causes of tubercular, syphilitic and rheumatic origin are considered, but still leave the case as one of undetermined origin. Although the first symptoms of the disease may have been tubercular, there was nothing to suggest this in the way of spinal projection, abscess, etc.; nor would local disease in the cervical region explain the general ankylosis of the spine. Syphilitic origin has no support, either by history or other indications of the disease, and the same is true of the rheumatic taint. There later developed an enlargement of the ankle, which with the ankylosis is rather evidence of a general cause which manifested itself in these two locations. The case is worthy of mention from the rarity of the condition at the early age of twenty-one.

¹ Zeitschrift für Orthopädische Chirurgie, 1893, p. 63.

² Archiv. klin. Chir., Bd. 46, Heft 45, 684.

³ Montpellier Medical Journal, 1893, No. 41, p. 811.

⁴ Lyon Medical, Nos. 6 and 11, p. 187.

⁵ Revue d'Orthopédie, January, 1894.

⁶ Annals of Surgery, June 16, 1894.

⁷ Lancet, November 3, 1894.

THE CAUSES OF PARAPLEGIA IN POTT'S DISEASE.

Dr. Ménard⁸ has carefully considered this condition of paraplegia in Pott's disease, and a number of cases are given in which laminectomy was done; and although the author has presented little that is new, his review is of value in its corroboration of already well-accepted theories. In regard to the etiology of this affection, he accepts the usual belief that it is not due to the narrowing of the canal, but to the action which the tubercular focus itself exercises on the meninges and cord. He finds it rare in the cervical region, very rare in the lumbar, and extremely frequent in the dorsal. When in the last situation the abscess does not meet any muscular sheath which it can follow, it remains near the osseous lesion, submitted to the varying pressure of the lungs at each respiratory act, and later penetrates into the spinal canal. He favors in selected cases the operative treatment, and considers that the direct opening of a tuberculous focus causing compression offers a rational and effectual means of overcoming the paraplegia.

HEMATOMA OF THE STERNO-MASTOID IN INFANTS.

Dr. Gaudier⁹ reports two cases in infants of hematoma of the sterno mastoid, which appeared during the sudden severe muscular contraction during vaccination. There is nothing of importance as regards the method of its occurrence, except that in each case during the vaccination the child turned the head forcibly away from that side, and during this severe muscular contraction a rupture of some of the fibres occurred, causing the ordinary conditions which are found after this accident. The cases are almost, if not quite unique, in that it is so seldom seen occurring some interval after birth. The author considers the usual form, and the relation that this may have to the etiology of the congenital variety, of which much has been written of late. By some authors it is considered that this is an accident caused by the pressure of the blade of the forceps, while by others that it is due to a forcible contraction of the muscles during its passage. In 68 cases of breech presentation, this condition was found to have occurred in 18, but it is also found after normal presentation, and also when there have been no forceps used. He concludes that in addition to the ordinary hematoma of surgical origin, in the new-born, there is also an identical condition with this other etiology; that being a trauma following later in the period of the first few months of life, and which as in the two observations cited, was due to the sudden muscular effort on the part of the patient, resulting in the rupture of a portion of the sterno-mastoid muscle. The symptoms and the prognosis of the treatment is identical in the two classes, and a cure without deformity should be expected.

TREATMENT OF SPASMODIC TORTICOLLIS.

Noble Smith¹⁰ reports the results in five cases, in which section or excision of a portion of the spinal nerve was done, and in all of which there occurred a marked improvement, which lasted over the time of observation. In one, there was inability to walk but a short time; after the operation the patient was able to walk for an hour and a half and rapidly. The pain in the neck disappeared, and the deformity of the

cervical spine also did not return. There was also an equally acute sensation on either side of the neck, and the motions of the head in all directions were without pain. The second case was in a man of fifty-seven, where there had been associated a painful tic of the face. After excision of the spinal nerve, the spasm quickly disappeared. In another, which had lasted four years, the contraction disappeared, but the deformity of the cervical spine remained. In another, the spasm of the rotators of the neck had not disappeared and required a second operation. Smith considers this treatment in a favorable way, and regards it as a valuable means of treating this persistent condition.

TORTICOLLIS OF RHACHITIC ORIGIN.

Dr. Phocas¹¹ reports three cases of torticollis occurring in young infants from ten to eighteen months of age, in which the deformity was apparently due to rickets. The diagnosis was made on the absence of the history of congenital defect, the instances having all occurred in cases of normal labor, and the condition having developed after some months of life. In none of these was there either contraction of the sterno-mastoid, or of the deep muscles of the neck, nor was there any evidence of paralysis as described by Guyon, while on the other hand the cases all showed evidences of general rickets. The treatment is directed toward that of the general rickets.

As diagnostic points, he mentions that his cases all occurred in natural birth, with no sign of deformity until later life. The deformity of the head consists of a turning of the head toward the shoulder, in all of his cases being to the left, with the production of a deep fold in the side of the neck. The chin is slightly elevated and the face turned slightly toward the right. When an attempt is made to correct the position of the head, there is little resistance met by the sterno-mastoid, but when left to itself, the head returns to its malposition. Usually lateral deviation of the head follows its throwing forward, and this position persists long after the torticollis has been corrected. The pain is not severe; yet the infants frequently resist manipulation, cry easily and frequently show a grunting respiration. The anterior muscles are not found contracted and only occasionally the posterior. In all cases the other evidences of general rickets will be found. The duration of the condition is usually of several months; the lateral deviation of the head disappears before the forward inclination, which usually persists for a long time.

PSYCHICAL TORTICOLLIS.

Brissand¹² gave the name of psychical torticollis to a peculiar form of wry-neck which is not due to any organic change, but which is apparently of a psychical nature. It is characterized by the inability of the patient to control by the will the muscles of the neck, although it is easy for the patient to correct by means of the hands the faulty position by a slight pressure of the finger upon the nose or upon the head. It is termed by the writer a local paralysis of the will. It is often accompanied by other neuroses and psychoses, neurasthenia, epilepsy and so-called functional spasms. This prognosis is doubtful. The treatment should be psychical.

⁸ *Révue d'Orthopédie*, January, 1894.

⁹ *Loc. cit.*, 1894, No. 4.

¹⁰ *Lancet*, August 26th.

¹¹ *Révue d'Orthopédie*, 1894, No. 1.

¹² Gaston, Frederic, Bontaire: Paris Thesis, 1894.

SPASMODIC TORTICOLLIS.

Richardson and Walton¹³ report several cases of this affection, cured or improved by the removal of a portion of the supplying nerves, that is, the spinal accessory on one side, and branches of the cervical plexus on the other.

AN EXPLANATION OF THE GREAT FREQUENCY OF RICKETS AMONG NEAPOLITAN CHILDREN IN AMERICAN CITIES.

Dr. Irving M. Snow,¹⁴ of Buffalo, has collected the statistics of rickets among the different nationalities of Buffalo, and has from these studied the causes which lead to the frequency among the Italians. In his investigation, he studied the prevalence of rachitic children among the Italians in relation to the proportion among the other nationalities. The attempt is made in his paper to show that the disease among the Italians is due to the effect of the cold, damp, northern climate "upon the offspring of a race that has lived for many hundred years in the warm, dry, sunny air of Naples and of Sicily. It is the physical deterioration of a southern race in a northern climate. I hope to be able to prove that the usual causes of rickets—city life, improper feeding, acute or chronic digestive disorders, bad air, crowding in dwellings, uncleanness, infectious disease—which produces rachitis in a moderate percentage of the children of the northern races, act with far greater frequency and virulence upon the first generation of Neapolitans born in America."

The Italian children about Buffalo are all the children of Italians who have recently immigrated; and he has found that they all come from the region round about Naples where their life has been passed out of doors in a warm climate. Their hygienic surroundings are fully equal to that of the other races about Buffalo. They are not crowded, being only about one hundred to an acre, and their food is fully equal to that of the Irish-Americans and the other races found in the city of Buffalo. The paper concludes quite conclusively that rickets develops rapidly among the first generations of Neapolitans born in this country, but the observations are not carried far enough to prove the influence that these same conditions would have upon the later generations.

STUDY OF CHILD GROWTH.

Dr. Bayard Holmes,¹⁵ of St. Louis, has reviewed the rather extensive work of Dr. Porter, of that city, who has collected the data from 34,354 school children, thus securing nearly 1,000,000 facts. Much of the work corroborates the facts which have already been well accepted in regard to the growth and development of children, particularly the relation between the sexes. A few points, however, seem to be comparatively new and deserve particular mention, as some of his tables indicate that the relative growth of children of different nationalities shows a decided difference, and perhaps in a measure accounts for the different figures which are obtained by observers in different cities. He also finds that in the pre-pubertal period the girls of the upper classes are heavier than the daughters of the manual laborers. From the fact, however, that so many are taken from school at about this age, the further observations of this as to whether this relation

continues to be preserved cannot be so well studied. He finds that the period of slow growth of the girls is from six to eleven, or two years earlier than boys, and that after this age the girls are larger than the boys for a certain period, which is shorter with the larger girls than with the smaller. Among those with whom there is a rapid growth, the period in which the girls are larger than the boys is a period of three years and four months; whereas in the smaller types this period is three years and ten months. There is also an interesting relation found between their physical development and their mental capacity; for instance, the larger children seem to have more mental capacity than the smaller. The observations of the ages and weight of different grades show that of children of the same age in different grades the heavier children will be found in the higher grades. He urges a strict supervision over these children and the adapting of the work not only to their mental but to their physical ability. He suggests also that it might be well to remove the girls from competition during their stage of pre-pubertal acceleration, or adapting their work to their growth at this time. He also suggests that all the children who come under the mean percentage should be under the supervision of their parents. Those below the twenty-five-per-cent. grade should be under the supervision of a properly experienced physician.

INTERNAL DERANGEMENT OF KNEE.

Messner¹⁶ describes the dislocation of the meniscus of the knee-joint, as explaining the hitherto misunderstood cases of so-called internal derangement of the knee. He has met seven of these cases, and it is caused in his opinion by the rotation of the body while the foot is placed firmly on the ground preventing the rotation of the leg. A swelling is noticed at the outer side of the patella. The meniscus becomes displaced and is caught between the femur and the tibia, and presents an external prominence the thickness of a pencil between the inner side of the patella and the internal lateral ligament. To reduce the dislocation the knee is taken between the hands, the thumb pressing upon the projection. The swelling disappears suddenly, and the pain at the same time. The movement of the knee becomes free again. Messner is inclined to think that the deformity in the forearm of children as described by Goyrand is due to subluxation of the triangular cartilage. He has seen three cases of the elbow.

S. J. Mixer¹⁷ reports six cases. In several of these there appeared to be a tear of the meniscus following the dislocation.

Lardy¹⁸ reports two cases of tear of the semilunar cartilage, with removal and cure.

MANUAL CORRECTION IN KNOCK-KNEE.

Zuffi reports a number of cases corrected at the Milan institution. He prefers in certain instances manual correction to osteotomy, in that he regards the latter as more dangerous. Mechanical treatment requires time. Manual correction can be done at any time, needs no instrument, is without danger and is certain. The operation is not to be undertaken under three, because the rachitic process does not cease before that time, nor should it be done over eighteen, as there is then danger of rupturing the external

¹³ American Journal Medical Sciences, January, 1895.

¹⁴ Medical News, September 22, 1894.

¹⁵ New York Medical Journal, October 6, 1894.

¹⁶ Berliner Klinik, 1893, No. 65.

¹⁷ Transactions American Surgical Association, 1893, p. 29.

¹⁸ Revue de Chirurgie, 1894, p. 493.

lateral ligament. If there is much curvature of the thigh or of the leg, osteotomy is to be preferred. The external lateral ligament was not torn in 800 cases; and the danger of this accident is therefore slight. The supra-condyloid fracture need not occur if care is used; and even if it does, it is less injurious than a subcutaneous osteotomy. In performing the operation the patient is placed upon a strong table, the affected leg being placed upon a raised block. The assistant steadies the patient and fixes the pelvis. The second assistant presses the greater trochanter and the external condyle, and gives an opportunity for a direct application of force. The operator places one hand upon the malleolus and the other upon the calf. Force should be applied slowly, and gradually increased. A cracking sound shows the separation of the epiphysis. A plaster-of-Paris bandage is applied.

CURVED RESECTION OF THE KNEE.

Helferich¹⁹ prefers in right-angled ankylosis of the knee instead of the ordinary wedge-shaped excision, the removal of a small portion of bone of a curved shape. In this way less shortening of the limb results as the cartilage between the epiphysis and diaphysis can be in this way avoided. A convex portion of the bone is sawed off from the end of the femur, and a concave from the tibia, and the leg is straightened; the incision through the soft parts is similar to what is used in ordinary excision. In order to prevent the narrowing of the popliteal artery by too rapid stretching, the author advises that the limb should after operation at first not be put up in a straight position, the position being improved later.

(To be continued.)

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.

JAMES J. MINOT, M.D., SECRETARY.

REGULAR Meeting, Saturday, April 28, 1894, Dr. A. L. MASON in the chair.

Dr. F. S. WATSON read a paper on

SOME OF THE CLINICAL FEATURES AND THE SURGICAL TREATMENT OF PRIMARY TUBERCULOSIS OF THE URINARY ORGANS.¹

Dr. ABNER POST: A few years ago Dr. Bryson, whom Dr. Watson has quoted, who was at that time carefully studying genito-urinary tuberculosis, said to me the reason why we saw so few cases of urinary tuberculosis in Boston was because our attention was not drawn to it, that certainly a section of the country where tuberculosis of the lungs and other portions of the body was so frequent as in New England must certainly present many cases of urinary tuberculosis. My attention was, of course, drawn to the subject from that date more carefully; and the more my eyes have been opened to see such disease the more frequent are the cases. I have tried to find some reason to explain why we have seen so few, why cases are so seldom diagnosed as tuberculosis; and it seems to me there are several reasons which partially explain it. Of course, our attention has been drawn to it

very definitely only of recent years; but I think we are still too ready to accept certain cases of cystitis as idiopathic in character. Idiopathic cystitis, it seems to me, must disappear in the same way that idiopathic peritonitis has practically disappeared. Another reason seems to me to be that we are too ready to accept that form of disease which appears in the genito-urinary tract as a manifestation in some shape of venereal disease. We are too apt to approach such cases with the idea that venereal patients are liars, and that if their story fails to agree with our own preconceived idea it is still another manifestation of their tendency to conceal the truth. I have no idea of upholding venereal patients as models of truth and veracity; but it is the wrong attitude for the practitioner to hold towards them. It is not the way to arrive at the correct diagnosis, and perhaps the trouble is still more aggravated by what I believe to be the fact, that tuberculosis is not so infrequently superimposed upon a ground already diseased as a result of gonorrhea. Another reason, I think, why we lose some of these cases or fail to appreciate their true nature is because many of them appear in the testicle primarily, or at least the first outward manifestation to which our attention is drawn is in the testis. These cases are very often complicated by hydrocele, and the practitioner, seeing the hydrocele, is satisfied with the diagnosis of hydrocele. How often do we find a hydrocele which is tapped or which is undergoing radical cure complicated with a diseased testis, so that it is occasionally said that hydrocele is often complicated or accompanied by disease of the testis. It seems to me that we look at matters through the wrong end; it is better to say that hydrocele is a complication or a symptom of disease of the testicle. I am not prepared to say that hydrocele never occurs alone, but in the very large proportion of cases it is symptomatic of disease of the testis itself; and I think it would be possible to recite case after case in which the diagnosis of hydrocele had already been made, in which the testis was found tubercular. I can recall a case sent to me for radical cure in which the hydrocele was very evident. I had already begun to examine testicles pretty carefully under such circumstances, and I said to the young man that his disease was not hydrocele alone, but disease of the testis behind it. After the fluid was drawn off it was easy to make out the epididymis, which was characteristic of tubercle, and I questioned him further. I found he belonged to a phthisical family, that he spent the winter in Florida with a brother who was highly phthisical and whose death was expected. These certainly are some reasons why we have overlooked the disease. I think another reason is that we are taught to expect in cases of tuberculous disease in the meninges, disease in the digestive tract, but the genito-urinary tract is not held up to us as a region in which to look for tuberculous manifestations. Certainly, Dr. Watson has spoken so far only of tuberculosis in the urinary tract as a primary disease. It is sometimes extremely difficult to know whether the disease is primary; and its complication with tuberculosis in other places certainly deserve study for a special reason, because of the difficulties of treatment, which are just as difficult in secondary as in primary tuberculosis. The operative treatment is certainly sometimes beneficial, but there is one additional reason why it should not be too freely carried out, and that is the difficulty with

¹ See page 121 of the Journal.

¹⁹ Langenbeck's Archiv., Bd. 46, H. 3.

which operative wounds are induced to heal. I had this winter a striking example of it in a comparatively young man who had tuberculosis of the bladder and probably of one kidney also. The pain which that young man suffered was intense. He had been examined for stone once or twice with no benefit, but rather with an increase of the symptoms. The pain was so great that he was constantly under the influence of morphia, and cocaine was also daily administered. With the hopes of benefiting him somewhat, I made an incision through the perineum hoping I might find some spot that could be curetted. No such spot appeared, but I was able to establish complete drainage of the bladder and by careful treatment afterwards, the instillation of iodoform oil being one of the important methods of treatment, I succeeded in giving the man very great relief, so that he was enabled to dispense entirely of morphia and cocaine. There was at least a temporary improvement in his general condition; but at the end of three months, which was the last time I saw him or heard from him, the wound in the perineum was still unhealed, and that is the third wound in the perineum which I have seen which has failed to heal after a reasonable length of time. One of them was a fistula in the first place, which followed a bruise in which tuberculosis was shown to exist in that patient by disease in both testes and by the discovery of the tubercle bacilli.

DR. THORNDIKE: I am very glad Dr. Watson has taken occasion to read a paper on this subject, because, as Dr. Post has said, our knowledge of the clinical history of urinary tuberculosis is very slight and it is only by the accumulation of such individual experiences that we can hope to enlarge it to any extent. It is true, I think, that urinary tuberculosis is not a rare disease, but exists in a good many cases and sometimes for a very long time without manifesting any symptoms approaching acuteness. When such symptoms do arise, symptoms which lead to the patient's seeking advice, the clinical knowledge at the disposal of the practising physician is so comparatively slight that faulty diagnoses are frequent, and the trouble is very often overlooked. Urinary tuberculosis is rarely localized in one organ. In whatever portion of the urinary tract it may have its origin it spreads, as a rule, with great rapidity, covers in a short space of time a sufficient area to give rise to symptoms of very varied kinds, so that the clinical picture may direct the attention of the physician to an organ at some distance from the real seat of the disease. For example, we very frequently have a tubercular pyelitis with exclusively bladder symptoms, symptoms which point to an uncomplicated cystitis; and these bladder symptoms may not be simply symptoms of reflex bladder irritability, but symptoms directly dependent upon coincident tubercular disease of the prostatic urethra and neck of the bladder. The diagnosis is not easy to make; and if the experience of careful observers can be formulated, much light will, of course, be thrown upon the clinical side of tuberculosis in the urinary tract, and many of the cases of so-called idiopathic cystitis will undoubtedly be explained. Dr. Watson has begun such a formulation in his paper. Without attempting to discuss the individual symptoms which Dr. Watson has detailed at some length, I will only say that in my belief all cases of chronic inflammatory disturbance of the urinary tract which have not yielded to careful treatment, which have been distinctly ex-

cited and made worse by any instrumental interference, or which have had unaccountable exacerbations, should be suspected. They should be carefully watched for any hint which may lead to a better clinical diagnosis. Of course, the only way to verify that diagnosis is by means of the microscope; but if we have a series of such papers as we have had to-night, I think we may have a distinctly better idea of the clinical nature of these diseases before very long.

DR. GRACE WOLCOTT: In regard to the case Dr. Watson mentioned, it was of a girl nineteen years old. She was seen in January, 1891, and then had very great trouble from incontinence, which brought her to desire some active interference. She was seen in April, 1891, by Dr. Watson, who performed the operation. She had the signs of recovery of which Dr. Watson spoke. She came into the hospital weighing eighty-five pounds, and gained rapidly in weight after she got over the immediate effects of the operation. She died eighteen months after operation.

Dr. Wolcott then presented

NOTES OF A CASE OF TUBERCULAR DISEASE OF THE KIDNEY.²

DR. REYNOLDS: I am not fitted to speak of this subject as regards tuberculosis of the male bladder, and am unable to speak from my own experience of tuberculosis of the female bladder, but I am somewhat surprised that in the discussion no reference has been made to the work recently done by Dr. Kelley, of Baltimore, on this subject. Kelley has succeeded in demonstrating that tuberculosis of the female bladder is commonly accompanied by tuberculosis of the ureter, upsetting the former impression that such diseases almost invariably skip the ureter and localize themselves in the bladder or kidney. I had the pleasure last autumn of seeing Dr. Kelley demonstrate three cases of tuberculosis of the bladder which he had at that time under treatment, and of interviewing the patients myself to get their impression of the results of treatment. All three patients agreed most heartily with Dr. Kelley in the statement that their symptoms had been entirely relieved with great rapidity during treatment. The condition of the bladder of the patient who had been longest under treatment was much better than that of either of the others, and Kelley assured me she had been originally as badly off as either of the two others he showed me. He was treating them, so far as the bladder was concerned, simply by local applications every day or every other day, of a solution of nitrate of silver, under which the tubercular ulcerations seemed to be healing with considerable rapidity. So far as the ureters were concerned, his treatment was limited to the establishment of patency in the kidney by catheterization of it. I think that Kelley's work has not yet been carried on sufficiently long to enable him to make any statements about radical benefit. I think no one else has as yet an experience that dates back as far as his own. As far as the urinary organs of the female go, we are now able to deal with the disease very directly. I have been for some months now actively interested in Kelley's method of examination of the bladder, and can testify to the great ease with which the posterior and upper parts of the vesical wall can be brought under observation, and of the great ease with which topical treatment can be directed to them. I think it is perhaps an interesting question

² See page 131 of the Journal.

whether cystoscopy of the air-distended bladder may not prove of value in the male bladder. It is a question whether the treatment by topical applications of nitrate of silver is not to prove of value.

DR. WATSON: I am very glad that Dr. Post and Dr. Thorndike confirm the impression which I have, and which was the reason for my presenting this paper, namely, that this disease is not recognized so often as it should be in this neighborhood; and I think that if the symptoms which are the most characteristic are borne in mind it is much more likely to be noticed oftener. In regard to the treatment of Dr. Kelley, I have never treated cases by this method. I have treated cases by the application of nitrate of silver to the bladder in the ordinary way, and remember two in the male early in my series in which the increase of the local symptoms was so great that I desisted. I do not think I have ever seen such intense pain as was set up. The nitrate of silver treatment in the ordinary way has been tried by Guyon and his school with some success. I doubt whether it will prove a panacea.

DR. W. A. MORRISON read an account of

THE VALUE OF THE STOMACH-TUBE IN FEEDING AFTER INTUBATION, BASED UPON TWENTY-EIGHT CASES.²

DR. WHITNEY: I think the importance of the subject Dr. Morrison has presented to-night is very great. Forced feeding or gavage, as it has been termed, has received very little attention until quite recently from men who are treating these cases. The principal investigator in this country has been Dr. Holt in New York, who has used this method of feeding, and in a discussion before the New York Academy of Medicine about a year ago reported certain of the results he had obtained by forced feeding through the stomach-tube. In an article published in to-day's *Medical Record* he reports still further results from this same method. He described the results obtained from some four hundred cases treated in three New York Infant Hospitals. His method has been very satisfactory indeed to himself, and has consisted in passing a tube through the mouth into the stomach instead of through the nose. The first case I think was treated by the nasal tube. I think that the advantage of the nasal administration of food through the tube is a very distinct one indeed. The method by the mouth means using a gag, the possibility of its slipping, and the possibility of the child biting the tube. My experience in using the gag in intubation has convinced me that it would be more satisfactory to have a straight passage through the nose into the stomach when using the feeding-tube. I think, in cases of intubation, the results are especially satisfactory, and it is in this class of cases that I am particularly convinced of the value of this method. The great obstacle in the treatment of cases of intubation has been in the past that it was almost impossible to get the child to swallow, and many surgeons in the beginning gave it up on account of that difficulty and returned to tracheotomy. Several attempts were made to overcome this difficulty by mechanical means. Dr. Ingalls, of Chicago, invented a hinged-tube which failed absolutely. Others who followed him in modifications of the tube shared the same fate. The most satisfactory advance in the treatment of these cases took place when Casselberry pointed out that lowering the child's head was sufficient to obviate all difficulty. When that can be carried out it is all very well; but

the position is so unnatural that a child always objects to it, and the problem resolves itself into forcing the *parents* rather than the child to submit to it. So far as I have seen, they object from a feeling of sympathy to disturbing the sick child, and it takes the nourishment as it pleases, and coughs and strangles. I do not think the refusal to take food after intubation always depends upon dysphagia, but sometimes upon anorexia; and it seems to me a great comfort if we can place in the child's stomach a definite amount of cream and peptonized milk and brandy and medicines, and feel it is going to be assimilated. After the relief of dyspnea by the tube, which is almost always complete, we have simply a case of diphtheria to treat; and the treatment of diphtheria seems to me to be resolved into the question of nourishment and stimulation, aside from the local treatment, and this cannot be done, I think, satisfactorily in all cases. I can recall cases which would have been saved had this method been used. Dr. Morrison's percentage of recoveries, I think, is something to be proud of. So far as I am familiar with series of the same number of cases I think it is the largest. In seventy-eight cases I reported before this Society a year ago the percentage of recovery was about thirty-three. Those I have done since then have made the total number about one hundred, and I have not been so fortunate in my percentage of recovery, so that I think it is about thirty, which is about the average; and I think that percentage of recovery may be increased a good deal by forcing the nourishment systematically. I think that this method can be taught easily to a nurse. I am sure we all appreciate the care and industry Dr. Morrison has shown in treating these cases. One point I should take exception to is his abandonment of corrosive sublimate. I am still of the opinion that of internal methods it is as good as any we have. Jacobi was, I think, the first to bring out the treatment, and is still a believer in it. I have seen cases in which the membrane disappeared from the fauces and reappeared after its discontinuance, and I have not seen much irritation of the stomach or bowels. I am sure that the amount of labor required in personally attending to all the details of these cases is well worthy of our appreciation; and I am quite sure we that shall be under obligations to him for leading the way to a proper treatment of this class of cases.

DR. PRESCOTT: It is so late I think there is little to be said about the treatment of diphtheria and the method of feeding by the stomach-tube, except to say that anything that will make it easier to feed a child, especially after intubation, is to be welcomed. The few cases that I have seen have not been as satisfactory as Dr. Morrison's have been, because of the difficulty in the cases in which it was tried of getting the tube through the nose and throat, owing to the filling up of the pharynx and the nose with false membrane; but it seems to me that in cases where the tube can be easily passed it must add a great deal to the chance of the child's recovery.

DR. MORRISON: I desire to remark that if one finds it difficult to pass a medium-sized soft-rubber catheter, a smaller one may be used.

DIPHTHERIA IN LONDON DURING 1894. — During the year 1894 there were 13,694 cases of diphtheria reported in London, with 3,195 deaths, as against 1,962 deaths in the previous year.

² See page 127 of the Journal.

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THE ETIOLOGY OF CARCINOMA.

THE etiology of carcinoma remains one of the darkest subjects in pathology, in spite of the numerous theories which have been advanced to explain it. Of late the parasitic theory has been the most prominent. In the last five years many articles have appeared describing structures within the tumor-cells, which are supposed to be parasites belonging to the sporozoa. The most different structures in the cells, and in general any structures which assume the appearance of a foreign body in the protoplasm, whatever their morphology, have been considered as parasites. Many of the bodies described in the cells have some similarity to known forms of unicellular organisms, others not the least. Most authors have regarded these parasites as the direct cause of carcinoma. By others they have been regarded as only accidentally present. Not only these structures within the cells, but objects lying between the cells or at various places in the tissue, as the molluscum bodies in molluscum contagiosum, have been described as parasites.

Further interest has been given the matter by the discovery of parasitic unicellular organisms in the blood of man in malaria, and in the blood and tissues of birds and animals in a variety of conditions. There may be various explanations given of many of these structures in the tumor-cells which have been supposed to be parasites. Even when no explanation of their presence can be given, it is not rational to assume from this that they must be parasites. More or less isolated structures in the protoplasm of cells may be explained in a number of ways. Leucocytes may enter into the cell, degenerate, and finally lie as foreign bodies in a cavity within the protoplasm. One tumor-cell may become enclosed in the body of another in the process of growth, or one cell may lie in a depression in another cell and then appear as a foreign body, if the section passes through the enclosing cell. A portion of the protoplasm of the cell may be degenerated and become separated from the remainder of the protoplasm. In

many of the rapidly growing epithelial cells of carcinoma there are abnormal processes of nuclear division, and particles of the chromatin may become separated from the nuclei and enclosed in the protoplasm. Even the nuclei of cells may degenerate and take on an appearance very different from the normal nucleus. Entire cells may degenerate, and in this condition they may stain in a peculiar way. There is no doubt that structures are formed in all these ways, and in some cases even normal constituents of the cells have been described as parasites. These supposed parasites have been found in other tissues than the tumors.

The least that can be demanded of those holding the parasitic theory of carcinoma is that parasites must be shown to be always present and to stand in some relation to the pathological processes. The complete demonstration by growth of the parasites outside of the body and inoculation with these alone, can hardly be given. The life history of but few of the protozoa is known, even when the most favorable conditions for their study are present.

From a general consideration of carcinoma there is much which speaks for, and very much against the parasitic theory. Many pathological processes which produce more or less well-defined tumors are known to be caused by parasites. All these formations have much the same character. They usually arise in the connective tissue, and the cells of which they are composed are derivatives of cells belonging to it. They never represent a complicated structure such as we have in carcinoma. There is at first sight some analogy between carcinoma and tubercle, especially in the matter of metastases. In both we have a primary focus, and from this primary focus a material is given off which is carried to other parts of the body and produces a similar growth. There is, however, in the metastases, an enormous difference between the two. No matter what the primary seat of the tubercle, the secondary tubercles are in no way influenced by this. They have the same character under any circumstances. In the case of carcinoma, the secondary nodules are of the same character as the primary nodules. The metastases coming from an adeno-carcinoma of the stomach will present the same typical arrangement of the epithelium as the primary tumor shows, whether they are produced in the lung, muscles, in the liver or elsewhere.

The structure of the primary nodule, moreover, depends upon the character of the epithelium from which it arises. A primary carcinoma of the liver will always present an entirely different structure from a carcinoma arising from the alimentary canal. It proceeds from the epithelium of a part, and in its structure the cells conform more or less to the character and arrangement of the primary epithelium. There is no way of escaping from this fact. Before the development of the parasitic idea it was very generally accepted that the metastases are due to cells of the primary growth, because only from the cells could the more or less complicated structures of the primary

growth be repeated. In the case of tubercle it is different. The metastases there are produced by the bacilli, and the secondary nodule is always of the same structure whatever the seat of the primary. Some of the articles on the parasitic nature of carcinoma are even absurd. The idea has even been advanced that the cells of the tumor itself are parasites. In accordance with this idea a carcinoma arising from the stomach must be produced by a parasite similar in structure to the epithelium of the gastric glands, or in a carcinoma of the liver it must resemble the liver cells, or in a carcinoma from the skin it must have the property of transforming itself into horny epithelium.

A comparison of carcinoma with the tumor-like formations in animals known to be produced by coccidia, as the nodules in the liver of a rabbit, is not justifiable. These formations are simply the result of a hyperplastic growth of the epithelium lining the bile ducts in the form of papillary projections into the dilated vessels. There is no doubt that these growths are produced by the coccidia, and there is no reason why they should not be. If we had metastases from these nodules, if we could have similar tumors with a similar structure formed in the lung from metastases of the coccidia from the liver, the case would be different.

Up to the present time no theory has been advanced which will fully explain the etiology of carcinoma. A theory has recently been advanced by Ribbert that the carcinoma is due to a proliferation of the connective tissue in the vicinity of epithelial growths which penetrates the epithelial tissue. The epithelial cells become loosened from their continuity with one another, and then find favorable opportunity for an unlimited growth in the altered connective tissue. This theory rests on no surer foundation than do any of the others. Probably the theory of Cohnheim, that the carcinoma is due to an embryonic predisposition of the tissues, or to the retention of the embryonic character of the cells in certain places consisting in a power of unlimited growth, still remains the most plausible one.

THE BILL FOR THE REORGANIZATION OF THE PERSONNEL OF THE NAVY.

A BILL with the above title is now before Congress. The efficiency of the navy is to be increased by increasing the number of rear admirals by ten in addition to those at present holding that position, making sixteen; and providing 234 commanding officers for about fifty vessels now in commission. This would undoubtedly be an excellent thing for the officers of the line, providing rapid advancement, and ensuring almost a certainty to those who continued in the service for any length of time of retiring on admiral's half-pay. How the efficiency of the navy would be increased by providing it with so many commanding officers, three-fourths of whom would necessarily be idle at any given time, the bill does not explain. The expense of their support is, however,

admitted to be a serious consideration; and how does the bill propose to meet it? By reducing the pay and rank of the staff officers, that is, the surgeons, engineers and paymasters, and at the same time lengthening the time which they are obliged to serve before rank and pay can be increased. The responsibility of the medical and engineer corps of the navy is certainly a great one, and yet the inducements now offered to surgeons proposing to enter the navy are so small that competent men are secured with great difficulty, and the corps has not had its complement since 1865. As the Brooklyn *Eagle* forcibly puts it, "Every diminution in inducement means a lowering of the standard for admission, and under the inducements offered by this bill the standard will necessarily have to be placed so low that the lives of officers and men will be placed in the hands of incompetent persons."

The bill proposes that an assistant surgeon shall enter the navy, with the rank of ensign (corresponding to second lieutenant in the army), and the salary of \$1,200 a year. In the army assistant engineers get \$1,600 a year, and the rank of first lieutenant. In the navy promotion will be slower. Do the framers of this bill suppose that even men of average ability will enter the navy, and suffer the hardships of life at sea, for \$1,200 a year and slow promotion—the highest possible shore duty pay ever attainable, and that after years of service being \$3,500 a year? Even the most moderate success in civil life is preferable to such a condition and prospects. The result of the adoption of this bill would certainly mean that only those incapable of taking care of themselves in the struggle for existence on shore would enter the navy,—that is, the incompetent and inefficient. Competent men could not be found to serve under such conditions.

From another point of view the case is well presented by the Brooklyn *Eagle*:

"It has been shown that this bill provides 234 commanding officers for about fifty ships of war. No ship can have more than one commanding officer, but many must have more than one doctor and one engineer. A ship having a complement of 300, 400 or 500 men goes into battle with one commanding officer. If he falls, the next line officer takes his place. It would be inhuman and absurd to send such a vessel to sea in peace or war with one surgeon or one engineer. Even in peace the sickness or death of such men would find no one to take their place. Epidemics on board at sea would find men dying for want of assistance. In war a recent experience has shown how many wounded a few minutes' fight at sea produces. Can one surgeon give the necessary aid? Why, everybody knows that many common surgical operations are never undertaken without several assistants. Can one surgeon do what humanity requires? And suppose the surgeon falls in battle, who is to take his place? No one can, if he is acting alone. It is absurd to say that he cannot fall in battle, that he is down below, safe from shot and shell. In the recent naval battle between the Japanese and Chinese the former lost ten commissioned officers, killed outright, and two of these were doctors—twenty per cent. It is absurd to call any man a non-combatant in these days on a ship of war. . . . Two hundred and thirty-four line officers to command fifty or sixty ships with one commanding officer to each ship! How many doctors? One hundred and sixty-five (Sec. 25), when two or more are required on many ships and the hospitals on shore require staffs. How many engineers?

One hundred and ninety (Sec. 38), when several are required on nearly every ship. How many paymasters? Ninety-six (Sec. 33), for all purposes. Does not this comparison show the line strength in this bill, in which in spite of a number of commanding officers now that cannot be utilized there is an increase of thirty, nearly as many as there are ships, and the medical corps is reduced five numbers — from 170 to 165? Two hundred and thirty-four commanding officers and 165 doctors, 190 engineers and 96 paymasters. Is not this an absurdity?"

From every point of view it is evident that Congress cannot improve the pay and position of the line officer at the expense of the staff without injustice. The bill is rather calculated to decrease than to increase the efficiency of the *personnel* of the navy.

MEDICAL NOTES.

ACTINOMYCOSIS OF THE LUNGS SIMULATING PHTHISIS.—M. Berard presented to the Society of the Medical Sciences at Lyons, a communication with regard to a case of severe actinomycosis of the lungs simulating advanced phthisis. The diagnosis was made by the examination of the sputum.

A MONUMENT TO HELMHOLTZ.—At the suggestion of the German Emperor, a monument to von Helmholtz is to be erected in Berlin, probably in a public square near the University Buildings. The emperor has promised a contribution of 10,000 marks toward the expense.

A PROFESSORSHIP OF DISEASES OF CHILDREN.—Dr. Otto Heubner, director of the Clinic for Diseases of Children at the Charité in Berlin, has been made a Professor of Children's Diseases. Heretofore diseases of children have been regarded as a side issue at the University of Berlin, and Hensch, the illustrious predecessor of Heubner, was merely an honorary professor.

URINE AS AN AGENT OF ANARCHY.—In a memoir published in the *Révue de Chimie Industrielle*, M. Ackerman points out the use which may be made of urine in the manufacture of explosives. Cyanuric acid which is derived from urine is in fact an isomere of fulminuric acid $C_3H_3N_3O_3$, which is itself a derivative of fulminuric acid, the formula of which is $C_2H_2N_2O_2$. The author of the Latin doggerel beginning "*mingere cum bombis*" probably did not realize the possible direful meaning of his line. Perhaps he would have substituted some other adjective in the second line, so that it should read perhaps instead of "*res saluberrima lumbis*," *res pessima lumbis*.

FURTHER REPORT ON ANTITOXIN.—Soltmann reports (in *Deutsche med. Woch.*, January 24, 1895) 193 cases of diphtheria treated at the Leipzig Children's Hospital between April 1 and December 31, 1894. Of these 50, or 27 per cent. died. During the first four months in which the serum treatment was not generally used, 28 out of 71 children died, or 39.8 per cent.; in the last five months, during which the majority of the children received the serum treatment, 22 out of 122 children died, or 18 per cent. Of this last group of cases 9 out of 33, or 27.2 per

cent., not treated with serum died, and 13 out of 89, or 14.6 per cent., of those receiving the serum treatment.

SENATOR GALLINGER ON ANTITOXIN.—The United States Senate has included in an amendment to the Appropriation Bill a sum of \$20,000 for a bacteriological laboratory and disinfecting service for the District of Columbia, and for the distribution of antitoxin in the district. Senator Gallinger, of New Hampshire, who is himself a physician, (of the homeopathic school), took occasion to make a speech in which he ridiculed medicine as "the science of guessing." The honorable senator and learned physician then went on to ridicule antitoxin, and say that he soon expected to see it relegated to the tomb of medical discoveries that have been declared worthless if not absolutely harmful. Strange that such ridicule coming from a man who is a United States Senator and at the same time a physician should not have been sufficient to kill the amendment. His words can hardly have had the weight that their author's distinction should carry with them!

A CALL FOR A COLLECTION OF STATISTICS ON SERUM THERAPY IN DIPHTHERIA.—Realizing the importance to our knowledge of serum therapy in diphtheria of the tabulation of a very large number of cases, treated under all possible conditions, as to hospital and private practice, the mildness or severity of epidemics, etc., and the fact that the observations heretofore published have each of them a certain local limitation, and relate to a rather limited number of cases; the editors of the *Deutsche medicinische Wochenschrift* have inaugurated a plan for the collection of statistics on a large scale, embracing the entire German empire. The plan is similar to that which has been successfully employed several times by the *British Medical Journal* for the collection of statistics on important questions. Blank forms have been sent to all the physicians in the German empire, each physician being requested to fill them out and return them to the editors. In this manner the editors hope to be able to collect the results of all cases of diphtheria treated by antitoxin between the present time and April 1, 1895. In this undertaking the editors have the support of such men as Leyden, Litten, Renvers, Heubner, Behring, Ehrlich and Guttstadt. The editors expressly state that they expect from this statistical investigation no definite settlement of the antitoxin question, but hope from the tabulation of the material collected, to give physicians a firmer foundation on which to base their therapeutic use of the antitoxin, and at least temporarily to solve their doubts as to its value.

PERSISTENCE OF THE DIPHTHERIA BACILLUS IN THE THROAT FOR SEVEN AND A HALF MONTHS.—Schäfer, in the *British Medical Journal* of January 12th, reports the case of a boy who had an attack of "tonsillitis" early in last May, which was recognized to be diphtheritic on the occurrence of characteristic paralyses, two months later. Seven and a half months

later two other boys in the same school, one of whom slept in the same dormitory, and the other of whom shared a desk with the May case, came down with diphtheria. A sample of mucus from the throat of the May case was sent for examination along with the others, and was found to contain numerous colonies of typical Löffler bacilli, which on inoculation into animals proved to be active. This is the first instance reported of the persistence of virulent bacilli for so long a period.

RUPTURE OF THE SPLEEN DURING COITUS. — Harrison gives, in the last number of the *Bristol Medico-Chirurgical Journal*, an account of the autopsy on a lion at the Clifton Zoölogical Gardens. The lion, a fine specimen of his kind, and previously considered perfectly healthy, was found dead in his cage one morning. The autopsy showed an enormous intra-abdominal hemorrhage from rupture of the spleen, which was thought to be undoubtedly due to the exertion of coitus, which had taken place the evening before. The spleen was much enlarged, weighing $21\frac{1}{2}$ pounds, the enlargement, according to Dr. Harrison, being due to increase in the lymphatic and vascular elements. The animal was sick a short time two months before his death, but the symptoms pointed to the thorax. As the death occurred in 1878, before much attention had been called to the value of examination of the blood in these cases, no such examination was made.

GASTROSTOMY FOR FOREIGN BODIES. — At a recent meeting of the Leeds and West Riding Medico-Chirurgical Society Mr. Mayo Robson read an interesting paper upon a remarkable case of foreign bodies removed from the stomach of a child by gastrostomy. The patient was ten years of age, and had been admitted into the hospital for gastric symptoms which were not of a very definite nature. For eight months the symptoms had persisted without yielding to any treatment. However, while under observation in the hospital the patient vomited a nail. It was then decided to open the stomach, and as a result of the operation the following curious collection of heterogeneous objects were removed: 47 cast-iron garden nails, $1\frac{1}{8}$ inches long; 93 brass and tin tacks, $\frac{1}{2}$ inch to 1 inch long; 12 large nails, some brass-headed; 3 collar studs, 1 safety pin, 1 sewing needle. All these, of course, had during the previous eight months been swallowed by the child. The operation would healed by first intention, the patient making a complete recovery.

BACILLI TUBERCULOSIS IN CIGARS. — Dr. Kerez (*Centralblatt für Bacteriologie*) reports the result of experiments which he has been making for the purpose of determining the possibility of the communication of tuberculosis through the medium of cigars. It is a well-known fact that cigar-makers are in the habit of making the leaves adhere to the cigars by moistening them with saliva from their own mouths. The force of habit leads them to continue this practice, although in recent times manufacturers provide their

workmen with materials for the purpose indicated. Dr. Kerez made cigars by moistening the leaves with saliva known to contain tubercle bacilli. The cigars were then dried and packed away in boxes in the usual manner. It was found afterward, when the cigars were unrolled and the leaves washed in water, that the infusion thus obtained, having been injected into guinea-pigs produced tuberculosis, clearly showing that cigars may thus be the means of communicating tubercle bacilli and giving rise to pulmonary disease. — *La Médecine Moderne*.

NEW YORK.

DEATH-RATE OF NEW YORK CITY. — During the week ending February 2d, there were reported 952 deaths in the city, an increase of 19 over the preceding week. There were 203 deaths from pneumonia, 71 from influenza, and 33 from diphtheria.

BEQUESTS FOR THE HOME FOR INCURABLES. — The Home for Incurables, which is situated at Third Avenue and 184th Street, has recently received two bequests, one of \$70,000 and one of \$10,000, and the money is to be devoted to the erection of a large new wing to the hospital.

ELECTRICAL EXECUTION. — In the case of the negro murderer, David Hampton, who was executed by electricity at Sing Sing prison on January 28th, the autopsy showed considerable ruptures of the cerebral arteries as a result of the current. Any attempt at resuscitation in this instance at least would therefore have proved fruitless.

DAMAGES FOR DEATH BY ACCIDENT. — Under the old Constitution of the State the limit for damages recoverable for death by accident was placed at \$5,000, but under the amended Constitution there is no limit to such damages. On January 30th \$18,000 was awarded by a jury to the widow of Terence C. O'Reilly for the death of her husband, who was killed by a mail wagon; this being the first case of the kind since the new Constitution went into effect.

DEATH OF DR. OSTRANDER. — Dr. Ferdinand W. Ostrander, who had the reputation of being the oldest practising physician in Brooklyn, died at his residence in that city on January 30th. He was born in New York on June 4, 1804, and at the age of twenty-three was graduated from the College of Physicians and Surgeons. For the past ten years the greater part of his practice has devolved upon his son, Dr. John W. Ostrander. All his professional career was spent in the city of Brooklyn, and he was at one time health officer there.

PREVALENCE OF PNEUMONIA. — Pneumonia continues to be very prevalent and fatal, a large proportion of the cases no doubt resulting as a sequence of influenza. During the week ending January 26th, out of a total mortality of 933 in the city, no less than 199 were due to this disease. In a recent report Dr. John T. Nagle, Registrar of Vital Records, in pointing out the increase of pneumonia during the last four years, states that in the year 1830, when there were 5,498

deaths in the city, only 228, or 1 in 22.8 were due to this cause; while in 1893, when the deaths numbered 44,486, 6,487, or 1 in 6.86, were from pneumonia.

THE NEW YORK COUNTY MEDICAL ASSOCIATION. — At the recent annual meeting of the New York County Medical Association, Dr. S. B. W. McLeod was re-elected President, Dr. A. D. Ruggles, Vice-President, Dr. P. Brynberg Porter, Recording Secretary, and Dr. John H. Hinton, Treasurer. Dr. N. G. Bozeman was elected Corresponding and Statistical Secretary, and Dr. Thomas H. Burchard, member of the Executive Committee. The report of the Statistical Secretary showed that during the year 105 new members had been elected and that there were now upon the roll of the Association 1,006 active members.

DR. A. L. LOOMIS'S WILL. — By the will of the late Dr. Alfred L. Loomis the income of \$25,000 is given to the Loomis Laboratory, and whatever part of the income is not used is to be paid to the professor of pathology and practice of medicine in the University Medical School. To the New York Academy of Medicine is left \$10,000, the bequest to be known as the Loomis Entertainment Fund, and the interest to be used in providing entertainment for the Fellows of the Academy. His medical library is left to his son, Dr. H. P. Loomis. The total value of the real estate is placed at \$400,000 and of the personal property at about \$600,000.

Miscellane.

CREDIT SIDE OF THE CHOLERA ACCOUNT.¹

A REDUCTION of more than fifteen per cent. in the general death-rate is, grossly stated, the claim made for the sanitary administration of Great Britain initiated by Sir John Simon in 1865, when he undertook the defence of that country against Asiatic cholera. Abandoning *in toto* the system of defence by quarantine restrictions, as against that individual disease, a vast machinery of notification, isolation and disinfection with reference to the infectious and contagious diseases generally, has been organized, the efficiency of which may be measured, with substantial accuracy, by the statistics of one group of diseases — the typhoid or enteric and other continued fevers. Thorne-Thorne has recently shown that, whereas the mean annual death-rate of this group was 567 per million living in the five years 1869-73, it was only 179 in the five years 1888-92; that if, during this latter quinquennium, people had died of these fevers at the rate at which they died in the former five-year period, there would have been during 1888-92 no fewer than 55,808 more deaths than actually occurred; and that had the same mortality obtained in 1892 that prevailed in 1869 no less than 14,232 persons who, at the end of 1892, had escaped death from these causes, would have died during that year. "In short," he says, "even if cholera had recurred in England and Wales between 1867 and 1892 — a period during which that disease was practically absent from our midst — on the same scale as be-

tween 1849 and 1866, we should still be the gainer by several hundreds of thousands of human lives. And our gain in this respect is largely due to the incentive given by reason of cholera prospects and of the knowledge that the disease would have to be met by improved sanitary administration."

CONGENITAL PHIMOSIS.

THE following account of a case of congenital phimosis appears in a recent number of the *Southern Practitioner* (October, 1894): "It is remarkable," says the writer, "for the length of time the patient has been subjected to symptomatic medication without regard to the obvious cause of the trouble." It is equally interesting for the secondary effect of the phimosis upon the *lingua* of the writer.

J. H. W., age nineteen, a machinist by occupation, sought advice in relation to his *vita sexualis*, August 4, 1894. Examination revealed an extreme degree of phimosis, the foreskin being long, redundant, and flabby, with a hair-like orifice at the extremity. The integument being involuted, passed back an inch or more, when it joined the mucous membrane in such a manner as to form a complete *cul-de-sac* of considerable dimensions. Into this *plica abnormalis* the patient passed his urine, it having a sufficient capacity to hold the entire quantity of urine voided at one time. After urinating the patient had to milk or squeeze the urine out of the *cul-de-sac* with his fingers, so small was the orifice.

Urine could be passed when the bowels acted only. The general health had never been good, and the patient complained of many functional disorders, such as palpitation of the heart, constipation, indigestion, nervousness, insomnia, vertigo, night emissions, erotic dreams of men, great exhaustion, lack of energy, anemia, insufficient self-confidence, both mentally and morally, and perverse sexual instinct.

We quote *verbatim et literatim* the remainder of the history:

"Patient attempted coitus once two years ago with a *puellæ publicæ*, but did not have *immissio peneum* in vagina, and becoming disgusted with *femmes*, never repeated the attempt, but practised mental onanism occasionally by imagining the *cul-de-sac terminalis* to be a vagina in *puellæ pulchra*, had ejaculation in from two to five minutes, the semen lodging in the *plica abnormalis*, and squeezed out through the small opening per *manum* subsequently. In his dreams he always played the role of *femina*, and *vice versa* when awake. His *libido* had been intense as far back as he could remember. Diurnal involuntary erections occurred repeatedly, but not followed by ejaculation unless he thought of *puellæ pulchra*."

A circumcision resulted in a complete restoration to health and to the vernacular.

STEAM AS A HEMOSTATIC.

PROF. W. F. SNEGIREW,² of Moscow, reports the successful use of steam for hemostatic purposes in several cases where other means have been unsuccessful.

¹ Journal of the American Medical Association.

² Deutsche med. Woch., No. 38, 1894.

ful or inconvenient. His attention was first called to the possibility of using steam as a general hemostatic, as the result of a severe hemorrhage occurring during an operation on the liver. On reading the literature of hepatic hemorrhage he was impressed, he says, by the general helplessness of the surgeon in such cases. "Even the actual cautery was not always sufficient, and in most cases required the additional aid of a closely placed tamponade of gauze."

For some time Professor Snegirew had been in the habit of using steam as a cauterizing and hemostatic agent in the treatment of uterine disease, in the following manner: After dilating the uterine canal an application of steam was made through a small metal tube enclosed in a catheter. After a half or at most a full minute of this application, a dark fluid, with a strong brothly odor, returns through the catheter. In his experience there has been no pain attending this application and many cases of tender, painful, bleeding conditions of the uterine mucosa have been entirely relieved.

Carrying out the suggestion from this use of steam he conducted a series of experiments with Dr. Blagowolin, to determine the hemostatic value of steam upon the liver and other organs. Their results in animals were as follows:

(1) They were enabled to remove without loss of blood such sized pieces of the liver as they chose, the animal surviving.

(2) Similar results were obtained on the spleen.

(3) They removed entire lobes of the lung without hemorrhage.

(4) Considerable sized pieces of kidney were successfully removed.

(5) From the brain, excision of pieces up to a limited size.

(6) Bleeding from the spongy portions of bones was stopped.

(7) The marrow was scalded, but the restoration of the bone went on as usual.

(8) The femoral artery of a dog, cut through either across its course or lengthwise, did not bleed under the application of steam.

(9) The wounds after the use of steam healed by primary intention in animals, and also in men upon whom it was used.

As the result of these experiments, steam was used as a hemostatic during the past summer in the Alexiner Semstwo Hospital with success in the following operations:

(1) In five cases of resection of the knee-joint, without elastic bands, ligatures or artery forceps.

(2) In the extirpation of a cancerous breast, under the same conditions as above; also in the removal of fatty and malignant new growths in the skin.

(3) In amputation of the cervix uteri and in fibromyotomy.

(4) In resection of bone and in removing sequestra.

(5) In abscesses, to render them odorless and induce rapid healing.

(6) In fistulæ and sinuses, especially when tubercular.

There seems little doubt in the minds of the investigators that in steam they have found a hemostatic of ready usefulness, aseptic, not interfering with primary union, and above all applicable to parenchymatous organs, such as the liver. Certainly further reports will be eagerly awaited.

THERAPEUTIC NOTES.

FOR THE VOMITING OF PREGNANCY.—The following is from the *Practitioner*:

R. Menthol gr. x
Olei Amygdale 3 i.
Solvo. Six to ten drops on a lump of sugar.

THE TREATMENT OF DIPHTHERITIC LARYNGEAL STENOSIS.—Brenner Berent¹ has in two cases seen remarkably good results follow painting with cantharidal collodion of a spot the size of a half-dollar over the thyroid cartilage.

STERILIZATION OF KNIVES FOR SURGICAL PURPOSES.—In the *Archiv. für klinische Chirurgie* (48, 4, Berlin, 1894), Ihle states that knives can be rendered aseptic by boiling in one-per-cent. soda solution, without affecting in any way the sharpness of the edge. The manner in which this dulling ordinarily takes place is that the edges are dulled against the sides of the boiler or the other instruments. He proposes a small knife case to be boiled with the instruments. As soda crystals consist of 75 per cent. of water of crystallization, it is necessary in order to obtain a one-per-cent. solution to employ at least three tablespoonfuls to the half litre of water.

¹ Therap. Monatshefte, September 9, 1894.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 26, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.	
New York . .	1,956,000	933	288	8.47	27.61	.55	4.29	1.21	
Chicago . .	1,600,000	—	—	—	—	—	—	—	
Philadelphia . .	1,139,457	488	155	14.07	18.06	3.15	8.61	.42	
Brooklyn . .	1,043,000	496	157	7.80	25.00	.40	5.40	.60	
St. Louis . .	540,800	—	—	—	—	—	—	—	
Boston . .	501,107	220	77	13.05	23.85	1.35	7.20	.90	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Washington . .	285,000	89	21	6.72	15.68	—	1.12	—	
Cincinnati . .	325,000	115	39	4.35	24.36	—	1.4	1.74	
Cleveland . .	325,000	101	34	12.87	—	.99	.99	9.02	
Pittsburg . .	272,000	109	38	14.72	19.32	5.52	6.44	1.84	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	33	7	9.09	15.15	3.03	—	6.06	
Charleston . .	65,165	—	—	—	—	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	100,410	30	15	26.66	13.33	3.33	16.66	—	
Fall River . .	92,233	25	12	4.00	44.00	—	4.00	—	
Lowell . .	90,613	29	7	—	17.25	—	—	—	
Cambridge . .	79,607	34	12	8.82	11.76	—	5.88	2.94	
Lynn . .	68,123	18	5	—	5.55	—	—	—	
Springfield . .	50,284	19	5	5.12	10.28	—	—	—	
Lawrence . .	49,900	—	—	—	—	—	—	—	
New Bedford . .	47,741	20	3	—	10.00	—	—	—	
Holyoke . .	43,348	—	—	—	—	—	—	—	
Brookton . .	33,939	8	2	—	12.50	—	—	—	
Salem . .	33,155	10	3	10.00	20.00	—	—	10.00	
Haverhill . .	32,925	13	4	9.76	—	—	—	—	
Malden . .	30,209	—	—	—	—	—	—	—	
Chelsea . .	29,806	—	—	—	—	—	—	—	
Fitchburg . .	29,343	4	0	25.00	—	25.00	—	—	
Newton . .	28,837	10	1	—	10.00	—	—	—	
Gloucester . .	27,293	—	—	—	—	—	—	—	
Taunton . .	26,954	14	4	14.28	—	—	7.14	—	
Waltham . .	22,058	9	1	—	22.22	—	—	—	
Quincy . .	19,642	9	4	—	11.11	—	—	—	
Pittsfield . .	18,802	2	0	—	—	—	—	—	
Everett . .	16,586	4	1	25.00	—	—	—	25.00	
Northampton . .	16,331	5	2	—	40.00	—	—	—	
Newburyport . .	14,072	11	0	9.09	18.18	—	—	—	
Amesbury . .	10,920	2	1	—	—	—	—	—	

Deaths reported 2,955: under five years of age 923; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 289, acute lung diseases 619, consumption 345, diphtheria and croup 148, scarlet fever 38, typhoid fever 38, diarrheal diseases 20, whooping-cough 16, cerebro-spinal meningitis 12, measles 11, erysipelas 5, small-pox 1.

From diarrheal diseases New York 7, Philadelphia 4, Boston 3, Brookline 2, Cincinnati, Lynn, Springfield and Taunton 1 each. From whooping-cough New York 4, Brooklyn 3, Philadelphia, Boston and Washington 1 each. From cerebro-spinal meningitis New York 4, Washington 3, Cleveland and Lynn 2 each, Worcester 1. From measles New York 4, Philadelphia and Boston 2 each, Brooklyn, Worcester and Haverhill 1 each. From erysipelas New York 2, Philadelphia, Brooklyn and Boston 1 each. From small-pox New York 1.


In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 19th, the death-rate was 21.7. Deaths reported 4,407: acute diseases of the respiratory organs (London) 399, measles 96, whooping-cough 66, diphtheria 63, diarrhea 49, fever 36, scarlet fever 25, small-pox (Birmingham 2, London 1) 3.

The death-rates ranged from 12.9 in Plymouth to 33.4 in Wolverhampton; Birmingham 27.9, Bolton 29.3, Bristol 21.9, Burkle 26.2, Huddersfield 22.0, Leeds 24.9, Leicester 15.1, Liverpool 28.3, London 20.0, Manchester 23.3, Newcastle-on-Tyne 21.2, Nottingham 22.9, Portsmouth 20.6, Sheffield 22.7, Sunderland 30.7, Swansea 21.0, West Ham 18.4.

METEOROLOGICAL RECORD.

For the week ending January 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...20	30.22	24	33	15	52	58	55	W.	W.	12	10	F.	C.	.04 .18
M...21	29.87	33	42	24	67	100	84	S.	E.	4	14	O.	R.	
T...22	29.40	42	48	35	94	52	73	W.	W.	8	23	O.	O.	
W...23	29.61	28	32	24	53	67	60	W.	W.	10	12	C.	C.	
T...24	29.88	21	26	16	61	50	50	W.	W.	14	12	C.	C.	
F...25	30.25	22	30	15	46	59	52	W.	W.	12	5	C.	C.	
S...26	29.52	39	53	25	97	72	84	W.	W.	36	17	R.	O.	1.06

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall.  Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 26, 1895, TO FEBRUARY 1, 1895.

The extension of leave of absence on account of sickness, granted FIRST-LIEUT. HENRY R. STILES, assistant surgeon, is still further extended two months on surgeon's certificate of disability.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING JANUARY 31, 1895.

AUSTIN, H. W., surgeon. To proceed to New Bedford, Mass., as inspector. January 18, 1895.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, February 14th, at 8 o'clock, by Asst. Prof. M. H. Richardson. Subject, "The Operative Surgery and Prognosis of Mammary Cancer." Physicians are cordially invited.

RECENT DEATH.

LEVI PILLSBURY, M.D., M.M.S.S., died in Fitchburg, Febru-
ary 4, 1895, aged seventy-seven years.

BOOKS AND PAMPHLETS RECEIVED.

Electro-Therapeutics in the Practice of Dermatology. By Richard B. Faulkner, M.D., Alleghany, Pa. Reprint. 1894.

Astigmatism as a Factor in the Causation of Myopia. By Leartus Connor, A.M., M.D., Detroit, Mich. Reprint. 1895.

Intraligamentous and Retroperitoneal Tumors of the Uterus and its Adnexa. By William H. Wathen, A.M., M.D. Reprint. 1894.

Modern Homeopathy, Its Absurdities and Inconsistencies. By William W. Browning, A.B., LL.B., M.D., Brooklyn, N. Y. Reprint. 1894.

The Code Question from the Standpoint of a General Practitioner. By D. A. Robinson, M.D., of Bangor. Portland: Stephen Berry. 1894.

Thirteenth Annual Report of the Trustees of the Northamp-
ton Lunatic Asylum for the year ending September 30, 1894. Boston: Printed by the State. 1895.

The Relation of Static Disturbances of the Abdominal Viscera to Displacements of the Pelvic Organs. By J. H. Kellogg, M.D., Battle Creek, Mich. Reprint. 1894.

A Surgical Kit Containing all the Essentials for Aseptic Operations at Private Residences. By Reuben Peterson, M.D., Grand Rapids, Mich. Reprint. 1894.

Ligation of the Internal Jugular Vein for Profuse Hemorrhage caused by a Sloughing Adenitis, which followed Malignant Scarlet Fever. By Lewis H. Adler, Jr., M.D. Reprint. 1891.

Ueber eine Färbemethode, mit der man Diabetes und Glycosurie aus dem Blute diagnostisciren kann. Von Dr. Ludwig Bremer, St. Louis, Mo. Sonder-Abdr. a. d. Centralblatt f. d. med. Wissenschaften, 1894, No. 49.

Hygiene of the Eye. Evisceration of the Eye-Ball. Imme-
diate Capsulotomy following the Removal of Cataract. An In-
troductory Address to the Students of the Medico-Chirurgical College. By L. Webster Fox, M.D., Philadelphia. Reprints. 1894.

Las Inflammaciones Pelvianas de la Mujer y su Tratamiento Racional segun la Clinica. (Comunicacion al XI Congreso In-
ternacional de Medicina, Roma, 29 de Marzo, 1894.) Por el Dr. D. Celestino Martin de Argenta, Director de una Clinica ginecologica y Profesor libre de Ginecologica a Salamanca. Madrid. 1894.

Ueber Tubarschwangerschaft und die Behandlung der Blunt-
ungen in die Bauchhöhle infolge von Tubarschwangerschaft. Ueber die Behandlung der Placenta Prævia mittels intrauteriner Kolpeuryse. Ueber eine neue Heilmethode der Harnleiterschei-
denfisteln nebst Bemerkungen über die Heilung der übrigen Harnleiterfisteln. Von A. Dührssen, Berlin. Reprints. Leipzig. 1894.

Syllabus of Gynecology based on the American Textbook of Gynecology. By J. W. Long, M.D., Richmond, Professor of Gynecology and Pediatrics in the Medical College of Virginia; Gynecologist to the Hospital of the Medical College of Virginia, etc.; Fellow of the American Association of Obstetricians and Gynecologists; Fellow of the Southern Surgical and Gynecolog-
ical Association, etc. Philadelphia: W. B. Saunders. 1895.

The Theory and Practice of Medicine. By Fredrick T. Roberts, M.D., B.Sc., F.R.C.P., Fellow of University College; Professor of Materia Medica and Therapeutics and of Clinical Medicine at University College; Physician to University Col-
lege Hospital; Consulting Physician to Brompton Hospital for Consumption and Diseases of the Chest; Late Examiner in Medicine at the University of London and for the Conjoint Board; Vice-president of the Medical Society of London, etc. Ninth edition. Philadelphia: P. Blakiston, Son & Co. 1894.

Notes on the Newer Remedies, Their Therapeutic Applications and Modes of Administration. By David Cerna, M.D., Ph.D., Demonstrator of Physiology and Lecturer on the History of Medicine in the Medical Department of the University of Texas; formerly Assistant in Physiology; Demonstrator of and Lecturer on Experimental Therapeutics in the University of Pennsylvania; Fellow of the College of Physicians of Philadel-
phia; Member of the Philadelphia Pathological Society, etc. Second edition, enlarged and revised. Philadelphia: W. B. Saunders. 1895.

Über Heilerfolge von Bädern bei Frauenkrankheiten. Vortrag auf dem Balneologenkongress. Kaiserschnitt, tiefe Cervixin-
cisionen und mechanische Dilatation des Muttermundes. Ueber den Werth der tiefen Cervix- und Scheidendamm-Einschnitte in der Geburtshülfe. Ueber die Behandlung der Blutungen nach der Geburt. Ueber die operative Heilung der mobilen und fixirten Retroflexio uteri auf vaginale Wege mit besonderer Berücksichtigung der Dauererfolge. Ueber eine neue Methode der Laprotomie (vaginale Coeliotomie). Von A. Dührssen, Ber-
lin. Reprints. Berlin.

A Manual of Organic Materia Medica and Pharmacognosy, an Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs, Comprising the Botanical and Physical Characteristics, Source, Constituents and Pharma-
ceopial Preparations, with Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. By Lucius E. Sayre, Dean of the School of Pharmacy; Professor of Materia Medica and Pharmacy in the University of Kansas; Member of the Committee of Revision of the U. S. Pharma-
copœia. With 543 illustrations, the majority of which are from original drawings. Philadelphia: P. Blakiston, Son & Co. 1895.

Original Articles.

MEDICAL TREATMENT IN DIPHTHERIA.¹

BY A. L. MASON, M.D.,
Visiting Physician, Boston City Hospital.

In a brief consideration of the medical treatment in diphtheria, which I have attempted at the request of your President, by way of introducing a general discussion on that subject, I will ask your attention to the more serious questions relating to that disease as they have presented themselves clinically in an experience of twenty years, during the latter part of which period my colleagues and myself at the Boston City Hospital have had under our charge annually a very large number of cases, many of them of the worst description.

While the recently proclaimed success of the treatment of diphtheria by the antitoxin may almost render it superfluous further to discuss the plodding methods by which we have so long struggled with this disease, still it may not be unprofitable to defer an opinion as to the rôle in therapeutics which this great discovery is destined to play, and by a study of past results to form an estimate of the many dangers which this new agent will be expected to overcome.

From 1880 to 1889, 1,300 cases of diphtheria entered the hospital; and in more recent years the admissions have been 300 or 400 annually. About one-third have required tracheotomy or intubation, and the great mortality in cases of respiratory obstruction is practically uninfluenced by any medical treatment hitherto at our command. Exclusive of those cases which have needed surgical interference, the death-rate in those requiring medical treatment alone has been 25 per cent.; nearly double that rate, however, for the whole series.

Without entering into the details which explain the terrible fatality of diphtheria in all communities where it is endemic, as during the last fifty years it has become in most of the large cities of Northern Europe and America, it may be said in brief that the disease often makes fatal headway before its character is recognized; and that the absence of coöperation on the part of most of the subjects, owing to their tender years, throws special difficulties in the way of successful treatment by the measures heretofore adopted. The simple injection of a fluid will, of course, entirely do away with this latter difficulty.

Passing by the milder forms of tonsillar diphtheria, which get well under almost any treatment, in the severer types, with extensive faucial, nasal or tracheal exudate and glandular swellings, there is a threefold danger to life, namely, through septic exhaustion, tracheal obstruction, and the various complications and sequels, of which the most serious are broncho-pneumonia, acute nephritis and toxic paralysis. Dysphagia may, from the outset, cause grave difficulty in nutrition.

What then are our means of contending with or of averting these conditions? Can we prevent septic absorption or overcome profound sepsis after it has developed? Can we stop the extension of membrane to the larynx, trachea or bronchi? Can we ward off pneumonia, acute nephritis or paralysis? Or can we cure these complications when they arise?

The answer to most of these questions must, in the light of past experience, be negative; and so it will be

in the future with regard to many cases coming late to treatment. With a disease sometimes so treacherous and virulent, and at others so mild as to escape notice, it is useless to dogmatize about this or that special therapeutic measure which may, from time to time in a limited number of cases, be attended by favorable results above the average.

Until the present year those physicians whose experience and observation have been the most extensive were unable to claim any great degree of success in contending with the worst types of diphtheria. In spite of the most assiduous efforts, its ravages have remained practically unchecked. Many bad cases, and some which appear almost hopeless, respond to the general and special measures which are adopted, but we have had no confidence in such a successful result.

The indications for treatment are clear, and point to such measures as will save and maintain the strength of the patient, with the discriminating use of those local applications which tend to check or neutralize toxic absorption and to prevent invasion of the respiratory tract.

In the maintenance of the strength which so rapidly fails in this disease, not only is the ingestion of a sufficient quantity of easily digested food essential, in a shape which can be best swallowed, but the wasting of the vital forces by too much painful and exhausting treatment must be avoided. Vierordt in his "Medical Diagnosis" says, "In diphtheria immediate death may follow an effort to examine the throat."

Tincture of the chloride of iron, oxygen and alcohol, in large doses, have met with professional approval to correct toxemia and to sustain the flagging heart. They are doubtless serviceable in many cases *not* of the most septic type, but in the latter, absolutely ineffectual. The same is true of strychnia, strophanthus and digitalis. Internal antiseptic drugs have not proved beneficial.

Early difficulty in swallowing may be the result of simple pain or of paralysis. Regurgitation through the nose attends the latter condition, and may occur in the first week. Care must then be exercised in the administration of food and medicines, both on account of the distress which the patient experiences in his efforts at deglutition, and the danger of strangling, or of broncho-pneumonia from the entrance of food into the air-passages, the so-called deglutition-pneumonia. Choking may be fatal as in the following instance reported to the Clinical Society of London by Dr. White last February: A patient with diphtheritic paralysis, while drinking a cup of tea, was seized with cough, spasm and dyspnea. He died, and at the autopsy an ounce and a half of tea was found in the bronchial tubes. There was no other cause for the sudden death.

Nutritive enemata may partially obviate this difficulty in the adult, but they are seldom well retained by young children. Systematic feeding by a soft catheter passed through the nostril into the gullet sometimes saves life. I have seen recovery in the case of a child with complete faucial paralysis who for four weeks could be fed in no other way. Dr. W. A. Morrison, at the Suffolk District Society last year, related several cases successfully treated in this manner.

LOCAL TREATMENT.

In the use of topical sprays or lotions, it must be asked, Have we any agent on which we can depend to arrest the disease or to prevent the extension of mem-

¹ Read at a meeting of the Boston Society for Medical Improvement, November, 1894.

brane to dangerous localities? It is not improbable that success would oftener attend our efforts in this direction if cases were seen at an earlier stage, but in those which have already become malignant, in which the membrane spreads with great rapidity, nothing at our command has thus far been able to avert septicemia or croup with any degree of certainty whatever.

In the use of local remedies there is great room for choice and for individual judgment as to the mode and frequency of their application. Their effect upon the patient must be carefully observed, the amount of pain which they cause and the degree of fatigue which follows. Great exhaustion not uncommonly ensues in patients whose hearts are already weakened, therefore it is evident that in such cases, especially with young and frightened children, it is best to make the intervals less frequent and to use the milder and less painful cleansing agents. Physicians have recommended an almost constant spraying and swabbing of the nose and fauces, every half-hour, day and night. Such zealous measures, except for very brief periods, exhaust the child and wear out the nurses. Force is objectionable, but its judicious use may be necessary in young subjects. In patients with pallid countenance and feeble pulse, no treatment which obliges them to sit up is permissible. Irrigation with the douche bag can be resorted to in the recumbent position. Sleep, fresh air and an abundance of drinking-water are of the first importance. Plain or medicated steam, so often used for impending croup, is of doubtful benefit and the heat is uncomfortable.

Of the many detergent and antiseptic remedies for cleansing and sterilizing the nose and fauces, I will mention but few, as, one after another, the more powerful and painful agents have been generally abandoned as useless or harmful. Mild carbolized sprays, such as Dobell's, lime-water, warm alkaline solutions, chlorine-water, and peroxide of hydrogen, may be used, the latter in a ten- or fifteen-volume solution, or stronger, once or twice daily for a few days for the removal of membrane. It has a perceptible effect upon the exudate, but is sometimes painful, and I think its prolonged use is more irritating than the other substances mentioned. Its germicidal effect must be considered, and in this respect I have also thought swabbing twice a day with corrosive sublimate, 1 to 5,000 or 10,000, valuable. Mercurial poisoning may occur. This is an objection to the free use of corrosive sublimate inhalations from the steam atomizer. A saturated solution of boracic acid is often used. Cocaine mitigates the pain of local applications.

With these measures we see many bad throats, and a few of the worst clear up and recover, even after a moderate degree of sepsis has developed, and most certainly the employment of active antiseptic measures in a prudent manner, is and always will be a requisite in the management of the throat affection in diphtheria, not only with reference to the Klebs-Löffler bacillus, but also to the streptococci and staphylococci which add so much to the danger. But they do not reach far enough.

The disinfection of the nose is most difficult, both on account of pain, when forcible spraying is resorted to in the swollen and almost impervious condition of the nostrils, and from the inflammation of the frontal sinuses and middle ear caused by too zealous attempts to cleanse the nasal passages by the douche or atomizer. Therefore, I have formed the opinion that, in young

children especially, the blandest fluids, at a warm temperature, by the force of their own gravity only, should be used in the nose. Adults may use the warm saline douche, or a very weak solution of peroxide of hydrogen, cautiously.

Again, we may see the throat clear up satisfactorily and the glands subside while the disease is making insidious progress in the windpipe and bronchi. Then the expulsion of a "tree" of ramifying membrane sometimes gives warning of the end, for in such extensive involvement of the bronchial tubes recovery is a rare event.

Broncho-pneumonia and nephritis we cannot prevent, and they occur in a large proportion of cases. The nephritis, being of an acute infectious type, tends to recovery in those cases which survive the general malady, but convalescence is often slow and albuminuria may persist for many months. There is danger of exacerbations from errors of diet, fatigue, or undue exposure.

In a few septic cases there is an uncontrollable hemorrhagic oozing from the mucous membrane of the mouth, nose or pharynx, and rarely petechiæ occur. I have never seen one of these cases recover.

Especial difficulties sometimes arise in the management of diphtheritic paralyses. I have already alluded to the early deglutition symptoms which may complicate bad cases, and in the same way there may be, in the first week, dangerous impairment of the cardiac function, probably pneumogastric in origin, since frequent vomiting is an attendant symptom. No doubt, too, the heart is the seat of septic invasion, which causes degeneration of the myocardium, in most cases of diphtheria. In a series of several hundred cases, a German writer (Hoppe-Seyler) found cardiac symptoms in one-half, and manifest fatty changes at most of the autopsies.

The effect of the diphtheritic toxines, however, in causing paralyses, is not usually a sudden one, but gradual and cumulative, after the active manifestations of the disease have ceased. Different sets of muscles may be invaded in turn according to no apparent rule. It is then that the persistence of a rapid, feeble pulse and a pallid face, excite apprehension of heart failure, and indicate the necessity of absolute repose and the utmost care to avert a fatal issue. A galloping rhythm, from asynchronous contraction of the ventricles, sometimes gives warning before the heart's action becomes rapid. Recovery is slow and there is often continued precordial pain and oppression. Such patients should be watched until the knee-jerk returns. I have recently observed a case for several weeks in which the muscles of the throat, legs, arms and eyes were involved, as well as the heart and respiration. It has not seemed to me that the usual cardiac tonics, such as digitalis and strophanthus, or even strychnia, are of much avail in this state. Alcoholic stimulants by the mouth, rectum, or subcutaneously have been of service in some cases of repeated collapse due to this condition, and the electric battery may be tried. Free elimination of the toxines, however, through the skin, bowels and kidneys, is quite as important as urging the heart and nervous centres to increased action.

In a former paper (1893) relating to the advantages to be derived from the opening of the New Hospital for Contagious Diseases, I ventured to say that it was not too much to expect that improved methods, especi-

ally as applied to the early stage of diphtheria, would result in a greater proportion of recoveries. We were not then aware of the extent of the antitoxin experiments which were going on in France and in Germany. In spite of the skepticism engendered by previous sero-therapeutic failures, and the commercial competition which the new remedy has excited, the evidence presented by Roux, Behring and others is so detailed and complete that a general feeling of hope and belief has arisen that the enormous mortality from diphtheria will soon be a thing of the past.

[NOTE.—During the last two months the mortality in 100 cases treated at the City Hospital by the antitoxic serum has been 14 per cent. These cases were mostly in the service of Dr. Withington and were of severe type.]

MEDICAL TREATMENT OF DIPHTHERIA.¹

BY E. M. BUCKINGHAM, M.D.,

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IN discussing the treatment of diphtheria the first question that presents itself is whether we shall treat it at all, or whether we shall decide that it is too dangerous, and shall therefore abandon it entirely to men without practice and without families, that is to say, give up the treatment of one of the most serious diseases known, to young men without experience. If this is really necessary it must be done; and if it is unfortunate for diphtheria patients, so much the worse for them. But in forming such a decision, which I think is a wrong one, we should be governed by reason and not by panic, that is to say, not by blind, unreasoning fear. If by study of the means by which contagion is spread, we can learn to take intelligent measures against it, and render it safe to go from diphtheria anywhere; then we are able to widen our sphere of usefulness and perform a duty which we owe to those who trust us with their health and lives.

Every one knows that under some circumstances diphtheria can be carried by mediate contagion. Of course, clothing or hands may be infected by contact with the patient; and there is positive evidence that clothing once infected may under suitable conditions retain the poison for a long time. On the other hand, there is, so far as I know, no evidence whatever that it floats about in the air, while there is certainly much evidence to the contrary. It is impossible for me to give all the evidence, much of it forgotten, that during a long service in the diphtheria wards has crystallized this belief into my mind; and it is not the intention of this paper to go beyond personal experience. I might cite cases of tonsillitis that have been sent to the City Hospital with the diagnosis of diphtheria, and have, of course, been admitted to the diphtheria service. After a proper period of observation very many such cases have been decided not to be diphtheria and have been discharged without contracting it, although breathing the air of the ward for days.

On one occasion last winter having made a two hours' visit, accompanied by two internes, a nurse and seven students — ten in all beside myself — an ample number to stir up whatever dust might be free, — I went directly to the laboratory without going into the open air, and had cultures made from my

pantaloons. New pantaloons were worn on this occasion in order that they might not be filled with street dust. These cultures were made from cotton that had been rubbed over the lower part of the leg, especial attention being paid to the inner surface where it slides on the boot. These cultures were examined by Dr. Wright with great care and with negative result so far as the diphtheria bacillus is concerned. I do not mean that there are no diphtheria bacilli on the floor. I know² that there are — sheets, etc., must occasionally touch the floor; but for a single severe practical test as to the danger of carrying contagion from the ward, this appears satisfactory. On another occasion I had my moustache examined — I think by Dr. Cumston — after spending a long time in personally examining nearly every throat in the wards. Numerous streptococci were found but no diphtheria bacilli. One would expect these results from the way in which these bacilli will often adhere to definite places for weeks, without invading neighboring parts. Thus they will be found on the tonsil but not in the nose, or *vice versa*, or membrane will remain in the larynx visible with the aid of the laryngoscope for long periods, during which the bacilli are not found elsewhere.

In order at once to illustrate the immunity with which the air of these wards can be breathed so long as contact is avoided, and to show what can be accomplished with the aid of antiseptics, let me report two cases.

Last winter a woman was admitted with supposed pseudo-diphtheria — a case that I shall not report in a collection of pseudo-diphtherias that I am making, because of a possible doubt as to the diagnosis. She had a syphilitic eruption, alopecia, and warts on the vulva. There was a mucous patch under the tongue; and while the appearance of the throat was that of diphtheria in the opinion of the admitting physician and of several of my colleagues as well as of myself, yet as the bacilli of diphtheria were never found, there might be a doubt in the minds of some who had not seen her. The day after admission this woman was delivered of a child in the ward. Dr. Stevens, the senior interne, attended to the confinement, giving a corrosive vaginal douche (1 to 1,000) before and after birth, and cleaning his hands with soap and water, then corrosive sublimate, and then permanganate of potash followed by oxalic acid. Of course, he paid particular attention to his nails. He must have had recently infected hands, as he had done several intubations within a short time; but his precautions were sufficient, for numerous cultures from the vagina at various times afterward, failed to show the presence of diphtheria bacilli. The woman stayed in the ward, and was attended by diphtheria nurses, who always corroded the hands before touching her. She wore an antiseptic pad. The baby was nursed by the mother, and cultures from its mouth and nose were always negative. That this might be done safely, the child was kept in a basket and never touched by the mother, while the breast was disinfected with corrosive sublimate before each nursing. Had I thought that the mother had true diphtheria, and had I not known that she had syphilis, I should probably have taken a different course on her account.

Another woman, with true diphtheria complicated with lobar pneumonia, was delivered in the ward at

¹ Read before Boston Society for Medical Improvement, November 26, 1894.

² Wright: *Centralblatt für Bacteriologie*, 1894.

eight months. This labor was in charge of the junior interne, Mr. (now Dr.) Waughop. An hour and a half was spent in resuscitating the child which had swallowed large quantities of amniotic fluid. It was then isolated in the ward as the other had been, and was fed from a bottle for two weeks, owing to the neglect of its friends to send for it. Notwithstanding its remarkable history, numerous examinations failed to find diphtheria bacilli in its mouth or nose. The course of the mother's disease, unfortunately gave us no opportunity to make cultures from the vagina. Dr. Waughop's precautions were soap and water and corrosive sublimate. Here, again, was an extremely good chance for infection, and the greatest credit belongs to both of these gentlemen, and to the nurse Miss Tirrell, all of whom must have infected their hands again and again every day, but all of whom were careful to disinfect.

Since the construction of the present diphtheria building, I have had service in it every year but one, in terms of one, two or four months; and while constantly watchful, I have never had reason to suspect that I had carried diphtheria from it to any one. During the present year I had a four months' service, the wards being uncommonly crowded;² and although I was attending to my usual patients and was seeing a fairly large number of children at the time, it so happened that only once did I see diphtheria in any one whom I had been near for many weeks. Indeed, I saw very little diphtheria among private patients. That once was the case of a child who had been in the room when I examined her sister on a single visit a week before, and who had been exposed at school since.

If this can be true of a man who is spending from one to three hours a day, oftener three than one, in the largest collection of diphtheria in the country (unless it be at New York), perhaps it follows that his methods of disinfection are sufficient. They are intelligible if one believes, as I do, that this disease is carried by contact, either direct or indirect, and that it does not appreciably float about in the air. (1) A clean linen cap and coat were worn while in the ward; both, I believe, unnecessary if one will be sure that neither his own infected hands, nor the patient, nor anything touched by the patient, or that has been touched by the nurse comes in contact with his dress or face or hair. (2) The sole of the boot was disinfected with corrosive sublimate after leaving the ward. (3) The hands and wrists were soaked, not merely wet, in corrosive sublimate, 1 to 1,000. (4) This solution was allowed to dry into the skin, unless a towel was at hand that had been touched by no one in attendance on the patients.

Leaving the treatment of the physician and coming to that of the patient, I may say that personal experience, so far as it entitles me to form an opinion, would lead me, at present, to give a better prognosis in cases in which the diphtheria bacillus is absent than in those in which it is present. In some twenty cases that came under my care last winter there were no deaths, and generally they made early recoveries. It is my impression that the same is true of my previous term.

Diphtheria in which the bacillus is found, begins, as a rule, very gradually. I have made particular inquiry with regard to this point in about half the adult cases that came into my service last winter. All had been

at their accustomed employment for one, or two, or more days, sometimes many days, after the beginning of sore throat or other symptoms of disease, such as coryza or malaise. Nevertheless, at the time of coming under observation, the circulation was always poor. I do not recall any exception. This poor circulation, which continues until convalescence is well established, is often manifested not so much by change in the rate of the pulse as by its compressibility. It is also shown by the slow return of color when it has been pressed out of the hands. This last is a very common symptom. Therefore, I am in the habit of giving stimulants from the beginning, often with a small initial dose, but knowing no upward limit until the pulse is strengthened, or on the other hand, intoxication or permanent smell of brandy are reached. I cannot recall more than one case of intoxication, but a permanent smell of brandy is a danger-signal that I have known to be followed by vomiting when its warning has been disregarded. Some patients can take surprisingly large amounts. The most extreme case that I recall was a girl of seven years with septic diphtheria, who took twelve ounces of brandy per day, with no apparent effect except to keep her heart beating. Of course, such cases need careful watching. Digitalis and strychnia have, I am sure, a valuable place in enabling us to keep the dose of alcohol within the limits of the stomach's tolerance. Rather to my surprise, the effervescence of champagne does not irritate the sore throat in all cases.

Since the disease is so exhausting, feeding is an important part of its treatment, but it is sometimes difficult on account of intense soreness in swallowing. Ice cream, iced milk, or iced milk and brandy mixed with a cobbler-shaker or an egg-beater, have enabled me to give much more food than I could have given without them. Rectal enemata have a place; and twice last winter, when the rectum failed to retain these, I have ordered liquids to be administered to a little child by means of a soft catheter into the stomach. Both children died. In one case the house physician exercised the discretion allowed him by stopping treatment, as the child was failing in spite of it. It is, I think, a cruel treatment, only to be resorted to in emergency. Even then, if there is great resistance, perhaps by exhausting the strength, it may kill as surely and less comfortably than would total neglect.

Rest is so important in maintaining the general strength that any treatment involving frequent serious disturbance of the patient ought to be looked upon with great suspicion. Disturbance of rest may do more than wear out the strength; it is just possible that it may increase the area of the local lesions. So little is known of the conditions favorable to the action of the diphtheria bacillus, and the following group of cases is so unusual, that they are reported for what they are worth.

Two internes, comfortably sick and occupying the same private room, amused themselves by playing ball for the greater part of an afternoon, tossing a folded handkerchief from bed to bed. On the following morning each of them was much prostrated, and each had an enormous increase of membrane. Two women, comfortably sick, acquaintances and also occupying a private room in common, were in and out of bed and in each other's beds many times in one evening, giving the nurse some trouble. The following morning each of them was much prostrated and with a great increase

² During these months there were 320 diphtherias in the service, including a few admitted with wrong diagnoses, but not including those in the wards on the first of February.

of membrane. Some twelve convalescent children were allowed to play together. They were so long in getting entirely well, that immediately after the occurrences just mentioned, they were all ordered to bed. They then began to recover one by one. These children had had scarlet fever as well as diphtheria.

Placing great stress on economizing strength, I think that care should be taken not to abuse the use of steam. It makes a depressing atmosphere, and if steam is concentrated about the bed by means of a tent, it also makes a close atmosphere, at times a very foul one. It is recognized that steam inhalation sometimes relieves dyspnea before surgical interference as well as after; and it is the abuse, not the use of steam that is objected to. I have no comment to make on its use after operation. Before operation, however, I think it should be intermitted long enough to find out if the occasion has passed, as we now know that the relief given by steam and poultices is occasionally permanent. Such permanent relief is so unusual that I was formerly inclined to think it occurred only in cases where dyspnea was due, not to membrane or infiltration, but to dryness of the mucous membrane caused by passing through cold streets. I have had, however, a few patients in whom this symptom has come on after days of residence in the hospital, and who have yet recovered under this treatment alone. Therefore, the rule, once dyspnea always operation, has a few exceptions. They are probably very few; and I should be sorry to write anything that would cause delay in seeking surgical aid for unrelieved dyspnea, even in case the immediate danger to life might not seem great. Such delay would mean wasted strength.

Among means of treatment, in which the present year's experience has taught me to place great reliance, is the combination of fresh air and sunlight. During February the wards were overcrowded, unavoidably so it seemed, and there was more septicemia than usual. For the first time in my life I learned to know the appearance of septic eruptions, although I had seen an abundance of septic diphtheria before. Among the children were many sore fingers, reddened about the nails. A few patients had red purpuric spots on the body as large as the thumb-nail. Others had an eruption closely resembling that of scarlet fever, but which in my opinion was not due to that disease. This eruption did not follow the regular march of scarlet fever from above downward, and the punctate spots were larger and quite purple. None of these patients lived long enough for desquamation. When, at last, enough admissions were refused to reduce the number of patients to the normal and the wards were cleansed, these eruptions suddenly ceased to appear. I recall one child desperately sick for weeks getting well, his improvement beginning on the day that he was moved from a small, crowded room to a bed in a large ward, where the morning sun streamed over him. The change for the better in each twenty-four hours was marked, and this was the only alteration in treatment. When the season was so far advanced that convalescents could be sent, and the beds of some who were not convalescents moved to the eastern piazza for the morning, and their dinners sent there, there was again sudden general improvement. Of course, this might take place in any disease, but the known destructive power of sunlight on diphtheria bacilli ought to be considered in connection with it.

It has been of interest to me to determine whether enlarged cervical glands and general infiltration of the neck were best treated by poultices or by ice-bags. After close observation of a large number of patients, I have no opinion as to which method causes these symptoms to disappear soonest; but a decided opinion that one or the other generally gives comfort, and that the large majority prefer the poultice, while a smaller number distinctly prefer the ice-bag.

Local applications to the throat are sometimes highly useful, although perhaps their importance is less than that of the general treatment. They are commonly made by gargles, swabbing or spraying. I have had little experience with gargles in diphtheria; swabbing is always objectionable to children. It frightens them and leads to a struggle, with corresponding waste of strength. If done gently it is sometimes preferred by adults, especially by those with very sore throats. Spraying seems the only practicable way of making these applications to children; but whether for children or adults, spraying should be done with the greatest gentleness. The mechanical irritation of a powerful spray is often extremely painful to an angry swollen throat, quite irrespective of its composition; and I believe that the complaints about the pain caused by certain sprays, depend more upon the manner in which they are used than upon anything else. There are times when any application, or even the opening of the mouth is painful, and there are adults who have decided preferences between the swab and the spray. I know of no reason for not consulting their preferences.

Peroxide of hydrogen has been used by me very largely as a local application. I think that it has been over-estimated but that it has a value; and I am sure that it is not the injurious drug that it has been said to be. For instance, it has been reported that solutions of fifty, fifteen, or even seven-and-a-half volumes are caustics. I think that these statements, as applied to the throat, must have originated in the use of a different peroxide from that which we have, or from a violent manner of use. It has not been my experience with the fifteen-volume solution furnished by the hospital or bought at various drug-stores in Boston. Children, as a rule, do not complain of it in spray, although they will not tolerate that or anything else applied with swabs. The same child will make no objection to the fifteen-volume spray in the mouth, will say that it does not hurt, and complain of the three-and-a-quarter volume in the nose. As a rule, adults say that even the fifty-volume spray does not hurt the mouth, although there are exceptions. Some even say that it is a relief to have the mouth cleaned with it. Complaints of the fifteen-volume spray are very rare. I have a few times seen a patch of denuded mucous membrane on the palate, due I thought to a fifty-volume spray. I have never seen this from the fifteen volume. I think that constant use of the fifty-volume spray is apt to redden the mucous membrane, although it is not sure to do so, and therefore that used in that strength it is probably an irritant. Being such, its continual use may possibly prolong the existence of the membrane. Whether I have or have not had this experience, I do not know. Some membranes last a long time with very little treatment, just as others disappear soon.

I have sprayed my own throat thoroughly with a fifteen-volume solution bought of an apothecary, and

it caused no pain although there was a slight sensation of effervescence. A fifty-volume solution procured at the hospital, and thoroughly pressed on absorbent cotton into the inside of the cheeks and lips until it began to be swallowed, caused very slight tingling, which lasted longer than the application. The same specimen rubbed into my wrist caused severe pain. Dropped upon the hand, it bleached it for thirty-six hours.

I repeated these experiments upon myself with another specimen, made by a private apothecary by boiling down the weaker solution of a different manufacturing chemist, and got identical results. The difference in the sensation in the mouth and on the hand was in each case most marked. Observe that the application to the hand and nose are painful, but, in the mouth the effect is much milder. Possibly a rapid dilution with saliva may account for the difference. It is to be observed that all my reports of the fifty-volume spray were when the application had been made by a trained nurse with great gentleness. I think we may conclude that the fifty-volume spray, while seldom a caustic, is too strong for routine use, if the object is merely to clean the mouth and not to exterminate the bacilli. Of its use for the latter purpose I will speak later. Second, any appreciable strength is too strong for the nose. It has the additional disadvantage that it probably penetrates the nose less far than most applications, because it fills the nostrils with foam, sufficiently to prevent the passage of a gentle spray. Third, there is no objection to the use of fifteen-volume solutions in the mouth.

So far, I have considered merely the question whether the peroxide of hydrogen does any harm. Does it do any good? It removes any bad odor from the parts it touches, and it cleans the dirty membrane, leaving a white instead of a gray or yellow surface. It does this almost immediately, and it probably does it by oxidizing and disintegrating the surface of the membrane. It appears to me that this is an advantage, that by removing a certain amount of *débris* we must remove a certain amount of the danger of sepsis, and this quite irrespective of whether bacilli are destroyed by the reagent or not. If, as is said to be the case, they are destroyed, so much the better. I say that the surface of the membrane is probably disintegrated, because I have known a large piece of membrane placed in a fifteen-volume solution immediately on being coughed up, to become completely disintegrated in about two and a half hours, and another in a fifty-volume solution in an hour. So long an exposure does not appear to me to be practicable in the throat, very often in one patient. If the treatment consists in a short application only, the gross appearances are the same, whether the fifteen- or fifty-volume solution is used.

When this drug was first introduced for diphtheria in the City Hospital, internes and nurses then on service in that department, and who had seen many different applications, became immediately enthusiastic, such of them as I talked with, over the new spray. I had myself been making use of corrosive sublimate (1 to 15,000), as I had formerly used salicylic acid and other washes, and it appeared to me that we had found something better. In 1892 I divided the service into four parts according to the location of beds, treating the throats in one with fifteen-volume peroxide of hydrogen, in another with corrosive sublimate

(1 to 15,000), a third with Dobell's alkaline solution, and the fourth with a spray of boiled water. In a few days the throats treated with peroxide and those treated with corrosive were in general so much the cleaner, that the other two sprays were withdrawn. By cleaner, I do not mean, necessarily, that there was less membrane. It took longer to decide between peroxide and corrosive, but in a week the general difference in appearance between the two sets of throats, was such that I withdrew corrosive and made the use of peroxide general. It has the additional advantage of being purely local in its effect. I have twice known corrosive sublimate to salivate when used in weak spray. The nature of the diphtheria mouth is such, too, that mercurial poisoning is harder to detect than in syphilitic mouths, for instance.

I think, then, that where there is much membrane there is an advantage in disinfecting the mouth; that peroxide of hydrogen is practically such a disinfectant, perhaps technically so; and that it is one of the best, perhaps the best at our command; but that its uses should be confined to the mouth and what can be reached through the mouth. This is speaking of the weak solution.

It has been claimed that by prolonged applications of the strong solution, the membrane can be removed and the progress of the disease cut short. That the membrane can be removed is, I believe, true. That the progress of the disease can be cut short, is improbable, except in cases where all the bacilli are still on the surface. I have not observed that the use of this strong spray every two hours for a few minutes at a time, exerts any influence on the duration of the disease. Certainly, cases will continue for a long time, even when such treatment is begun immediately on admission to the hospital. Neither does this two-hourly treatment practically remove the bacilli in those cases in which it is continued after the disappearance of the membrane. They may continue to be found for weeks in spite of the treatment. I believe that I have seen a highly septic mouth become steadily less septic during three days because of the hourly use of the strong solution, it having been previously getting worse, but that this was at the expense of great prostration due to manipulation. I have not tried to repeat this observation on any other person.

The following history is worthy of being reported. An interne of the hospital who had seen, or at least heard of, persistent thorough use of strong solutions, entered my service as a patient. While perfectly polite, it was evident that he was anxious, and not satisfied that all was being done that might be. His case, too, was quite stationary. Therefore, I chose to begin for him the use of fifty-volume peroxide for a few minutes every hour, day and night. This began on the seventeenth day after admission. On the eighteenth he persuaded his nurse to give him half-hourly treatment, so that he was being sprayed fifteen minutes out of every thirty. On the nineteenth I forbade this extreme treatment, because he was frightfully prostrated. His pharynx was then half covered with membrane, but the next and every succeeding bacteriological examination were negative, although none had been so before. Local treatment was at once stopped and the membrane disappeared on the thirty-first day. Some critics would probably say that this man recovered through the heroic use of peroxide. Others that his

membrane continued long after he ceased to have diphtheria, as the result of local irritation. Possibly both might be right.

I have not felt warranted in repeating this experiment; nor should I have pushed things as far as I did with this patient but at his understood wish, he being entitled to an opinion and being in my care by regulation, not by choice. The case is, however, rather suggestive. It is barely possible that such treatment for a few applications at the very beginning of the disease is not to be condemned, provided the patient is strong enough and can be closely watched. If unsuccessful, however, just so much strength will be used up at the beginning of a prostrating disease.

Since becoming dissatisfied with the use of peroxide of hydrogen for the nose, I have gone back to insufflations of iodoform, first clearing the way if necessary with forceps or a spray of sterile water. This answers as well as any treatment of the diphtheritic nose with which I am acquainted, but leaves much to be desired in bad cases. In such cases, I doubt if any spray reaches the whole surface. The opinion of aurists seems to be opposed to a douche. Accidents have occurred which have led to loss of hearing and loss of life. Still I am not satisfied that in a few septic cases, the risk of driving diphtheria bacilli and other germs into the Eustachian tube may not be legitimate, in view of the gravity of the disease. The difficulty is in selecting the cases, because some very bad cases do recover without running this risk. I have no experience in this matter to report.

REMOTE RESULTS OF THE REMOVAL OF THE UTERUS AND OVARIES.¹

BY ERNEST W. CUSHING, M.D.

THE question in regard to the removal of the uterus, which usually carries with it the appendages, is a very important one. It is a subject which it is well to consider because it is one of the latest developments of surgery, which promises a great deal and is overcoming the opposition to it. When, in 1887, A. Martin came over and performed the first vaginal hysterectomies for cancer, there was intense opposition. Reeves Jackson denounced the whole procedure in Washington, and the opponents said that it was a terrible and dangerous operation, and should not be tolerated for cancer even. Certainly that has passed now. When more operators began to do it, it was found that it was not dangerous. Martin did the first three cases in Boston, in September, 1887. In March, 1891, I reported before the Obstetrical Society of Boston, 21 cases with 19 recoveries; and I have done a very large number of vaginal hysterectomies since then for cancer, with even better average results. Anybody will now admit that the remote results of the removal of the uterus are good if it can save a woman from cancer, and about one-half the cases are saved for three or four years, and something less than that are saved permanently. I know it rather made me shiver when in 1885 Martin proclaimed that every uterus affected at all with cancer should be removed entirely—yet now this rule is established.

Then came the question of removal of the uterus for fibroids, and that again worked its way against op-

position. Where the mortality used to be 60 per cent. it is now less than 20 per cent., and the best results give not over six to ten per cent.; so that the removal of the uterus for myoma is now as well established as the removal of the ovary for ovarian tumor. The increased safety of it and the advantage to suffering women is forcing surgeons continually to operate in cases where they would not have done it a few years ago; that is, the increasing knowledge of the bad effects of leaving myomas, such as complications which finally ensue from pressure on the ureters, on the intestine, from degeneration of one kind or another, long-continued hemorrhage, complications of salpingitis, etc., have wrought such a change of opinions, that surgeons are much more ready to remove the uterus now than a few years ago. And some are going so far as to say—which makes the conservatives rather hesitate—that they will remove a fibroid the size of the fist to guard against future growth and accidents. Now, however, by the development of surgery it is found that by vaginal hysterectomy a small fibroid can be removed with ease and with practically complete safety. If we can essentially without danger remove the little fibroids, presently there will not be any big fibroids, just as there ought not to be any big ovarian tumors in civilized communities. Here is a fibroid I removed the other day. There was a prolapse and fibroid. The fibroid could not be brought down whole; but by pulling it down and splitting it, the whole thing was easily removed. The woman is cured of the prolapse. She does not realize that anything has been done to her. The entire absence of shock after vaginal hysterectomy, is one of the marvels of surgery.

If it is safe enough for that, then comes the question of removal of the uterus for prolapse. You know the difficulties of the operation for prolapse and all the different things tried. Finally, A. Martin pronounced removal of the uterus for prolapse. Now it is done by many, and laid down as a proper thing to do. If a woman has prolapse and is past child-bearing, slip the uterus out; it is the easiest thing in the world, and fasten the stumps of the broad ligaments to the angles of the wound in the vagina. Now, when we can remove the uterus by the vagina so readily, I cannot see the need of doing it from above as Polk in New York does.

What are the remote bad results of removal of the uterus and appendages? What has been charged against it is, in the first place, production of insanity; and, in the second place, the production of obesity; and, in the third place, loss of sexual desire, by which I suppose is meant sexual feeling. Now, in regard to the production of insanity, it is a fact that various gynecological operations are followed sometimes by insanity. I remember out of perhaps some 900 cases of all sorts of gynecological operations which I performed in the Murdock Hospital there were some three cases of insanity, all of which recovered. I had one case at the Charity Club Hospital, where after removal of a large fibroid the woman became violently insane in a few days, but she recovered. I have one case of a fibroid removed two years ago, where the lady, although apparently sane, confesses that she has occasionally suicidal tendencies. She wants to commit suicide, but knows it is wrong and does not do it. How far that is insanity, some of the alienist experts will tell.

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, November 28, 1894.

I reported last year fifty abdominal hysterectomies for fibroids. Those included only the ones I did at the Charity Club Hospital and in private practice. During the last year at the Charity Club Hospital I did 11 abdominal and vaginal hysterectomies altogether, and outside about 20. Now, out of 150 abdominal and vaginal hysterectomies, the only permanent bad effect of any kind I know of is this lady who says she has suicidal tendencies. (I do not mean to consider here the recurrences of cancer.)

Now, in regard to the removal of the ovaries and tubes, we are getting on ground which is not quite so satisfactory as that for the removal of the uterus. The removal of the uterus is done for certain very definite indications. It is done for cancer or fibroids or prolapse, or by the extension which some operators are introducing now as a means when the tubes are badly diseased and the interior of the uterus inflamed with gonorrhea, etc., of getting rid of the whole trouble at once; therefore, you have certain definite diseases or states or troubles which are, as I might say, mechanical, at any rate not nervous. You can see and feel and demonstrate them, and the woman knows what she is cured of after she is operated on.

In regard to the removal of the tubes and ovaries, we get into a mixture of several different conditions. If a woman has tubes and ovaries diseased, full of pus, big as potatoes perhaps, and high temperature, chills, likely to die, it is one's duty to remove them. You let pus out anywhere else; and you must let it out there. What the remote effects are is of no consequence; you must get her out of immediate danger. If the woman has catarrhal salpingitis or the remains of old salpingitis which has bound the tubes and ovaries so that every month she is in agony; if she has had packing tried, the uterus pried up, pessaries used and she goes from one doctor to another, damning the last one all the time, it is time to do something; and even if she is not entirely cured, she is cured of the worst of it, and she gets over this agony every month.

Then comes the question how much she is cured. A certain portion of these women continue to suffer. It is partly owing to conditions which could not be helped at the time; the uterus was brought up, but possibly it does not stay up; there may be new adhesions to the bowels, to the abdominal wall. Some of us keep running across these cases. I have had a case where a woman could not control her urine at all for three or four years. I found that the previous operator had put on a ligature which had got one of the epiploic appendages in with the stump of the ovary, and was pulling and pulling and twisting; and the epiploic appendage and a bit of the base of the bladder and stump of the ovary were all together, with this ligature in the middle. Her sufferings were because something had not gone quite right. In another case you will find firm adhesions to the abdominal wall; somebody has not pulled down the omentum, or there has been an adhesion of the intestine to the abdominal wall, or it may be that there are adhesions of the stump to the intestine or the bladder. There are these different complications, and they require the thing to be done over again, and a great deal of that work is gradually being done. Sufferings are caused by the fact that there is still some trouble which may require another operation.

Another class of cases is where there are cirrhotic

ovaries. The great trouble is dysmenorrhea. First, the woman has medical treatment, then gets a surgeon, gets dilated, curetted and packed with gauze, and does not get any better, and somebody has to sit up and give her chloroform and load her full of morphine every menstrual period; and finally she has to have an operation, and you find something of which very little is said in the books. The first stage seems to be an enlargement of the ovary; it becomes large and white; gradually the white tissue begins to shrivel, until the ovary keeps getting smaller and smaller and harder and harder until there is no chance to swell and open and let the ovum out, and the woman suffers tortures. After she has suffered that way for years her nervous system is broken down; that is the result of the long-continued injury to the nervous system by the disease. It must not be laid up against the operation.

There is another class of cases, however, which are the weak-backed sisters who do not have any anatomical disease that can be discovered. They have pains, aches, miseries; they may have studied too hard, may be neurasthenic by nature, and they are very apt to suffer from dysmenorrhea; and finally somebody comes along and removes the ovaries, and they do not get a bit better. It is just as if a woman had neuralgia in the teeth, and you pull the teeth and it goes back of the ear. These women are miserable and would be miserable, and nothing I know of will stop it. The surgeon gets to recognize them as a "holy terror." The distinction in my judgment is that the pain does not limit itself strictly to the menstrual period. With the cirrhotic ovary, as I have found it, the pain is strictly limited then and there to when the ovary tries to functionate; but the woman who has pain in the head, pain in the back, and pain all over, is not a good case for surgery. Some of those women were operated on years ago. It is especially these cases where there is little to go on except pain, which are the legitimate causes of reproach to surgery; and I do not think surgeons are now as ready to interfere with those cases.

Then come the cases where the ovaries are removed for dysmenorrhea where there is a real anatomical basis, such as inflammation of the ovary, suppuration of the ovary, inflammation of the tube, adhesions; those are removed for disease, not dysmenorrhea. The woman has a right to have them removed, and if she is not entirely cured it cannot be helped.

There is one other cause of suffering that many set down to disease of the ovary, and that is varicocele of the pampiniform plexus. It is liable to give rise to various sufferings, such as pain, pressure, nervous and mental symptoms, similar to those caused by spermatocele in the male.

There are cases where the ovaries are removed for other kinds of nervous symptoms; in the first place, for hystero-epilepsy, epilepsy coming on at the menstrual period and at no other time. I have not seen many of those cases. I have operated in two; one was cured and the other ameliorated, but not cured. I fight shy of that all I can.

The cases where the ovaries have been removed in case of insanity, with the effect in a certain proportion of cases of curing the insanity, have been, so far as I know, always cases of anatomically demonstrable tubal or ovarian disease. The woman after long-continued suffering finally breaks down, gives way in the intel-

lect and is put in an asylum, and is found to have an old pus-tube or retroverted uterus bound down which is the centre and starting-point of suffering and probably a long course of morphine, and not a very small number of those cases have been operated on and occasionally one has been cured. The cure is not on account of the removal of the ovaries, it is on account of the removal of an inflamed and irritating mass, and it is possible it might be something else than the ovary and the removal of it might have the same effect.

Then come the cases where the ovaries have been removed for nymphomania and masturbation approaching idiocy. I have had only one of those cases. The woman was becoming insane, a terrible sufferer from masturbation, utterly miserable, felt she had committed the unpardonable sin. Within two days from the operation she said she felt as if a weight had been rolled off her soul; she got well. It took her six months to recover her nervous health. She first did work for her sister and helped about the house, and then came to me and confided that a widower with four children wanted to marry her, and I advised the marriage, which has been very happy. That is the only case of that kind I have seen reason to operate on.

In regard to this whole subject there is at present a sort of reaction in surgery. It was started a year or two ago by a paper by Dr. Goodell in which he set forth the various woes and evils which might follow removal of the appendages. Dr. Polk at Washington, at the meeting of the Congress of American Physicians and Surgeons, took up something in the same strain. He called attention to the fact that removal of the appendages which brought about the change of life, caused not only the temporary symptoms, flushings and various miseries which women have to go through at some time any way, but it also brought about atrophy of the vagina and genitals in some cases, and a loss in some cases of sexual desire and feeling, which certainly is a serious matter.

My experience, however, has been very different from that of Dr. Goodell. I have taken pains to inquire, both personally and through the superintendent of my private hospital who is a lady physician. The women have talked frankly, and almost none of them have complained of or admitted that they felt any difference in their sexual desires or feelings. As a matter of fact, actual sexual desire is not a condition in which most women take pride or feel it is anything to be particularly cherished or desired. It is rather an uncomfortable state. The ability under proper circumstances to have as much sexual feeling as they previously had is not impaired in the vast majority of cases. On the contrary, in all these cases where there has been inflammatory trouble where the women have been made sick, where they have been nursing a tender ovary, the removal of the disease which had caused suffering and extinguished sexual desire and made sexual connection intolerable has been of very great relief. The removal of the uterus has no more effect than removal of the appendages. Many of the women are married women, and they tell me they are just as well off as they ever were. That some of them grow stout I also believe; but some women grow stout any way and being laid off active exercise and pretty well fed and urged not to do anything and having good care, it is a good starter to getting stout.

Therefore, to sum up, my experience has been that

the removal of the uterus has no more evil effects than the removal of the appendages alone, and that the removal of the appendages alone has in itself under very rare circumstances caused a loss of sexual feeling, that is, of the capacity for sexual orgasm, which is to a certain extent regrettable, but those instances are very rare. If we take one hundred women whose ovaries have been removed I very much doubt whether you would get a much greater proportion who gradually lose their interest in sexual matters than in an equal number without the removal of the ovaries.

ULTIMATE RESULTS OF THE REMOVAL OF OVARIES AND TUBES.¹

BY J. G. MUMFORD, M.D., BOSTON.

THE operation of removal of the ovaries and tubes seems to be gradually finding its proper place in surgery, as the indications for it, the manner and extent of the proceeding, the subsequent treatment and the results obtained are better understood.

We have no more right to talk about these operations as distinct species, and to discuss the results as a whole, than we have to talk in a general way about the uniform results of skull fractures or leg amputations. Twenty-five years ago most severe compound leg fractures were amputated. Six or eight years ago very many painful ovaries were removed. In both cases we have got beyond that stage of cutting off the offending member. It is now for good cause only, and as a last resort, that the uterine appendages are removed. Any tyro—I had almost said—can tie off a Fallopian tube; it is the ingenious and successful surgeon who restores the organs to their normal function.

The personal factor of the patient enters largely into this question of ultimate result. The patient very commonly wishes the operation for the relief of subjective symptoms. Often when these symptoms are but partially relieved she expresses the greatest satisfaction. On the other hand, there are cases in which the operation is imperative—for gangrenous, sloughing or suppurating organs, and in which their removal has saved life. Yet we often find the patient constantly thereafter complaining of recurrence of the old symptoms and not at all grateful that her life has been saved. It is obvious, therefore, that the question of ultimate results is in one sense a relative one and must be answered by each individual surgeon and patient. On the other hand, one may look at the question from the broadest point of view and ask if the general health of woman has not been improved by this operation.

I found that I could put my hand on seventeen cases of removal of tubes and ovaries, of which some sort of a subsequent history could be given. Two were cases of cystic ovaries; painful, about the size of pullet's eggs. In one I did the partial operation of Polk and Pozzi on both ovaries. The woman has since married and had a child. She menstruates regularly and is free from pain. From the other woman both tubes and ovaries were removed. Ever since the operation she has, on sitting, pain, sometimes very severe, which seems to be referred to the right stump. She looks upon herself as a castrated woman

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, November 28, 1894.

subject to pain equal to what she had before the operation, and that seems to me to be the case. Of eight cases of pyo-salpinx, one has much pain, one has a hernia, two much recurring headache and four may be considered well. There were seven cases of what are commonly called chronic salpingitis and ovaritis. Of these, three are well, three much improved and one not improved. All but two of these cases are taken from hospital records or from the lists of other men whom I assisted.

In all these cases in which the symptoms have recurred the variety of the symptoms varied, and they are by no means always the same as those originally complained of. The commonest complaint seems to be pain. How frequently neuroma of the stump occurs I do not know. I saw it once at the hospital in the case of a secondary operation. I think in the service of Dr. Richardson. The patient had had an ovarian tumor removed two years previously, and on opening the abdomen to remove a cyst on the other side a neuroma was discovered in the old stump. I fancy that this may be a more frequent cause of post-operative pain than is generally supposed. It is common enough in the stump after arm and leg amputations. Pain is frequently referred to contractions from adhesions. That this may be a most serious complication after abdominal section I had proof from a case of appendicitis in which I assisted Dr. Richardson. The patient appeared nearly well, some six weeks after the operation, when quite suddenly pain and symptoms of total obstruction of the bowel appeared. The abdomen was opened a second time and a coil of intestine, nearly strangulated by a recent band of adhesions, was liberated. This seems to be an unavoidable complication. It is said that the free use of some aseptic oil in handling the viscera will obviate it, but that remains to be proved. However that may be, it seems most probable that that old bugbear — adhesions — is at the bottom of very many of the ultimate bad symptoms after abdominal section. Of course, the skill of the operator and the perfection of his technique enter largely into the question.

I feel confident also that we are inclined to send our patients home too early, and to get them out of bed too soon. It cannot be that the reparative processes which demand the old surgical safeguards of rest and immobilization can be completed in two or three weeks. Our wound is out of sight and our knowledge of its condition must be gleaned from symptoms, yet I suspect that could we look inside the abdomen at the end of a month we should find the healing still incomplete in many cases.

It is unwise, too, to lose sight of our patients so soon after the operation as is the usual custom. The general health must be most carefully restored and the condition of the bowels, bladder, kidneys and stomach regulated. We have all of us seen a severe attack of post-operative constipation the apparent exciting cause of recurrent pelvic abscess.

I have not considered especially in these remarks the results of the removal of large tumors of the ovary and broad ligaments. For these the operation is usually imperative, as it is generally for pus tubes, and in both these cases the results must be considered good even if there remain some subsequent pain and other bad symptoms. Indeed, it is rather in the operation of choice that the patient most often asks herself, Was it worth while?

In looking over the recent literature of this subject I find that most of the writers dwell on the disasters of a few specific cases or take the subject as a whole without dividing it into its special classes.

The general feeling of such men as Lusk, Sutton, Mundé, Coe, Goodell, Remote, Kelly and others is that, as a whole, these operations are very distinctly valuable in proper hands.

Kelly's article in the *Johns Hopkins Bulletin* for 1890 is the most satisfactory summary that I could find. His results from ninety-six cases are very similar to those which I have given.

CONCLUSIONS.

- (1) Cases for operation should be carefully chosen.
- (2) The patient's general health previous to operation should be more carefully looked to.
- (3) She should be kept longer in the hospital or under treatment.
- (4) The imperative cases, as a rule, show a better subsequent history than the elective.
- (5) The cure is more often relative than positive.

Medical Progress.

RECENT PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D.

(Concluded from No. 6, p. 135.)

INWARD ROTATION OF THE TIBIA.

TILANUS²⁰ describes a method of treatment of this deformity by what he terms rotation-straps (elastic straps connected above with a leather belt fastened around the waist, winding spirally around the thigh and leg and connected with the outer side of the shoe. When these straps are tightened, the feet are turned outwards and the inversion of the foot is thereby corrected.

CONGENITAL ABSENCE OF THE TIBIA.

Joachimsthal²¹ reports a case of this deformity which was treated by transplanting the head of the fibula from the outer side to the middle of the end of the femur, correcting by means of tenotomy and fasciotomy the varus position of the foot. The foot and leg and knee were fixed in a plaster bandage, and the foot placed upon a high sole to equalize the difference in length. The child was allowed to walk about, and was able to do so. The writer collects a number of cases of the same deformity, and the article is of value for reference as well as for being illustrative of the successful management of a case of an unusual deformity.

OPERATIVE INTERFERENCE IN CONGENITAL DEFECTS OF THE ARM OR LEG.

Rincheval²² describes the operative interference in this hitherto incurable deformity. The deformity consists in the absence of the radius or one of the long bones of the leg, and consequent malposition of the hand or foot. The operation consists of splitting by means of the chisel the end of the ulna and inserting the carpus (modified in shape if necessary by means of a chisel) in the split portion of the end of

²⁰ Zeitschrift für orthopädische Chirurgie, Bd. 3, H. 2, 1894, p. 136.

²¹ Loc. cit., Bd. 3, H. 2.

²² Archiv. für klinische Chirurgie, 1894, B. 48, p. 802.

the ulna or the tibia in such a way that the inserted wedge is held by the two splintered fragments. The operation has been done by Bardeleben and also by Bardenheuer, and would appear to have been thoroughly successful. In one instance the ulna which was much curved was successfully rectified by fracture.

ABSENCE OF THE DIAPHYSIS OF THE THIGH.

Grisson,²² reports a case, with illustration of this unusual deformity. He mentions in the literature of the subject a case reported by Billroth. He mentions also other cases reported by Dumas, Buhl, Breschet, Veil and Duméril. Anatomical measurements are given.

ANCHYLOSIS OF THE JAW: OPERATIVE INTERFERENCE.

Helferich,²⁴ reports a new method to prevent the subsequent relapse after the ordinary operation of excision in ankylosis of the lower jaw. The method consists of the insertion of a reflection of a muscular flap from the temporal muscle between the resected portions of jaw and the articulation.

ARTHRODESIS IN INFANTILE PARALYSIS.

Karasiewicz²⁵ reports 61 cases treated by arthrodesis (87 operations); 33 were of the knee, all with satisfactory results; 44 of the ankle, with excellent results in 23, satisfactory results in 19; failure in two; two of the hip; three of the shoulder, with good results in two; satisfactory in one.

Broca²⁶ describes the method he employs in the ankle. It consists of an open division of the tendo-Achilles, and a long external curved incision which separates all the outer ligaments. The astragalus is then thrown outwards and the cartilage curetted, and that on the lower end of the tibia as well; the scapho-astragaloid articulation is also curetted. A plaster-of-Paris bandage is applied, and worn six weeks. He mentions eight cases.

RELAXATION OF THE JOINTS AT THE LOWER EXTREMITIES.

Leser²⁷ describes a condition of the joints which is accompanied by pain, a sense of weariness, uncertainty in standing and walking, heaviness of the limbs and an unusual lateral mobility at the knees. The anatomical conditions are not to be easily defined. There seems to be a thickening of the capsules and a loss of elasticity. The cause of this may be an injury of the joints followed by an effusion into the joint which stretches it, or too prolonged traction upon the joint may cause it. As to the treatment, he prescribes massage, aspiration of the fluid if effusion is present, and if traction be necessary the protection of the knee by plaster-of-Paris. After treatment by proper apparatus, the protection of the weak joints from strain is of benefit.

ARTHROPATHIES FROM SYRINGO-MYELIA.

Perrey²⁸ reports two cases of diseases of the joints following syringo-myelia. This affection, which results from a disturbance in the central canal of the spinal cord, leads in certain cases to diseases of the

joints. They are chiefly of the upper extremity which is the reverse of what is the arthropathies from tabes. Men are more frequently afflicted than women. There is sometimes development of vesicles in the skin of the neighborhood. The inflammation of the joint is either a hyarthrosis or a suppurative synovitis. These may either be acute, appearing suddenly, or chronic. There is slight pain, heaviness of the limb. There is in the joint, sometimes subluxation and finally a distortion. The diagnosis from rheumatoid arthritis is to be made, but the latter is never as acute and never has the dislocation which follows this form of arthropathies. The disease is sometimes mistaken for leprosy. The only treatment is immobilization with orthopedic apparatus, puncture, arthrotomy.

TREATMENT OF STIFF JOINTS BY MEANS OF MECHANICAL PASSIVE MOTIONS.

Krukenberg²⁹ has for some time successfully carried out the treatment of stiff joints by means of a variety of apparatus which is carefully described in his article. The principle is that of the pendulum, the force being graduated according to the length of the pendulum as regulated by a sliding weight. The appliances are ingenious, but can only be understood by an examination of his illustrated article.

THE ELASTICITY OF THE CAPSULE OF JOINTS.

Fessler³⁰ has made a number of experiments in regard to this point, and has come to the conclusion that the capsule is less easily torn than the bone is broken. The capsule tears in different joints at the tension of different weights: the shoulder at 146 kilos; the hip, 380; knee, 350; foot, 248; toe, 62 and 30; fingers, 83 and 79; hand, 184; elbows, 169.

HALLUX VALGUS.³¹

The conclusions which these writers form are as follows: that the resection of the head of the meta carpus does not interfere with the activity of the joint if the sesamoid bones are retained. Well-marked cases must be treated by resection. Wedge-shaped osteotomy of the neck of the metatarsus is especially indicated if the sesamoid bones are dislocated and deformed and cannot act as a support. Tenotomy is sometimes an additional assistance.

PLANTAR FASCIA.

Ledderhouse³² reports what he considers a tear of the plantar fascia. The condition consists of thickening and a local swelling of portions of the plantar fascia. This he considers to be scarred tissue, as a result of previous partial tears. In certain cases he thinks that excision is necessary, but in some instances a properly constructed shoe will be sufficient.

ON THE ELASTICITY OF THE HUMAN FOOT.

Golewski³³ has made a very careful study of the elasticity of the human foot. He has proved by means of tracings and casts that the foot increases in length and width both actively and passively. The active increase in size is through the ordinary action of the muscles. The passive increase is developed by

²² Archiv. für klinische Chirurgie, 1894, Bd. 49, p. 253.

²⁴ Loc. cit., 1894, B. 48, p. 871.

²⁵ Zeitschrift für orthopädische Chirurgie, 1894, pp. 432, 433.

²⁶ Loc. cit.

²⁷ Berliner Klinik, January, 1894.

²⁸ Paris Thesis, 1894.

²⁹ Deutsche Med. Woch., No. 52, 1893.

³⁰ Zeitschrift für orthopädische Chirurgie, 1894, No. 435.

³¹ Salvador: Paris Thesis, 1894. Möller: Zeitschrift für orthopädische Chirurgie, 1894, p. 432.

³² Archiv. für klinische Chirurgie, 1894, p. 853.

³³ Zeitschrift für orthopädische Chirurgie, 1894, p. 243.

he weight of the body. The stretching of the foot is also accompanied by an alteration in the form. The foot is wider when standing than when hanging and wider still on sitting. A sudden increase of weight can have a traumatic effect, tearing of the fascia on the inner side of the foot.

CONGENITAL DISLOCATION.

Hoffa⁸⁴ reports the results in the later cases of his operation; he finds that the acetabulum in the majority of cases was either well developed or partially so but never absent. In looking up the literature, Hoffa found the acetabulum in 104 out of 111 cases; in only seven was it absent or not marked. In order to secure the head of the femur in the acetabulum, Hoffa considers deepening of the acetabulum always necessary, even if the head is easily put back; and he prefers to deepen the acetabulum more rather than less. He prefers not to operate on children over ten. In a case three years after operation, he found that motion at the joints was excellent; the lordosis had disappeared, and the waddling gait had almost entirely gone. Two children with single luxation, one operated on at five and one at a year and a half, showed three years and one year after the operation, a perfect result. The joint was perfectly firm and without any limitation of motion. The failure of attempts to correct deformity without operation Hoffa considered as due to the presence of the ligamentum teres. In the cases he had seen, it was as a long broad band, and it is impossible for the head of the femur to build a proper new joint while the ligamentum teres lies between the pelvis and the head of the femur.

Bilhaut⁸⁵ reports a successful case in a child of ten. Kirmisson⁸⁶ reports a death from the operation in a child of twelve, and disagrees with Hoffa in the belief that the acetabulum in these cases comes in the thickest part of the os innominatum. It seems to him that it comes in the thinnest portion. If an attempt is made to deepen the acetabulum, there is danger of perforation, which, however, is not necessarily a great surgical disaster.

Angeres⁸⁷ and Koch⁸⁸ report successful cases of Hoffa's operation. Phocus⁸⁹ reports cases of attempted reduction by the Paci method (namely, the Bigelow manipulation method), and is doubtful of permanent benefit in congenital cases through this mode of treatment.

PATHOLOGICAL ANATOMY OF CONGENITAL DISLOCATION.

Lorenz⁴⁰ describes the anatomical conditions of the joint. The acetabulum is always rudimentary. In certain cases in older children it is entirely covered with a thick mass of fibrous tissue. In a majority of cases the acetabulum is shallow, but can be found by the finger. In very young children the hollow is three cornered. He claims that the pelvis at the point of the acetabulum is thicker than is supposed. The upper end of the femur is atrophied, and the head is more or less flattened. The neck is shortened. The ligamentum teres is originally of normal condition, but after the fifth year Lorenz has found the absence

of the ligamentum teres the rule. It is rather broader than normal, and usually double as long. The capsule forms the cap over the luxated head.

CONGENITAL DISLOCATION.

Mikulicz⁴¹ reports five cases treated by the mechanical correction by means of a traction apparatus. The apparatus itself is extremely clumsy, and the cases as reported indicate a result similar to what has hitherto been obtained by this method, namely, a marked improvement, after two or three years of treatment.

THE EFFECT OF CONGENITAL DISLOCATION UPON THE SHAPE OF THE PELVIS.

Muhlenbrock⁴² after investigating the alterations in the shape of the pelvis, which are to be seen in congenital dislocation from the malposition of the head of the femur and the lordosis, concludes that the pelvic deformities which result are of no significance in child-bearing. He has reported two cases of this deformity where the birth took place without any difficulty.

SEPTIC OSTITIS IN CHILDHOOD.

Mr. Edmund Owen⁴³ considers the acute inflammation of the diaphyses with relation to the early diagnosis, and its differentiation from acute articular rheumatism with which it is not uncommonly confounded. It usually begins with a chill, followed by fever and local inflammation, swelling and pain, and if allowed to continue, becomes an extensive osteo-myelitis. There is usually a spot of elevation with an area of redness, but this differs from acute articular rheumatism in that the heat, swelling, pain and tenderness are close to the articular area but do not involve it, at least not at the first. The tenderness is limited to the region of the bone close below the junction of the cartilage, and at this particular point there is a definite thickening. Another point which sometimes misleads in early diagnosis is that two parts may be simultaneously affected. Usually by the time that the cases are seen by the surgeon the disease has become more or less extensive, and in the operation a sequestrum is usually found, but the early and radical operations give favorable results.

DISLOCATION FOLLOWING ACUTE ARTHRITIS OF INFANTS.

Dr. A. Thorndike⁴⁴ in an article which considers the bacteriological side of this subject, reports a case which shows that the dislocation from this cause is difficult to reduce in proportion to the disorganization and destruction of the joint. He operated five months after the subsidence of all acute symptoms, and reduced the dislocation by the operative method employed by Hoffa for the correction of congenital dislocation of the hip. A large, finger-like exostosis had grown from the lower border of the femoral neck, and projected so that the head could not be brought into the acetabulum. Its removal presented no difficulty. The case is instructive because it shows that even long-standing dislocations from acute arthritis may be reduced, and that bony obstacles to reduction may be successfully overcome by the Hoffa operation should it be impossible to accomplish it in the ordinary way.

⁸⁴ Münchener med. Woch., 1893, No. 18.

⁸⁵ Revue d'Orthopédie, 1893, No. 1, p. 3.

⁸⁶ Loc. cit., 1894, p. 3.

⁸⁷ Münch. med. Woch., 1894, No. 26, p. 512.

⁸⁸ Loc. cit., 1894, No. 15, p. 281.

⁸⁹ Revue d'Orthopédie, 1894, No. 4.

⁴⁰ Wiener klinische Woch., Nos. 11 and 13.

⁴¹ Archiv klinische Chirurgie, 1894, Bd. 49, p. 368.

⁴² Zeitschrift für orthopädische Chirurgie, 1893, p. 73.

⁴³ Lancet, May 26, 1894.

⁴⁴ Boston Med. and Surg. Journal, vol. cxxxi, p. 429.

THE RESULTS OF CONSERVATIVE TREATMENT OF TUBERCULOUS COXITIS.

Prof. B. Bruns⁴⁶ gives in this article a rather unusually valuable series of statistics, as they are compiled from a large series of cases which extended over a long period of time (in all forty years), and are followed out for a long period dating from the discharge of the patient as cured. The article deals mainly with the results of conservative treatment, and is of special value, not being confined to the consideration of any one method of conservative treatment, as during this long time there has been necessarily fundamental changes in the therapy of coxitis, varying from the crude methods of blistering, hot irons, etc., to the more modern methods of fixation or traction, and also the more radical surgical measures. The investigators were aided in their search of cases by the fact that the population about Würtemberg is quite fixed; and in this way the records of 600 cases were collected, and of these it was found possible to examine 200. Among the things of interest which were found in this investigation was the number of cases which were considered at first as coxitis, which were of a different nature. One of these was the condition described by Mueller under the name of *Schenkelhalsverbiegung*, of which this clinic at Tübingen shows more than thirty cases. Another is the condition of acute osteo-myelitis beginning at the diaphysis, the hip-joint being peculiar in this respect as this point is within the capsular cavity. Fifty cases were found in this class, which pursued either a sub-acute or a chronic course; but these were ruled out from those under investigation, and also those the duration of which was less than one year and a half, and also all such cases in which there was not sufficient information. In this way the number was reduced to 390, of which 321 were treated conservatively and 69 by resection. He gives the following conclusions:

(1) Tuberculous coxitis occurs almost exclusively during the first two decades of life: 48 per cent. occur in the first decade, 37 in the second, and but six in the third.

(2) In one-third of the cases of tuberculous coxitis the disease pursues its entire course with no manifest formation of pus. In two-thirds an abscess develops, with rupture and fistula formation.

(3) Fifty-five per cent. of all cases of tubercular coxitis treated conservatively are cured. The time required for the cure averages four years.

(4) Death resulted in 40 per cent. of the cases; in the majority from the development of tuberculosis in other organs, particularly the lungs and meninges, or to a general miliary tuberculosis. In the fungo-purulent form death was usually due to amyloid degeneration, progressive suppuration and septic infection. Death ensued after an average duration of three years.

(5) In individual cases the ultimate result is markedly influenced by the occurrence or non-occurrence of suppuration; in the non-purulent forms 77 per cent. were cured, in the fungo-purulent only 42 per cent. The occurrence of suppuration within the joint more than doubled the mortality (75 to 52 per cent.).

(6) Of great importance in the prognosis is the age of the patient at the beginning of the sickness. As a rule, the prognosis became worse with the increase of

age; the first decade gave 65 per cent. of cures, the second 56, the third and fourth only 28, and the fifth and sixth none. In the fungo-purulent form there were practically no cures when the patients were more than twenty years old.

(7) Of those persons who were really cured of tubercular coxitis, many suffered subsequently from tuberculosis of other organs. Of these, six per cent. died of phthisis during the first decade, nine per cent. during the second decade, and seven per cent. during the third and fourth decades.

The results, considering the cured cases, are gratifying, and are about midway between widely differing figures of many other observers; which is probably accounted for by the fact that the investigation extended over so long a period, and included so many cases, which reduced to a smaller degree the error of accidental variation. In considering these cured cases, the usefulness of the limb was noted. It was found that a majority were able to earn their living, although the gait was in most cases limping, the leg atrophied to a greater or lesser degree, and there was almost always found more or less shortening, and contraction and immobility of the joint. The deformity was found to be usually that of flexion, combined either with abduction, as was found in two-thirds, or with adduction as in one-third of the cases. The contraction is compensated by a tilting of the pelvis, but in some cases where the flexion was as great as forty-five degrees and the apparent shortening marked, the locomotion was difficult. This shortening appears to be largely from an arrest of the growth in the femur, and is always present when the disease occurs in childhood, undoubtedly due in a great measure to the disuse, as the tibia and the foot are also found to be short. The most marked cases of shortening were found to follow those cases of acute osteo-myelitis, in which there is more likely to be an injury to the epiphyseal cartilage. The other form of shortening is due to the high position of the trochanter on the pelvis, which is found in about four-fifths of the cases. The average amount of shortening from this was four centimetres. This condition is due to destructive changes in the acetabulum, and is found to be much more frequent than from dislocation of the head of the femur. In this result the typical position of the leg does not differ greatly from that in dislocation, but the chance of retaining a useful leg is much greater.

COXA VARA.⁴⁶

Hofmeister, Kocher, Whitman, Kirmisson, all report cases of an affection which was at first thoroughly described by Mueller in 1888, although it had been previously referred to as a lack of firmness of the bone. Rotzer, Scrubel, Launstein and Hoffa have also reported cases. The affection comes either in early youth or about the time of puberty. There is a general weak habit, a limp and waddling gait. The trochanter stands above the Nelaton line. The feet are ordinarily turned out, but in exceptional cases they are turned in. The cases are mistaken for hip-disease, for congenital dislocation, and for fracture of the neck or separation of the epiphysis; also for hysterical coxalgia. Rest in bed, with traction, is recommended in the milder cases during the acute stage; in later stages in children, either apparatus to turn the feet in or out, or osteotomy.

⁴⁶ Berträge zur klinische Chirurgie, vol. xlii, part 1, 1894.

⁴⁶ Zeitschrift für orthopädische Chirurgie, 1894, p. 309.

THE TREATMENT OF TUBERCULAR ABSCESES BY THE INJECTION OF IODOFORM.

Dr. Kirmisson⁴⁷ favors the treatment of many of the abscesses from tubercular bone lesions by this method, and cites cases in which the cure has been accomplished after several injections, varying from two to four or five. He prefers the solution of iodoform and ether to that of glycerine and naphtol. The difficulty of the treatment as practised has been to thoroughly evacuate an abscess cavity filled with caseous pus, which clogs the canula, on account of which it has been found necessary to dilute the contents of the sac, and this has been followed even in spite of great precautions by less favorable results. In the present method this objection is avoided, in that no attempt is made to previously wash out the cavity. Another objection to the other method is the uncertainty of the amount of iodoform which is left in the abscess cavity, and the occurrence in a number of instances by iodoform intoxication. In the method advocated a definite amount of iodoform is used, which is regulated to the age of the patient and the size of the abscess, usually from five to fifteen grammes of a ten-per-cent. solution of iodoform and ether. It is rarely found that one injection is sufficient; and if the fluid is reproduced without a distention of the sac, a fresh injection after four weeks is practised. As a rule, after a few injections the quality of the fluid may be tested, and the prognosis in that way be determined, and the treatment regulated accordingly. If the fluid is found to be true pus, it is necessary to repeat the injections. If, however, the fluid is found to be lighter in consistency, and colored only by the iodoform, it may be considered that the abscess is undergoing resolution, and a fresh injection is not necessary; but it may be inferred that the resorption is progressing, and that the cure will be complete.

INTRA-CELLULAR IGNIPUNCTURE IN THE TREATMENT OF TUBERCULAR ARTHRITIS.

Dr. Kirmisson⁴⁸ in this article has described a method of treatment which at one time was attempted, but on account of the unfortunate results has never been received with favor, as in most cases the point of puncture became infected, and the arthritis became acute, which in many cases ended either in amputation or in the loss of life. Since the days of aseptic surgery this danger is avoided, and the author reports several cases in which the method has been employed with favorable results. In the treatment of these the skin is thoroughly cleansed in the same manner as would be the case if an ordinary operation was to be performed, and the fine point of the cautery, heated to a red point, is inserted along the point of the greatest development of the granulations. From twelve to eighteen punctures are made, and the diseased portion is in this way thoroughly reached. The part is then filled with iodoform gauze, the limb encased in plaster, and a certain amount of compression used. He reports several cases in which the results were very satisfactory. At the time of writing there were a number of cases where the puncture was used, and the recovery was rapid considering the ordinary length of time of these cases of arthritis which are not opened. It is recommended on account of its easy accomplishment and being within the reach of most practitioners.

HISTOLOGICAL CONSIDERATIONS OF OSTEOPLASTY.

Dr. Barth⁴⁹ gives the results of further investigations based on sixty-five experiments of operations upon animals. The results of these experiments confirm the opinion that detached fragments of bone do not become vitalized when transplanted, but are replaced by new bone-formations. Ollier's differentiations between autoplasty, homoplasty and heteroplasty are not of importance, as the method of healing is always the same without reference as to whether the transplanted bone is from the same species of animal or not. This becomes devitalized, and a new bone-formation takes its place, the method of substitution being the same without reference to the materials. The foreign substance becomes penetrated and enveloped by a new vascular growth coming from the periosteum and marrow, by which process it becomes in a way rarefied. In this tissue is then deposited a new bone-formation, and by a continuance over some months, the foreign substance becomes entirely replaced by living bone.

The process is not uniformly distributed, as in the long bones for instance the new bone-formation begins in the marrow, meeting some difficulties toward the periphery, but after the process of substitution is complete, the margin of this defect cannot be discovered even microscopically. In the skull, however, the margin of this new bone can be discovered macroscopically by a flattening. The retention of the periosteum over the surface seems to have but little effect, except in such instances of osteoplastic skull resection after the Wolff-Wagner method, in which a larger part of the bone retained its vitality, and only in the cut border is found the necrotic substance. The material which seems most difficult to revitalize is decalcified bone, it being absorbed so quickly that the ordinary scar tissue results. The sponge, however, seems to fill the condition best. Barth reports a number of cases in which the bony defect was filled with a sponge, the skin sutured over the surface and the result desired was obtained.

EXCISION OF THE SAC IN SPINA-BIFIDA.

M. Robson⁵⁰ considers the operative treatment of spina-bifida. From his experience with these cases, he divides them into three classes; the first, in which operations should not be attempted; the second, in which it cannot be considered as necessary; and the third, in which it should be attempted.

He considers that the operation should not be tried when the tumor is large, and there exists a large longitudinal opening into the spinal column, or when there is existing paraplegia, or when there is not sufficient skin to recover the meninges. Also, it is not indicated when the pouch is small, and the skin over the tumor is too thin to protect the tumor. It should, however, be performed when the tumor communicates with the canal through a small opening, or when there is sufficient healthy skin to cover the orifice. When, however, the skin is thin over the most prominent part of the tumor, the operation must be considered as one of considerable difficulty; also, when filaments of nerves are involved in the tumor. It is better to avoid cutting the meninges, but rather to return them to the canal after puncture.

⁴⁷ *Revue d'Orthopédie*, November, 1894.

⁴⁸ *Union Médicale*, No. 51, 1894.

⁴⁹ *Verhandlungen der deutschen Gesellschaft für Chirurgie*, xxiii Kongress, 1894.

⁵⁰ *Lancet*, September 23, 1893.

INDUSTRIAL SCHOOL FOR CRIPPLES.⁵¹

Denmark and the adjoining Scandinavian countries Sweden and Finland have shown the world the need of a new charity. The blind, the deaf, the feeble-minded have for a long time enjoyed the privilege of founded institutions of instruction, but it has remained for the Scandinavians to first develop industrial schools for congenital cripples. The originator of the first industrial school for cripples was a clergyman by the name of Knudsen, of Copenhagen, who opened his school in October, 1872.

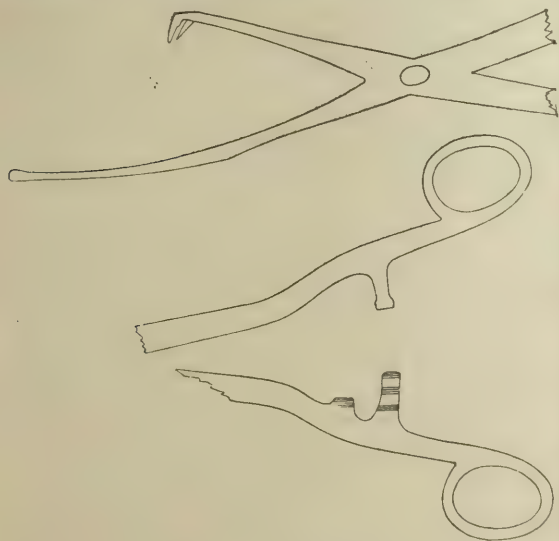
After the International Medical Congress at Copenhagen, an impulse was given to this form of charity, and similar schools were started in Gothenburg, Karlskrona, Helsingborg and Stockholm, in Sweden; Helsingfors, in Finland; Christiania, in Norway. In Christiania a school was started in 1872 by Miss Fischer. An organization has been formed to support and educate and make self-supporting all cripples in the community and surrounding country. That the number of these is not small is shown by the fact that in Finland alone the census showed the existence of 8,000 helpless cripples.

New Instruments.

ORTHMAN'S INSTRUMENT IN VAGINAL FIXATION OF THE UTERUS.

BY FRANK M. SHERMAN, M.D., HAVERHILL, MASS.

A DESCRIPTION of the instrument of Orthman, here figured, and the operation of vaginal fixation of the uterus by its use, may interest those of your readers who are not familiar with it. A recent writer in the *New York Medical Record* has given an excellent description of the indications for, and a good method



for the performance of the operation. The use of this instrument, however, greatly facilitates the procedure. The instrument consists of two parts: A sound, which is put into the uterus, and the hooked portion which hinges with it and seizes the outside of

the uterine neck. It fastens to the "sound" portion like an ordinary artery clamp.

The operation known as Mackenrodt's vaginal fixation as performed by Martin in Berlin is as follows: the sound is introduced, the companion portion hinged and hooked into the outside of the cervix; then by carrying the handles backward, the uterus is anteverted, and held in that position. The whole uterus is now pulled downward as well as backward, putting the anterior vaginal wall on the stretch, and a vertical incision is made from one or two centimetres below the meatus urinarius down to that portion of the forceps that is hooked into the uterine neck. The vaginal mucous membrane is dissected back on each side; the bladder is now peeled off from its connection with the uterus, its connection to the cervix uteri and vaginal vault cut on each side, and it is then pushed up to the upper angle of the wound with the fingers. A catgut ligature is now passed through the edges of the vaginal incision, at its upper angle, including also the muscular wall of the bladder, and tied. The anterior surfaces of the corpus and cervix uteri now fill the incision, and are fastened with three or more strong silk ligatures, after which the vaginal incision is closed with catgut, with or without an anterior colporrhaphy, as may be indicated. Martin often combines this operation with his well-known anterior and posterior colporrhaphy and perineorrhaphy.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, November 26, 1894, DR. C. F. FOLSOM in the chair.

DR. A. L. MASON read a paper on

MEDICAL TREATMENT IN DIPHTHERIA.¹

DR. F. M. BUCKINGHAM also presented a paper on
DIPHTHERIA.²

DR. GEO. B. SHATTUCK: I have had, in common with Dr. Mason, a pretty large and long-continued hospital experience in reference to diphtheria, and I regret that my time came before we were in sight of anything that looked like a promised land; we were wandering in a wilderness. We had the disadvantage of great difficulties in the diagnosis. It is only lately that we have the knowledge of the Klebs-Löffler bacillus and provision for making cultures and examination of cultures which enables us to differentiate the different classes of sore throats. We had to decide by gross appearances whether a given case was one of tonsillitis or one of diphtheria, and of course we were often mistaken. Our position in reference to treatment was equally unsatisfactory. I can remember very well through many years every year some method of internal medication was suggested or some method of local application was proposed which was going to be almost a specific, and every one of them was a disappointment. I tried a great many of them, and I finally settled down to the general method of support-

¹ See page 145 of the Journal.

² See page 147 of the Journal.

⁵¹ Zeitschrift für orthopädische Chirurgie, 1894, p. 324.

ing the strength of the patient by nourishment given in the way best suited to the individual case, by stimulants, by tonics, and in addition to that by keeping the throat as clean as it could be kept without irritating the mucous membrane or exhausting the patient; and it seemed to me, and I still think, that that was the *summum bonum* we could reach under the conditions which then offered themselves to us. With reference to the local treatment, I have used the weaker solutions of peroxide in my later services. I never have used the stronger ones, the fifty-volume solution, so that in reference to it I cannot give any testimony. So much for my experience as far as past history is concerned.

The present situation depends upon the value which further experience gives to the antitoxin treatment. If the triple claims made for it as (1) a prophylactic, (2) a curative, (3) a bactericidal agent, are justified, then the future of diphtheria and our relation to it will be greatly modified. The ease and comfort of treatment will be increased, mortality rates and period of isolation will be greatly diminished. Less hospital accommodation will be required for equal number of cases and for better results.

Having spoken of the past and present, permit me to say one word about the future. If the serum treatment is to become general then comes the very important question and by no means an easy one, what arrangements are to be made for providing the community under a sufficient and proper guaranty with the material for this treatment. It is the business of boards of health to prevent disease. It is not considered generally to be their business directly to provide remedies. Of course, this matter may be regarded from the prophylactic point of view as well as from the point of view of treatment. There is no doubt that in a commercial community like ours, if a thing recommends itself, the commercial spirit will provide for it. But even wanting this, there should be, as we know perfectly well from the difficulties which we have had with reference to vaccine virus — and this would be a still more difficult question — some guaranty and some inspection for such products if they are furnished to the community by private commercial houses, and we should probably have to look to State and local boards of health for such guaranty. This question is a perfectly legitimate one for our consideration.

DR. F. H. WILLIAMS: I have been very much interested in the papers and the discussion; and, if you will allow me, I will try to add a word on a little different side from those which have already been taken up. The treatment of diphtheria may fairly be divided into the local and the general treatment. It is to be recognized, I think, that local treatment is not practicable in very young children; neither is it practicable for laryngeal cases, except so far as you may call the use of steam or calomel fumigation local treatment. I think when the disease is as far down as the lungs or larynx, that it is inaccessible, or when a patient has been sick many days that you cannot expect to do as much by local treatment as in the early days of the disease.

As regards the use of local treatment in the nose, it is very important to bear in mind that much milder treatment must be used there than in the throat. The nose will not tolerate strong solutions; for instance, of hydrogen dioxide, a one- or two-volume, sometimes a

five-volume solution is as strong as I am ever willing to use.

As a rule, that is in most of the cases of diphtheria, the disease begins in the throat at points which are accessible to local treatment.

A great variety of remedies have been used locally, and most of those have been mentioned this evening — corrosive sublimate, chlorinated soda, ten-volume solution of hydrogen dioxide, or a weak salt solution or boiled water. It is of the first importance in using local treatment to be sure of the strength of what you use. For example, take chlorinated-soda solution. A year or two ago I wrote ten prescriptions for the official solution of chlorinated soda, which were sent to ten different apothecaries. The solutions were analyzed afterwards; and I found that out of the ten only two were up to the mark, and one or two were something like one-tenth, and one of them one-twentieth, as strong as it should have been, and three of them were not chlorinated soda at all. No matter what is used, it is very important to know the strength of what you are using.

As regards the strong solutions of hydrogen dioxide, at first I used a twenty-five-volume solution. It was then known as the fifty-volume solution, now as the twenty-five, since the last edition of the Pharmacopœia, January 1, 1894. The results seemed to me encouraging, and I have come to the conclusion that the twenty-five-volume solution is frequently a serviceable local application; but in many cases a fifty-volume solution is required for a time. In my opinion the strength of the solution of peroxide of hydrogen to be used depends entirely upon the conditions which present themselves. Sometimes a twenty-five-volume solution is quite useless, and it requires a fifty-volume solution to be of any real service.

As regards the use of these solutions, it is extremely important that they should be used gently and always with the co-operation of the patient. Never use force under any circumstances; it is astonishing how readily you can gain the co-operation of young children with a little patience, and if the solutions are applied as they should be.

As to the frequency with which they should be applied, I think once in three hours is sufficiently often, that is, during the first few days of the disease; after that once in four hours, or less often.

Concerning the pain which these solutions are said to cause. I have a patient now in the diphtheria ward who, I think, illustrates this very well. He spoke of the pain these solutions caused; and I therefore tried without his knowledge spraying his throat with water, and so far as I could make out he did not distinguish between the two. It is the friction of what is used which I think causes the discomfort chiefly. Oftentimes a solution out of the same bottle may be put on the swab without causing discomfort, which when used with the spray does cause discomfort. If one wishes to succeed with strong solutions of hydrogen dioxide, it is necessary to begin early; they should be used gently. It is very important to have efficient instruments; if the instruments are inefficient, the solutions might in many cases better be in China so far as any service they are likely to do the patient is concerned. Solutions should be of known strength and have a sufficient amount of hydrochloric acid. The hydrochloric acid in the hydrogen-dioxide solution is the active agent, so far as germicidal action goes,

rather than the hydrogen dioxide itself. They are both serviceable; the hydrochloric acid should be in small percentage, one-fifth of one per cent. — about as much as there is in the gastric juice.

It is important to know how to apply the solutions, and also important to know when to stop their use. How not to use the solutions of hydrogen dioxide, I think is illustrated very well by some cases which were reported in the *Medical Record* a few weeks ago, cases treated at the Willard Parker Hospital in New York. A solution of hydrogen dioxide in ether, known as pyrozone, was used to make the hydrogen dioxide solutions. The manufacturers, I think, claim that these solutions are nearly neutral; in other words, the important germicidal element is left out, the special property of the hydrogen dioxide itself being the disintegrating power. Another thing which I thought was very unfortunate was the great air-pressure which was used in the atomizer. The air was pumped up to a pressure of eighty pounds, and then allowed to run down to thirty pounds; and when it got down to that point it was again pumped up to eighty pounds. I should as soon think of pumping a whirlwind into a patient's throat as using an atomizer with a pressure of something like thirty to eighty pounds. The pressure of the air should be about six pounds or at most eight pounds. You want just pressure enough to throw whatever you wish to apply so that it will reach the desired part.

Another instance of the way in which one should not use the hydrogen-dioxide solution may be illustrated by the remark of some one in a medical meeting when the acid was spoken of. He said it was easy enough to get rid of the acid by adding bicarbonate of soda, that is, diminish its value as a germicide and decompose the hydrogen dioxide. I know of no applications at all efficient, so harmless as are suitable solutions of strong hydrogen dioxide. It seems to me that they tend to reduce the congestion, and under their use the glandular swelling is more rapidly diminished; they have these good effects beside reducing the amount of membrane and cleansing the throat.

As regards the redness in the throat, the reddest and most prolonged case of congestion of the mucous membrane I have seen, fairly to be called a raw-beef throat, was one where salt solution was used for a number of weeks, and the bacilli also persisted for a long time in that throat.

I think it is important to bear in mind that after the strong hydrogen-dioxide solutions have been used for a few days that cultures should be made, to see whether or not the bacilli of diphtheria are present. As soon as they are absent I think all local treatment may be stopped, as a rule. And, as a rule, in the cases I have followed the bacilli have disappeared before the membrane. There are three or four cases now in the diphtheria ward at the hospital in which bacilli have not been found for some days, although the membrane still remains in the throat.

It is very difficult to compare cases in one institution with those in another, and those in one city with those in another city. For example, the mortality from diphtheria in New York seems to be decidedly less than in Boston.

As regards the length of time during which the bacilli remain in the throat after the use of such treatment as corrosive sublimate, chlorinated soda, ten-volume solution of hydrogen dioxide or one-half per

cent. salt solution, I can offer a few figures in 34 cases. In this series of cases the bacilli were still present on the average on the twenty-seventh day of the disease, and absent on the average on the thirty-sixth day of the disease. In another series of cases, 26 in number, where the strong hydrogen-dioxide solutions were used (and these were more severe cases than the others), on the average the bacilli were present on the twelfth day of the disease, and absent on the average on the eighteenth day of the disease, saving, you see, quite a considerable number of days in the cases where the strong dioxide solutions were used.

The mortality is always a very difficult thing, I think, to estimate. Of 18 cases treated within the first three days, the diagnoses of which were not based on cultures, only one patient died, and that was a laryngeal case at entrance. Of 30 cases of diphtheria, the diagnoses of which were based on cultures, two died; one had been vaccinated a few days before and did not seem to be in good condition, and the solution used was found to be much below the purported strength; and one was a child four years old, who took the treatment perfectly well one day, became delirious on the second day, so that treatment was impracticable, and died on the following day.

Local treatment has been recommended and used by Löffler. He presented some cases at the Congress at Budapest in which he used a solution composed of alcohol (64), toluol (36), and creoline or metacresol (1 to 2). As this solution produced a strong burning sensation in children he added to it 10 per cent. of menthol. He reported 96 cases, three-fourths of which were cases of diphtheria; none of these cases died.

As regards general treatment, antitoxin seems to be the thing most promising now as an internal remedy. My experience with it is quite small. I have used it in four cases in which a preventive dose only was used, and in five cases in which a larger dose was used. It seems to me a good way to treat diphtheria would be to inject the antitoxin early and in sufficient quantity, and then use carefully the strong solutions of hydrogen dioxide locally, being very careful to give good food — I think that is of the utmost importance.

Most of the cases, I think, require only a small amount of brandy. I think it is important not to use alkalies, such as the solutions containing lime-water or Dobell's solution (bicarbonate of soda) locally. The alkaline solutions seem to do very little good, and probably they do harm. As regards other internal remedies, various ones have been recommended. Corrosive sublimate does not seem to me to have any good, but rather a harmful effect. Strychnia, in cases of paralysis, or iron in cases of anemia, is serviceable.

DR. C. F. WITHINGTON: The interest in this discussion is increased in my own case from the fact that I take my time of duty in the contagious wards very soon; and I confess I do it every year with great misgiving, from the apparent failure of all treatment in these cases. The other day I looked over the results of the last service which I had, in the summer of 1893, and while the figures are of no special value, I will give them briefly, as they are figures showing the relative frequency of the cases as they presented themselves then.

CONTAGIOUS SERVICE AT CITY HOSPITAL, IN JULY, AUGUST AND SEPTEMBER, 1893.

Of diphtheria and pseudo-diphtheria there were 116 cases, of scarlet fever 57, and of mixed cases 19; total 192.

Of diphtheria and pseudo-diphtheria, 79 cases were examined bac-

teriologically, the Klebs-Löffler bacillus being found in 59, or about 75 per cent.

This ratio would give, out of 116 cases, 75 per cent. as true diphtheria, or 87 cases, the deaths being 40, or 46 per cent.

Of these, 17 deaths followed intubation, 5 tracheotomy, and 2 intubation and tracheotomy.

Thus, the deaths in operative cases were 24, and in medical cases 16, or 25 per cent.

Scarlet fever deaths 12, or 21 per cent.; in mixed cases 6, or 33 per cent.

From hospital report, one year, to January 31, 1893, the mortality of diphtheria (clinical not bacteriological diagnosis) was 49 per cent., of mixed cases 47 per cent., of scarlet fever 8 per cent.

Bacteriological examinations were not made in all cases, for one reason, among others, that many of the patients entered moribund. Hence it is probable that of the unexamined cases a larger proportion were diphtheria than of those examined. This would increase the total cases of true diphtheria about 87 and would make the actual mortality per cent. lower than 46 per cent. It is generally supposed that the use of the bacteriological method of diagnosis gives a higher mortality of the cases, by diminishing the total number of cases of diphtheria, through the elimination of cases of pseudo-diphtheria. But, on the other hand, it is also true that with the extension of bacteriological examination to mild cases we are getting to recognize as true diphtheria cases not so considered previously. Cases are now admitted simply on the strength of finding the Klebs-Löffler bacillus when the patients are not at all seriously sick. A very high mortality existed among the mixed cases. That mortality was higher than that of diphtheria alone and very much higher than that of scarlet fever. We have cases which come to the hospital with diphtheria and afterwards develop scarlet fever. This is an unfortunate state of things, but one which does exist. During the three months there were eight cases in which patients entered with diphtheria, and from three to thirteen days after entrance scarlet fever developed.

It seems that there is quite a variation from year to year in the percentage of the complications. For example, last year there was almost no post-diphtheritic paralysis; on the other hand, the percentage of nephritis was extremely high. There were twelve cases of albumin without casts (seven in diphtheria and five in scarlet fever cases); but of albumin, with casts (epithelial and granular in character) and the clinical picture of nephritis, 33 in diphtheritic cases, three in scarlet fever and four in mixed cases. Four of these died with nephritis, the cause of death being sepsis. An endocarditis was the complication in eight cases, pericarditis in two cases, chorea in one case, acute miliary tuberculosis in one case. Abscesses of the glands which required opening were present in two cases of diphtheria and five of scarlet fever.

Of the specific things which have been vaunted for diphtheria, even within my memory, there are so many that it is disheartening to go over them. Of course, we all use local treatment for the membrane of diphtheria; and everybody admits, I suppose, that local treatment has its value, for the membrane is to be looked upon as a manufactory of the toxine which is the great source of danger. It seems to me, however, there are two or three things about the nature of the case which suggest a marked limitation to the value of local treatment. In the first place, the amount of membrane is no gauge of the severity of the infection. The two things do not go hand in hand. It is not always the cases of greatest amount of membrane that show the greatest amount of systemic poisoning. In

the second place, it is well known that the Klebs-Löffler bacillus does not exist on the surface of the membrane, but is shielded in the trabeculae of fibrin which constitute the membrane, and nothing applied externally can reach any large number of those bacilli. Third, there is the dangerous exhaustion of a child if he fights hard against local treatment; and, finally, there is the very great importance of avoiding any trauma of the throat. The producing of a wound of the throat is almost certain to furnish a new nidus for the growth of the bacillus and to influence the progress of the disease for the worse. I remember the case of a man last summer who came in having had diphtheria on the 5th of July, being supposed to have recovered from the diphtheria, having gone about his work and preserving the bacillus of diphtheria for a long time afterwards. He had been about his work for two months, and it was found at the end of two months that the Klebs-Löffler bacillus was present. On looking into his throat it was seen that he had had perforation of the soft palate near the uvula, and a small foramen existed, and under that foramen was situated a little bit of grayish membrane which had undoubtedly lain there all the time and been the source of infection. It seemed impossible to get at that membrane to make application or expose it to the influences of the air. It was undoubtedly the fact that the bacilli had been preserved there so long because of the peculiar anatomical relation of things; therefore after considerable hesitation I simply snipped the small band of tissue which closed in the foramen in order to expose this place. Instantly, after this man's two months of health, the membrane spread over the cut portions of the tissue; and, although he suffered no ill effects from it, the sudden leaping into activity of the disease was very manifest indeed. It seemed to me a proper thing to do because the thing had gone on two months, and might have gone on indefinitely. It stopped and the Klebs-Löffler bacillus disappeared after about a week of residence in the hospital; but the great importance of avoiding any trauma was emphasized by that case.

There is one method of local treatment that is free from some of the objections which attach to the swab and to the more violent treatments, and that is the method by irrigation. In the first place, a little patient can be treated by irrigation without being raised up, treated lying on the pillow. The end of a tube can be inserted into the mouth between the cheek and the jaw, and a current of warm fluid, either sterilized water or a solution of boric acid can be allowed to run in and out on the lower side of the mouth. It covers the membrane fairly well; and has the advantage of not being able to produce any violence, not stirring up the patient, washing away a certain amount, if not of the Klebs-Löffler bacillus at least of the other organisms which so often complicate the disease and add to the gravity, and possibly washing away a certain amount of the toxine which may have formed on the site of the membrane.

The contest in the body between the disease and the conserving forces in diphtheria, I suppose, is carried on mostly by the serum. We used to be taught that the micro-organism of diphtheria never went outside the membrane. I believe the bacteriologists tell us now that it sometimes does. But for the most part it maintains its place in the membrane and the damage it does is done by the absorption of toxines into the blood; and it is undoubtedly true that it is not

phagocytosis as much as the effect of the serum of the blood which finally gets the better of the disease. That is one thing which gives considerable promise to the antitoxin treatment. And one of the advantages which appear at once is that unlike so many other treatments it certainly is free of any possibility of harm. There is no record of any injurious effect other than occasional urticaria following the use of the serum injections, and it seems difficult to suppose any injurious effects can result.

DR. W. H. PRESCOTT: A remark made in my hearing by the late Dr. Doe when I was sick with diphtheria in 1885 under his care, seemed to contain all that was best regarding the local treatment of diphtheria. It was not meant for me to hear, but it was this: He had ordered an application of iron and glycerine, equal parts, and said to the house-officer, "If it irritates his throat do not use it, as it is of much more importance not to cause any irritation than to make the applications to the membrane." At that time I had had no experience with diphtheria; but since then all the experience I have had has gone to to prove the truth of the statement then made, that anything which causes an increase of irritation or pain in the local application is wrong in theory, because the pain causes a diminution of the strength, and the irritation causes the membrane to extend more rapidly after the application than before it. Of the many treatments of diphtheria which have come up each has had its run, and then either something new or the do-nothing policy has taken its place. There are only a few methods that need be spoken of. My experience at the hospital leads me to think that the internal administration of corrosive sublimate or of turpentine and the local use of peroxide of hydrogen are all attended with serious disadvantages. The treatment by sublimation of calomel merits a further trial. The last treatment that I would speak of is the treatment with the continued irrigation with solution of soda or some other bland solution — I think the substance or the solution used is not of so much importance as that it should be mild and non-irritating. This seems to be the best local treatment that has been given to us as yet. About the treatment of post-diphtheritic paralysis of which Dr. Mason has spoken, I perhaps may be allowed to say a word, as I suffered from it myself, and found strychnia, which I took on the advice of the late Dr. Hooper, to immediately benefit the paralysis of the palate, but to have no effect on the other paralyzes.

DR. J. L. MORSE: I merely wish to emphasize the importance of not doing any harm in the local treatment of diphtheria. I should class peroxide of hydrogen with the actual cautery, nitric acid, etc., it being less dangerous only as it is less powerful. I should say the only safe local treatment is irrigation of the throat and nose with some unirritating solution. It makes no difference what it is. I also want to call attention to calomel fumigations in laryngeal obstruction. It seems to me I have seen very good results with them; far better than any obtained with steam. As to the persistence of membrane with peroxide, I am certain I have seen the membrane kept up by peroxide.

DR. SHATTUCK: Dr. Buckingham's reference to the beneficial effects of sunshine, I think, is an important point. There is a private room at the end of the diphtheria ward at the City Hospital exposed to the

south-west where the sun comes in nearly all day long, and I have noticed that all the patients I have had in that room — simple coincidence it probably is not — have done extremely well.

DR. MASON: It is quite evident that there is a very general unanimity about the measures of treatment in diphtheria which relate to the preservation of strength, and not doing anything harmful to the patient. As to local measures there is an equal amount of disagreement; and I think this in itself shows that it is very fortunate that the time has come when we may be no longer obliged to decide whether we shall use this wash or that, having a means of treatment at hand which will obviate the necessity of so much disturbing of the patient. That, indeed, seems to be a great advantage of the antitoxin method. I noticed that Dr. Buckingham thought feeding by the nasal tube a cruel method, and that his results were unfortunate. That has not been my experience in the few cases in which I have used it, probably in older children. I do not remember ever using the tube in a child under four or five years of age; and I have never found, after two or three times, that they objected to it. It is a choice between using this method and allowing the child to starve if the deglutition paralysis is complete. One child was nourished a month in this manner, and got completely well. It may be a choice of evils, but it certainly is not painful and not cruel, if the child is old enough to understand what is being done. It is necessary in but few cases, of course.

DR. G. H. M. ROWE: The city of Boston has expended nearly half a million dollars on its hospital for infectious diseases. Other cities in Massachusetts have also added to their general hospital buildings, isolating wards for the treatment of infectious diseases, particularly diphtheria. In the line of the very valuable suggestion made by Dr. Shattuck, it seems to me to be the duty of the medical profession of this city to see that some active measures are taken by the city so that we may have our own antitoxin. Ought not the State to devote at least two per cent. of a sum of money that the city of Boston alone has devoted to a hospital for infectious diseases? It may be premature to propose definite action at this meeting, but I would suggest to the members present that they seriously consider the idea given by Dr. Shattuck, and that it be acted upon at as early a date as practicable. I believe the Board of Health of the city of Boston have decided to devote a limited amount of money to this purpose. It would seem more fitting for the State Board of Health to take action in the matter. I suggest that it be ascertained whether during the early part of the session of the legislature active steps could not be taken to procure an appropriation for this purpose.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

JAMES M. JACKSON, M.D., SECRETARY.

REGULAR Meeting, Wednesday, November 28,
1894, DR. G. H. WASHBURN presiding.

DR. E. W. CUSHING spoke on the

ULTIMATE RESULTS OF THE REMOVAL OF THE UTERUS AND OVARIES.¹

¹ See page 151 of the Journal.

DR. J. G. MUMFORD read remarks on the
ULTIMATE RESULTS IN THE REMOVAL OF OVARIES
AND TUBES.²

DR. J. J. PUTNAM: There is only one part of the subject on which I feel qualified to speak, and I do not know that I can throw light upon that. As Dr. Cushing said, there are two classes of cases which one can separate in a general way; those where the ovaries are diseased and where the operation is undertaken for direct or indirect result of the disease, and those where the ovaries are as far as we know healthy. I think it may be said, however, that so far as I know it is a rather difficult matter to determine whether the ovaries are healthy or not. Some years ago I collected and reported a number of cases which had been operated on by Boston surgeons, most of them by Dr. Johnson. I was very much struck with the fact that in many of these cases, although there had been no manifest signs of disease before the operation, the microscopical examination showed that the ovaries were not really healthy. The practical question which presents itself to us most strongly is this, whether the removal of the ovaries is ever a suitable treatment for the clear cases of one of these functional nervous diseases—hysteria, neurasthenia, hystero-epilepsy, pelvic neuralgia or insanity. Now I think, to begin with, it is but fair to state what it seems to me is the neurological opinion of the present day on that subject; and I think that would be decidedly against operation. Dr. Mitchell and Dr. Goodell have stated in unqualified terms that they think it practically never justifiable. At a meeting in Washington, Dr. Lusk and Dr. Sinclair of Philadelphia, with Dr. Mitchell, put themselves quite strongly for this position. Dr. Edes reported a number of cases in this last year which gave an unfavorable showing for this operation. There were several deaths, and on the whole the good results were very few. I hold in my hand what, so far as I know, is the latest monograph on the subject, a paper published this year by a physician of Berlin, which takes the position that operation is not a suitable treatment for these diseases, and that the adoption of it is based on an incorrect conception of the nature of the trouble for which it has been used. I cannot but think that there is something to be said on the other side. In the first place, among these cases which I collected there were a good many excellent results. Dr. Richardson speaks of the fact, which we all know to our regret is largely true, that the neurasthenic patients are hard to treat by any such method, and often hard to treat any way. With them the results are not brilliant. Nevertheless, I know a patient who could be called neurasthenic, who suffered from pain in the back of the head, sleeplessness, general distress—a nervous patient; and she obtained extreme relief from the removal of the ovaries, which turned out to be somewhat enlarged and excessively hard. The operation was done by Dr. Elliot. She was not one of the worst types of neurasthenics, however. It seems to me we ought to take into consideration the fact that we do occasionally get very great improvement, and occasionally cures, which if they do not establish an operation on a satisfactory basis are, nevertheless, worth something. The operation is a matter of last resort, or I suppose should be; and if from a lot of

insane persons one occasionally gets relief in this way, that is something.

Among the class of cases for which the operation has been done I think we should make distinctions. They are not all equally susceptible of cure, and the severest are least susceptible of cure. More can be accomplished in the relief of vague pains and lesser degrees of nervous disorder than in the relief of well-marked hystero-epilepsy—for example, if of hereditary basis or of insanity or real epilepsy; and yet occasionally true epilepsy seems to be relieved in that way.

The question arises as to the nature or the theory of the operation. If it does good, how does it do good? Is the result a matter of coincidence, or is there any rational basis? In regard to that point it seems to me we are still a good deal at sea. This monograph of which I speak deals with that matter. The writer points out that hysteria is now conceived of as a mental disease, and if that be cured, it is by mental means. This is my own view. He reports a number of cases in which diseases were not cured, but made worse. It seems to me, however, that although these diseases are mental and to be dealt with by mental means, that sometimes an operation becomes a mental means. If a patient's mind has been concentrated on it, looks forward to such operation, that may furnish just the suggestion which is needed to bring about the cure; and it seems to me if we can set aside cases where the ovaries are really the source of local irritation, that is the way the operation is to be regarded. It is not so much the bringing on of premature menopause as it is the inducing of a new state of mind which is more favorable to recovery. We should not deceive ourselves about the matter. Many patients complain, not only about the ovarian pain, but of general pain. Charcot tried to set aside a special form of hysteria which he called ovarian hysteria. Now I think it is acknowledged, no matter how well localized ovarian pain and distress may be, whether it radiates down the thigh in a manner to suggest the crural nerves, nevertheless it is quite capable of being purely a symptom of hysteria or of neurasthenia, just as pain and tenderness in the back may be entirely apart from any local condition; and, therefore, I think, it is important that this fact should be recognized, that if we remove the ovaries, we do so for pain which has its source in the mind. If there is anything to be gained by the operation—and it seems to me occasionally there is—it seems to me that while it is due occasionally to the removal of ovaries which are really more diseased than we can tell from the outside, partly perhaps by the induction of premature menopause, yet it is mainly due to the establishing of a more favorable mental condition. We must ask whether there are not other means to be used; and of late I think a careful study of mental therapeutics, the light thrown on it by hypnotism and suggestion, has enlarged our power of dealing with these patients in this way, and we ought to use such means before we resort to those of surgery.

PATHOLOGICAL SPECIMEN.

DR. CUSHING: Here is a uterus which I removed on Friday from a woman who had had twelve children and had a prolapse. The uterus is badly torn on one side. I was not going to remove it. I was going to do an anterior and posterior colporrhaphy and cu-

rette it. I used the dilator with the slightest pressure, and felt something give a little. I passed the sound, and felt it went far up. Not knowing whether it was going into the broad ligament or thinking it might have gone into the peritoneal cavity I concluded to remove the uterus. That made a short, light operation. If I had not done that what should I have had to do, even if there had been no accident?

In the first place, that cervix would have had to be very carefully repaired; secondly, anterior and posterior colporrhaphy and repair of the perineum would have given an operation four times as long. I show it as a caution, how little effort in certain cases may break through an old thin cicatrix — just a little push, and I had sundered something.

MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

A STATED meeting was held at the Medical Library, Boston, on Wednesday, February 7, 1895.

The meeting was called to order at eleven A. M. by the President, Dr. FRANK K. PADDOCK. Ninety-three Councillors were present.

APPOINTMENT OF DELEGATES AND COMMITTEES.

On nomination by the Chair, the following delegates to other State medical societies were appointed:

Maine: Drs. R. T. Edes, Jamaica Plain; J. F. A. Adams, Pittsfield.

New Hampshire: Drs. O. Warren, West Newbury; W. S. Everett, Hyde Park.

Rhode Island: Drs. J. R. Bronson, Attleboro; A. M. Pierce, New Bedford.

Connecticut: Drs. T. M. Breck, Springfield; A. Wood, Worcester.

New Jersey: Drs. T. H. Gage, Worcester; C. P. Hooker, Springfield.

Committees were appointed:

To Audit the Treasurer's Accounts: Drs. A. D. Sinclair, Walter Ela.

To fill vacancy in Committee of Arrangements, caused by resignation of Dr. Henry Jackson, Dr. Paul Thorndike.

The Committee on Medical Diplomas, through its Chairman, Dr. Forster, presented the following report:

"Your Committee on Medical Diplomas has carefully considered the alleged delinquencies of the College of Physicians and Surgeons of Boston, as set forth in the letter of Dr. William A. White and referred to your Committee for investigation and report, and beg leave to submit the following:

"That your Committee has given a hearing to the Faculty of the College of Physicians and Surgeons, and from the facts there presented and from evidence derived from other sources, recommends that the Councillors of the Massachusetts Medical Society withdraw from the College of Physicians and Surgeons of Boston the recognition voted said College at the meeting of the Councillors held June 9, 1891."

After a prolonged discussion the report of the Committee was adopted, with but four dissenting votes.

The Committee appointed at the last meeting to consider the proposed amendment to By-Law XVII, making the ratio of Councillors one in twelve, instead

of one in eight, of the membership of the District Societies, reported through Dr. White as follows:

"The present proportion of Councillors, one to eight, was fixed when the Society was much smaller. It has become a large, unwieldy assembly, numbering 226, and is rapidly increasing. It is altogether too large for a deliberative, executive body, much larger than is appointed for similar functions by corporations, as directors, trustees, legislators and the like.

"If the amendment be adopted, the Council would still consist of 150 members; and even the smallest districts, composed of such small numbers as 21, 28 and 32 respectively, and which have at present three Councillors, would still have two representatives each. Suffolk has 58, an absurdly large representation.

"In the opinion of your Committee, the duties of the council would be more easily and fitly performed if its numbers were reduced to the proposed ratio."

In accordance with the recommendation of the Committee, amended by Dr. Harvey, it was voted that By-Law XVII be amended that it shall read:

"XVII. Councillors shall be chosen by the District Societies, as directed in By-Law XIII, each Society choosing from among the Fellows residing within its district in the proportion of one Councillor to every twelve Fellows, or a majority fraction thereof."

This amendment will come before the Society for concurrence.

Recent Literature.

Notes on Military Hygiene, for Officers of the Line.

A Syllabus of Lectures at the United States Infantry and Cavalry School. By ALFRED A. WOODHULL, Major Medical Department, Brevet Lieutenant-Colonel United States Army. Pp. 150. New York: John Wiley & Sons. 1890.

This is a conveniently bound book, and presents the pith of lectures on military hygiene delivered to the class of 1889 at the Infantry and Cavalry School. It undoubtedly will be of value to officers in general. It takes up the following subjects: Selection of Soldiers, Military Clothing, Food, Habitations, Camps and Marches, Sewers and Waste, Water, and Preventable Diseases.

We are glad to see a book of this kind appear which is addressed to line officers, who, as a rule, are lamentably ignorant in reference to matters of military hygiene. It is not sufficient that a commanding officer should recognize that his surgeon should be a man of ability, and that his advice should always be carefully considered. To-day it is necessary that he himself should know not alone the principles of the art of war, but he should be thoroughly familiar with the principles of hygiene. Paragraph 153 shows what the importance of this subject may be to a successful general:

"The German army in the war of 1870-71 is the only one known to have kept its mortality from disease below that from battle. This probably depended upon the shortness of the war, the rapid succession of battles, the trained troops, and presumably upon its exact discipline being exerted for the care of the men as well as in other directions."

This book, conveniently arranged in sections, if placed in the hands of officers will do much towards supplying accurate knowledge. It is a book which would be well adapted for officers of the National Guard and Volunteer Militia.

THE BOSTON

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RADICAL OPERATION FOR INFILTRATING CEREBRAL GROWTHS.

RADICAL operation by excision of infiltrating tumors of the brain (gliomata, glio-sarcomata, sarcomata) has in general been looked upon with disfavor by surgeons, owing to the supposed danger of cutting into cerebral tissue. The teaching of localization has impressed the idea more and more that injury to the motor cortex must lead to permanent paralysis, and that therefore excision of cortex or underlying white matter should be scrupulously avoided. As a consequence of this perhaps partially justified timidity, operations are constantly being done with entirely negative results, so far as permanent relief to the patient goes. The skull is trephined, the dura opened, and the brain exposed, the tumor in a large proportion of cases being found. If the new growth be not definitely marked off from normal brain tissue, in other words if it be of the frequent infiltrating gliomatous type, the dura is replaced, the skin flap sewed, and the patient, often with increasing hernia cerebri, left to die, with relief of pressure symptoms, but with no outlook for prolonged life. Such is the usual routine.

In view of this fact, and the entirely negative result of most of our cerebral surgery, it is a satisfaction to draw attention to two cases recently reported of bolder methods, with results which justified the boldness. One of these is reported by Dr. Alfred C. Wood of Philadelphia, and the other by Dr. Chas. E. Beevor and Mr. Chas. A. Ballance of London.

Dr. Wood's case,¹ in brief, is as follows: Patient, a man, aged twenty-eight, noticed in August, 1892, occasional twitchings of left hand; later, epileptiform attacks, paresis of left arm, occasional attacks of vomiting, headache, double optic neuritis; later, face and leg of same side somewhat affected.

Diagnosis.—Probable tumor of right cerebral hemisphere, involving primarily arm centre, progressive in character.

Operation.—One and one-half inch trephine opening. Dura purple, tense and bulging, not adherent. Dura opened. Convulsions congested; much bulging. Incision showed what seemed to be a cyst surrounded by altered brain substance,

¹Sub-cortical glioma of the cerebrum, affecting principally the arm centre; removal; recurrence of the growth; second operation; recovery. University Medical Magazine, January, 1895, p. 253.

later shown to be a new growth with central softening. Tumor infiltrating in character; no line of demarcation nor evidence of encapsulation. Tumor removed piecemeal by means of knife, scissors and curette. Operation discontinued only when healthy brain tissue appeared to have been reached. Cavity left about the size of a large walnut. Patient made good recovery from ether, with complete left hemiplegia. Sensation not impaired. Rapid improvement in motion of leg. Complete recovery of facial paralysis; some improvement in use of arms.

Pathological Diagnosis.—Glioma.

Return of growth soon after first operation. During the interval no headache, no spasms. Vision normal.

Second Operation about four months after the date of the first, in May, 1894. Demarcation of tumor and pathological tissue more definite than at first operation. Diseased tissue thoroughly removed. Wound closed without drainage. Immediate effects somewhat more serious than after first operation, but good recovery.

Five months after leaving the hospital the patient walked well without cane. The left leg was somewhat spastic. Arm not much improved. Has had no treatment by massage or electricity. Scalp over seat of operation depressed. No evidence of return of growth. The patient, apart from his physical disability, is perfectly well.

It is easy to forecast the result in this case had the conservative policy been adopted and the tumor regarded as inoperable, which, according to preconceived ideas it was. Instead of rapidly increasing symptoms and inevitable death, the patient, at last report, was a healthy, though partially-paralyzed man. If the growth recurs, as of course, is likely, the wisdom of the operative procedure is in no way invalidated.

The second case² of Beevor and Ballance is equally suggestive.

Clinical History.—Patient a woman, age thirty-nine, married. Gradual onset of paralysis, involving, in order, right ankle, knee, hip, and extending after lapse of seven months to joints of the right hand, and then to the whole of the upper extremity. Finally, affection of speech; this accompanied by headache, vomiting and optic neuritis. Gradual deterioration of mental condition. Some blunting of sensation on the right side. Face escaped. No family nor personal history of importance.

Diagnosis.—Sub-cortical cerebral tumor, not involving the internal capsule.

Operations.—July 11 and 17, 1894, being performed in two stages. At first operation, skull opened and dura exposed. Considerable bulging of dura. At second operation, dura opened over as large a space as possible. Cortex bulging especially over upper part of ascending parietal convolution of left side. Cortex mottled, thinned and easily broken through, exposing tumor. New growth found to be continuous with and infiltrating the cerebral substance. Consistence of tumor softer than normal brain substance. Free incision made through cortex over an area of about two and one-quarter inches in diameter, and the included part (brain and tumor) removed by means of a silver spoon. The writers say: "The tumor extended to the medial surface of the hemisphere, and so a part of the marginal convolution and quadrate lobe was removed, the falx being clearly exposed. In this way as much of the tumor as was visible was removed, but as the line of junction of healthy and diseased tissue was so indeterminate, it is not possible to say that the whole tumor was excised; it is, indeed, probable that it was not. At the close of the operation the brain presented a large cup-shaped cavity, nearly two inches deep and the size of half an orange. It is probable that the area removed comprised the upper part of the ascending frontal and parietal convolutions, and anterior part of the parietal lobule and the adjacent portion of the marginal convolution.

Pathological Diagnosis.—Round and spindle-celled sarcoma.

Subsequent History.—Considerable shock from the operation. Improvement in general condition. Motor aphasia, paralysis of right arm and leg. Two or three days following operation,

²A case of sub-cortical, cerebral tumor treated by operation. British Medical Journal, January 5, 1895. Being "a paper read at a meeting of the Medical Society of London, on November 26, 1894. The patient was present at the meeting in good health."

attacks of clonic spasm involving right angle of mouth. After this, uninterrupted convalescence with improvement of paralyses. A month and a half after operation mental condition much improved. No aphasia; no paralysis of face; could raise right hand to chin; fingers paralyzed. Could walk with slight assistance; movement somewhat impaired at ankle; no movement of toes. Sensation slightly impaired on right upper arm. Condition four months later, at time when paper was read: Speech perfect; no headache; mind perfectly clear; no facial paresis. Right arm improved, some rigidity of joints, various movements impaired, hand-grasp weak. Right leg impaired somewhat in function, but walks without assistance. Sensation normal.

In this case, although it is probable that the entire tumor was not removed, there was complete cessation of symptoms attributable to pressure, improved mental tone and a diminution in the severity of the paralyses.

In view of these two cases, it would seem that a more radical operation for accessible tumors should be practised than is commonly done. It is amply demonstrated by experience that tumors of the brain, and especially the infiltrating varieties of which we are speaking, are fatally progressive in character. It is no less certain that those parts of the brain affected by the new growth are gradually rendered functionless, while new areas are continually being involved. Could the disease be attacked earlier, as soon as a definite or highly probable diagnosis is made, and a radical operation, with complete excision of diseased tissue, done, it is at least possible that the records of cerebral surgery might be brighter. The fear of cutting into the cerebral cortex doubtless often deters both the consultant from urging, and the operator from attempting, an extirpation of the growth. Whatever the relation of the so-called cortical motor centres may be to movements of distant parts of the body, it is certain that it is a matter of indifference whether those centres be destroyed by a new growth or by surgical procedure so far as their particular function is concerned. If an arm or a leg be paralyzed by a cortical or sub-cortical growth, the excision of this area can work no conceivable harm more than has already been effected. On the other hand, such operations as the two cases before us show, may lead to a decided improvement of all symptoms, *including the paralyses*. The hope of ultimate cure is possibly not great, but it offers a definite and the only chance; could a gliomatous tumor be completely extirpated, we know of no pathological law which would in any way necessitate its recurrence.

The two cases quoted are examples of exceedingly bold surgery with brilliant outcome. In both cases a conscientious attempt was made to eradicate all the diseased tissue, regardless of what centres might be included in the process. Sufficient time has not elapsed to make definite statements as to the ultimate outcome of these cases, but the result after a number of months is such as to justify the opinion that, if tumors of the brain are infiltrating and not encapsulated, they are not therefore to be regarded as inoperable. The localization of new growths in the motor cortex along the fissure of Rolando has often been regarded as a contraindication to extirpation, for fear of destroying motor centres with consequent inevitable paralyses. That such paralyses do occur after de-

struction of certain cortical areas is amply proved clinically, but of the possible restitution of functions after operation in the human subject we know much less. Goltz's¹ most recent experiment is of great interest in this connection. After various more or less successful attempts, he has finally succeeded in extirpating both cerebral hemispheres in a dog, with complete recovery from the operation. The dog lived for eighteen months, and was then killed to satisfy sceptics of the completeness of the original extirpation. During these eighteen months the animal was in no way paralyzed. In fact his motor activity was increased rather than diminished, and his capacity for performing elaborate co-ordinated movements remained unimpaired. The animal's psychical life and other details are of extreme interest, but do not concern us at present. Of importance to the present discussion is the lack of motor paralysis in spite of the fact that all so-called motor centres were destroyed. Of almost equal interest is an experiment of Malinowsky, alluded to by Goltz. This experimenter produced an abscess artificially in the left hemisphere of a dog, with resulting right hemiplegia. After the paralyses were well established he excised the abscess completely. The next day the dog had recovered from his hemiplegia.

It is not the purpose of these remarks to enter into details or theoretical considerations regarding the explanation of these phenomena. The facts at least are positive. To Goltz they seem the final blow to cerebral localization. However that may be, we must welcome conservative investigation, which tends to hold somewhat in check our overwillingness to attribute an excess of function to the cerebral cortex. The cortex is not essential to the performance of co-ordinated movements in the dog — that Goltz has proved beyond cavil — and yet unquestionably the cortex in the dog as in man is in some way associated with movement, probably with its voluntary performance. Malinowsky's experiment is, in its way, as striking as Goltz's hemiplegia apparently cured by excision of the area which previously, as an abscess, had induced the hemiplegia. The bearing of these facts on cerebral surgery is not altogether easy to estimate. Malinowsky's experiment would seem to indicate that an irritant like pus is much more detrimental to functional activity than a definite loss of cerebral substance. This may well have some application in the human subject, and especially to the class of tumors which we are considering. May not a vascular glioma with constant tendency toward softening lead to a much wider disturbance of cerebral function than a loss of an equal amount of brain tissue would do? And may not the character of a new growth be of more importance than has generally been supposed? Malinowsky's experiment renders such suggestions not unreasonable.

Goltz's radical experiment must at least force upon us the conviction that it is conceivable that human beings as well as dogs might get on much better than

¹ Pflüger's Archiv für die gesammte Physiologie, Bd. li.

has been generally supposed possible, with considerable loss of cerebral substance, even were that loss along the motor areas. Paralysis there would doubtless be, at least temporarily. That is a commonplace of observation. We know less of what the future might bring forth. The theories of physiological transference of function and all the problems which that involves cannot find discussion here. We would only suggest that Goltz's dog should be a constant reminder to us that our knowledge of cerebral function is quite in its infancy and that our enthusiasm for localization as a clinical aid, should not blind us to the possibility of its decided modification as a demonstrated fact.

The conclusions to be drawn are (1) that cerebral gliomata and infiltrating tumors generally should be removed surgically and as completely as possible; (2) that this procedure is not contraindicated by the localization of the tumors in the motor areas.

THE ANNUAL REPORT OF HARVARD COLLEGE, 1893-94.

THE annual report of the President and Treasurer of Harvard College is really the annual report of Harvard University. It covers the academic year from September 28, 1893, to September 27, 1894, and contains in addition to a report upon the academic department, reports from the deans of the various schools which make up the university. It is the reports of the Medical, Dental and Veterinary Schools which especially interest the medical reader.

In his personal report President Eliot calls attention to the change which the last fifty years has brought about in the relation of the college to the university, first, in the proportion which the number of students in the college bears to the whole number of students in the university; and, secondly, the relation of the required period of residence for the degree of Bachelor of Arts to the periods required for the other degrees given by the university. The percentage of Harvard College students in the whole university rose from a minimum of 42 in 1844-45 to a maximum of 65 in 1882-83, and from that maximum has steadily declined to about 50 in 1894-95, which is the percentage existing between 1850 and 1856 and again in 1868-69. In the mean time, since 1872 a residence of one year has been required for the degree of Master of Arts, whereas before none was required; between 1869-86 no less than seven degrees have been added to those previously provided for by the university; the required term of residence has been increased for the following degrees: for Bachelor of Science, from a variable period averaging about three years to a fixed period of four years; for Bachelor of Laws, from eighteen months to three years; for Doctor of Medicine, from three terms of about four and one half months each to four full years. President Eliot thus makes it clear, first, that the number of professional degrees has been greatly increased during the past

thirty years, and, secondly, that the periods of residence for these degrees have been materially lengthened; and this lengthening of residence is particularly striking in the case of the two large professional schools—those of Medicine and of Law, and is even more striking in the case of the Medical School than in that of the Law School. On the other hand, the practice of admission to advanced standing in the college has lately increased; so that many degrees of Bachelor of Arts are now conferred every year upon persons who have not completed a residence of four years.

President Eliot considers it altogether desirable that the percentage of Harvard College students in the total number of students in the whole university should gradually diminish; for the other departments contain maturer, more advanced, and more serious students, and they should be fed by hundreds of institutions besides Harvard College, although that college should always remain their best feeder. He points out that such trivialities and crudities as still survive in the university naturally harbor in Harvard College; because the college only two generations ago was really a school for young boys. He thinks that gradually the influence of a large body of mature and earnest students who have a serious purpose in view is eliminating from the college itself these inconsistent survivals.

The resignation of Prof. H. P. Bowditch from the office of Dean of the Medical School after a period of service extending over ten years affords an opportunity to review the progress made by the school during that time. In 1883-84 there were 243 medical students; in 1893-94 there were 472 in attendance. During the same period the number of the faculty has increased from 22 to 28 persons, and that of other instructors from 30 to 58; a new building was occupied; the laboratory method of teaching was extended and improved; the activity of the school as a centre of medical investigation was fomented; the compulsory four years' course of study went into effect; the annual receipts and expenses of the school increased by about 75 per cent.

After June, 1896, either French or German must be presented in addition to former requirements for admission to the Medical School. All the professional schools of the university are gradually raising their requirements for admission, but these are in most instances still much too low. The laboratories of bacteriology and pathology have responded handsomely during the year to the increased demand which recent advances in medical science have made upon them.

THE DENTAL SCHOOL has had a prosperous year, and continues, through the devotion of its instructors, to make the most of limited resources. Though still hoping for a building of its own, it has nevertheless much improved and developed the building now occupied and loaned to the school by the Medical Faculty. Clever work to an increasing extent is done at this school in the treatment of cleft palates and fractured

jaws, and in one instance an artificial nose was constructed to the great satisfaction of the patient.

THE VETERINARY SCHOOL has been steadily increasing the number of its students from year to year, and it is now proposed to raise the tuition fee from \$100 to \$150 a year. The expenses still continue to exceed the receipts, notwithstanding the fact that two of the instructors give gratuitous courses. The school needs an endowment, it needs a pathological laboratory and it needs a few scholarships for poor but meritorious students.

In an address delivered at the opening of the school year, September 27, 1894, Charles Francis Adams emphasizes the claims of veterinary schools and hospitals upon the community in such statements as these :

"An imperfect table shows in the Massachusetts of to-day 26 general hospitals, 21 special hospitals, and 12 church and corporation charities, besides dispensaries, all of them endowed, and containing some 8,000 beds, for the most part free. All the outcome of the last fourscore years—the immensely larger part of it the outcome of the last twenty-five years. A magnificent showing!

"So much for human ills. Now, turn to the other side of the ledger and foot up the column, and see what has been done for our brother—the brute. The total endowment foots up \$2,800!

"So I am here to-day to plead, in an incidental way and with the liberally disposed, the cause of our dumb brother. His flesh, too, is heir to many ills; and he cannot describe them. He suffers in silence. Now in our Commonwealth much, as I have shown, has already been given, much is now being given to worthy public uses. We see its results in our daily walks in public buildings, in libraries, in parks, and in the beds of hospitals—it is all good; but, in this giving, why nothing to man's beloved companion and faithful servant?"

Again, another statement from this pithy address :

"In Massachusetts there are stated to be at this time some 200,000 horses and as many neat cattle. I have not looked into the census figures under the headings of dogs and cats. For the clinical treatment of these, if I may use that scientific expression, there exist to-day two public hospitals in Boston, with accommodations for about 65 horses and cows. Under such circumstances it is, indeed, frightful to think of the preventable suffering which must day by day be undergone by domestic animals, as well as the pecuniary loss to man thereby involved. . . . What more acute or greater satisfaction could any man or woman well have or desire, than to feel that through him or her the condition of the animal creation in the community in which the giver lived, had for all time been perceptibly improved and its sufferings alleviated?"

Tuberculosis, diphtheria, anthrax, hydatids, actinomycosis, and the long list of entozoa and parasites common to man and animals all testify to the intimate relation between their diseases, and to the importance of a comparative study of such diseases.

MEDICAL NOTES.

THE SIXTH CONGRESS OF BALNEOLOGY. — The sixth Congress of Balneology will be held at Berlin on the 7th of next March. Prof. Oscar Liebreich will preside.

THE SUCCESSOR OF SIR HENRY ACLAND. — Prof. J. Burdon Sanderson has been appointed *Regius Professor of Medicine* in the University of Oxford, in succession to Sir Henry Acland.

PRIZE ESSAY ON TUBERCULOSIS. — Dr. Herman Weber, of London, has given the Royal College of Physicians \$12,500 for the foundation of a prize to be offered every two or three years for the best essay upon tuberculosis.

CANNOT BE SENT BY MAIL. — Bacteriologists and pathologists should take notice that by the new postal regulations, "disease germs and matters from diseased persons" are unmailable matter, and cannot in the United States be sent by post.

A CONGRESS ON TUBERCULOSIS. — A national Congress on Tuberculosis is to be held at Coimbra, Portugal, beginning on the 24th of March, the anniversary of Professor Koch's announcement of his discovery of the tubercle bacillus.

SMALL-POX IN DUBLIN. — There have been 84 deaths from the present small-pox epidemic in Dublin, Ireland. The efforts of the sanitary authorities in dealing with the disease are said to have been far from efficient, owing to the fear of creating a scare, which, according to the *Medical Press*, means that they would rather let the paupers die than run any risk of spoiling the trade of the shopkeepers and lodging-house people.

AN INTERNATIONAL CONGRESS ON CHILDHOOD will be held in Florence in the spring of 1895. Among the questions to be discussed are, the physical, moral, and mental elevation of children, children's hospitals, the care of deaf-mute and blind children up to the time of their admission into an educational institution, care of poor and abandoned children, reformatories, and vagabondage in its relation to childhood.

THE CONFUSION OF TONGUES. — The date of the ninth International Congress of Hygiene and Demography, which is to be held at Madrid in 1897, has now been fixed from October 11th to 18th. The Spanish Government has sanctioned the use of no fewer than six official languages, namely, Spanish, Portuguese, French, Italian, English and German. At this rate international congresses bid fair to be excellent object-lessons in the "confusion of tongues." We hope that no hard feeling will be caused by the omission of Russian, Hungarian, Hebrew and Chinese from the list of official languages.

THE TREATMENT OF VARIOLA WITH ITS ANTITOXIN. — Passed Assistant-Surgeon Kiuyoun has reported to the Supervising Surgeon-General of the Marine-Hospital Service the employment of the blood-serum of a heifer calf, vaccinated four weeks previously, in the treatment of two cases of variola. Fifteen cubic

centimetres of the serum were injected subcutaneously when the cases came under observation, and again after the lapse of eight or ten hours. In one case four injections were made, in the other seven. A careful study of the cases, individually and comparatively, led to the conclusion that the treatment exercised a modifying influence upon the disease, especially upon the eruption. One of the cases died, but it is believed that life was prolonged at least seventy-two hours by the treatment. It is suggested that as the serum appears capable of mitigating the attack of variola it ought to have the power of rendering susceptible individuals refractory to the disease.

SENATOR GALLINGER ON ANTITOXIN AGAIN.—An editorial writer in the *Boston Herald* of February 6th, in speaking of Senator Gallinger's views on the future of antitoxin, made the following statement:

"It is shockingly bad taste that Senator Gallinger, of New Hampshire, displays in speaking slightly of the medical profession of which he is the sole representative in the United States Senate. In voting an appropriation for the production of antitoxin in the District of Columbia his lay associates in the Senate showed considerably more respect for the science of medicine than the one person in that body to whom the public would most naturally look for an intelligent action on this subject."

The senator writes in defence of his position that he is in good company in his views, having on his side Dr. Hansemann, of Berlin, assistant to Professor Virchow, "the dean of modern pathology." The respect in which Professor Virchow is held by the medical profession, is so great that the announcement of his having been chosen to so important a position as that of the "dean of modern pathology" can hardly excite surprise. The fact that the distinguished "dean" himself holds views on antitoxin opposed to those of Dr. Hansemann, does not seem to have attracted Senator Gallinger's attention.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, February 6, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 54, scarlet fever 51, measles 26, typhoid fever 5. During the week ending February 13th, there were reported the following cases: diphtheria 92, scarlet fever 43, measles 63, typhoid fever 2.

THE LYMAN PRIZE.—The announcement of the award of the Lyman Prize for this year was made by the Secretary of the City Hospital Club at its annual meeting. The amount of the prize is one hundred and fifty dollars in money, and it is open to ex-house-officers of the Boston City Hospital of not more than three years' standing. Six essays were offered. A first prize of eighty dollars was awarded to Dr. John Lovett Morse, of Boston, for an essay entitled, "A Clinical and Experimental Study of the Leucocytosis of Diphtheria." Two second prizes of thirty-five dollars each were awarded: one to Dr. F. A. Higgins and Dr. J. B. Ogden, of Boston, for an essay on "Traumatic Glycosuria," and one to Dr. J. B. Blake,

of Boston, for an essay on "An Examination of some Recent Statistics in regard to Ether and a Consideration of Some Present Methods of its Administration." An honorable mention was given to Dr. A. B. Duel, of New York, for an essay entitled, "Leucocythemia, with a Report of Three Cases of the Splenic-Myelogenous Form." The practice of splitting up this prize into minute fractions may be a kindly one, but it seems to us a mistaken practice. It will be surprising if it does not tend to diminish both the number and the quality of the essays offered. The full sum is not an excessive reward for a first-rate piece of work. It can hardly be the object to encourage anything less than first-rate work.

PRESIDENT ELIOT STIGMATIZES FOOTBALL.—The President in the annual report of Harvard College, pays his compliments to football and takes very positive ground against it as an intercollegiate sport; to him it has become perfectly clear that the game as now played is unfit for college use and that it is impossible to make it fit. We have already discussed football enough, and see no reason to change the views previously expressed. If the *players wish* to reform the game, it can be made not only a fit but a very desirable game for college and inter-college use; if they do not reform it, why then it will doubtless be abolished. After our editorials of November 29th and December 6th, which attracted some attention throughout the country, we received a friendly and appreciative letter from Hon. Theodore Roosevelt, expressing in large measure the sentiments since uttered by him at the recent meeting of the Harvard Club in Washington. Mr Roosevelt does not overestimate the value of a few bones; he believes that Harvard College should produce men first, students afterwards, but that the two are compatible; he threatens to disinherit his son should that lad ever be found weighing the possibility of a broken bone against the glory of being chosen to play on Harvard's football eleven. Should young Roosevelt ever incur this mark of parental displeasure, we would feel that the responsibility lay at President Eliot's door, for one extreme begets another. In the mean time President Eliot has fled to Egypt, and the junior Roosevelt is not yet eligible to the team.

NEW YORK.

ABATEMENT OF DIPHtheria.—Dr. H. M. Biggs states that during the past month the number of cases of diphtheria reported has fallen off 25 per cent., and he attributes this result to the use of antitoxin.

THE NEW YORK ACADEMY OF MEDICINE.—At a meeting of the New York Academy of Medicine held February 7th, Dr. Daniel Lewis was elected one of the Vice-Presidents, to fill the vacancy caused by the election in January of Dr. Joseph D. Bryant to the Presidency.

MORTALITY OF NEW YORK CITY.—Notwithstanding the extreme cold of last week there was some decrease in the mortality of the city, the number of

deaths reported being 921, against 952 during the week ending February 2d. The average for the corresponding weeks of the past five years is 879. There were 60 deaths from influenza, a decrease of 11, and the number of deaths from pneumonia also decreased. There was a slight increase of deaths from diphtheria, the number being 39, against 33 in the preceding week.

Miscellany.

THE FIRST SYMPHYSEOTOMIES IN AMERICA.

A THOROUGH and exhaustive investigation, conducted by the *Medical News*, in conjunction with Dr. R. P. Harris, seems to confirm the claim of Dr. J. O. Williams, of William Penn, Texas, to the performance of the first symphyseotomies in America.

The first operation was performed on April 29, 1880, on a girl thirteen years old. The child was illegitimate, and Dr. Williams had been urged by the parents to perform an abortion. He refused, and obtained the consent of the parents to allow the pregnancy to come to term on the condition that he would then secretly deliver the child. After a labor of eighteen hours, with no progress, the idea spontaneously occurred to Dr. Williams of separating the pubic bones by means of a tenotomy knife. He did the operation unassisted, and then delivered by forceps a twelve-pound child. A pelvic band was worn for six weeks, and mother and child did well.

The second operation was done in July, 1884. Dr. Williams, being unsuccessful in an attempt at the subcutaneous operation, performed open section. It was, however, necessary to perforate the head in order to effect delivery. A pelvic band was applied, and the mother was up on the twelfth day.

The third operation was performed in May, 1889, upon a negress, who had been in convulsions thirty hours, and had suppression of urine. The mother died, but the child lived.

Numerous letters and sworn statements support Dr. Williams's claim to the performance of three operations; in other words, to having spontaneously conceived and three times performed this operation before any other American surgeon. The comments on the operator and his work made by the *Medical News* are so good that we are glad to quote them:

"He was frankly deficient in preliminary education, and placed in a frightful tangle of most distressing and possibly tragic circumstances, no hint of which we have been able to give. He was surrounded by a set of conditions the dramatic interest of which we have scarcely seen equalled upon the stage. Through it all he has carried himself, and out of it all he has brought himself, with a combination of shrewdness, modesty and probity beyond all praise.

"The chief lesson to be learned from these cases has been summed up in the expression of Dr. Harris: 'In your reports and statistics, wait until you hear from the backwoods.' 'The backwoods' are often deficient in literary qualities, and in many of the arts of modern medicine, 'push' and self-assertion included; but they are often profoundly ingenious, and not seldom exhibit an unchronicled heroism quite equal to any that vaunts itself in populous places."

Correspondence.

A NEW JOURNAL DEVOTED TO THE DIGESTIVE ORGANS.

BALTIMORE, February 11, 1895.

MR. EDITOR:—The rise of a specialty in medicine is marked by the appearance of journals especially devoted to it. We are glad to inform you, that the new specialty of "Diseases of the Digestive Organs" is about to have its own publication—the *Archiv für Verdauungskrankheiten*, which will appear in April. It will be published in Berlin, Germany, by S. Karger. The editor is Dr. I. Boas, the well-known author of a work on "Diseases of the Stomach." He will be assisted by specialists in Germany and other countries. The *Archiv* will contain original articles, besides reviews and abstracts of recent literature, and will embrace diseases of the stomach, intestine, liver, pancreas and peritoneum, constitutional diseases and dietetics. Those interested may communicate with the editor or the publisher.

Yours truly, JULIUS FRIEDENWALD, M.D.

MORPHINISM IN CHILDREN.

BROOKLYN, N. Y., February 1, 1895.

MR. EDITOR:—I am desirous of adding to the clinical literature of morphinism in children. If any reader of the *JOURNAL* has met with a case, and will furnish me details, I shall appreciate the favor, and give full credit.

Respectfully, J. B. MATTISON, M.D.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, FEBRUARY 2, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York . .	1,956,000	952	315	8.69	27.94	.22	4.18	1.10
Chicago . . .	1,600,000	—	—	—	—	—	—	—
Philadelphia . .	1,139,457	496	166	11.20	18.60	1.40	8.20	.40
Brooklyn . . .	1,043,000	466	128	9.40	27.06	.22	6.60	.88
St. Louis . . .	540,800	—	—	—	—	—	—	—
Boston	501,107	226	61	8.80	22.88	.44	5.28	.88
Baltimore . . .	500,000	—	—	—	—	—	—	—
Washington . .	285,000	88	23	9.52	16.32	2.72	1.36	—
Cincinnati . . .	325,000	—	—	—	—	—	—	—
Cleveland . . .	325,000	86	32	20.88	18.56	2.32	4.64	11.60
Pittsburg . . .	272,000	80	36	10.00	27.40	3.75	8.80	—
Milwaukee . . .	265,000	—	—	—	—	—	—	—
Nashville . . .	87,754	34	9	23.52	2.94	5.88	2.94	2.94
Charleston . . .	65,165	21	6	—	4.76	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester . . .	100,410	38	18	13.15	15.78	—	2.63	—
Fall River . . .	92,233	45	19	6.66	20.00	—	2.22	2.22
Lowell	90,613	30	12	13.33	16.66	—	6.66	3.33
Cambridge . . .	79,607	35	10	14.30	17.16	—	11.44	—
Lynn	65,123	17	3	17.61	5.88	—	—	5.88
Springfield . .	50,284	24	6	16.66	12.48	4.16	8.32	—
Lawrence . . .	49,900	17	3	11.76	5.88	—	—	5.88
New Bedford . .	47,741	16	4	11.11	11.11	—	5.55	—
Holyoke	43,348	—	—	—	—	—	—	—
Brockton	33,939	8	4	25.00	25.00	—	25.00	—
Salem	33,155	12	3	8.33	8.33	—	—	8.33
Haverhill . . .	32,925	9	2	11.11	44.44	—	—	11.11
Malden	30,209	11	4	18.18	18.18	—	—	—
Chelsea	29,606	10	4	30.00	10.00	—	20.00	—
Fitchburg . . .	29,383	7	3	14.28	—	—	14.28	—
Newton	28,837	9	1	—	—	—	—	—
Gloucester . . .	27,293	—	—	—	—	—	—	—
Taunton	26,564	12	4	25.00	16.66	—	25.00	—
Waltham	22,058	6	1	—	16.66	—	—	—
Quincy	19,642	9	3	—	33.33	—	—	—
Pittsfield	18,862	3	1	—	—	—	—	—
Everett	16,885	11	3	—	—	—	—	—
Northampton . .	16,331	4	2	25.00	50.00	25.00	—	—
Newburyport . .	14,073	3	0	—	—	—	—	—
Amesbury	10,320	6	3	—	50.00	—	—	—

Deaths reported 2,881: under five years of age 927; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 389,

acute lung diseases 641, consumption 335, diphtheria and croup 153, scarlet fever 41, typhoid fever 21, diarrheal diseases 21, whooping-cough 15, cerebro-spinal meningitis 12, erysipelas 12, measles 10, small-pox (Philadelphia) 2.


From diarrheal diseases New York 10, Philadelphia and Washington 3 each, Brooklyn, Boston, Nashville, Worcester and Lowell 1 each. From whooping-cough New York 4, Brooklyn, Boston and Worcester 2 each, Philadelphia, Washington, Cleveland and Nashville 1 each. From cerebro-spinal meningitis New York 6, Lynn and Malden 2 each, Worcester and Chelsea 1 each. From erysipelas New York 4, Providence and Nashville 2 each, Brooklyn, Boston, Cambridge and Lynn 1 each. From measles New York 5, Brooklyn and Providence 2 each, Pittsburg 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending January 26th, the death-rate was 18.7. Deaths reported 3,797: acute diseases of the respiratory organs (London) 324, measles 75, whooping-cough 69, diphtheria 56, fever 47, diarrhea 42, scarlet fever 35, small-pox (Birmingham and Liverpool 2 each) 4.

The death-rates ranged from 11.3 in Leicester to 28.0 in Liverpool; Birmingham 19.1, Bradford 14.7, Croydon 15.0, Gateshead 15.8, Huddersfield 16.2, Leeds 20.3, London 17.6, Manchester 23.1, Newcastle-on-Tyne 16.6, Norwich 20.4, Nottingham 17.9, Oldham 19.2, Portsmouth 21.8, Sheffield 18.3, Sunderland 20.4.

METEOROLOGICAL RECORD.

For the week ending February 2nd, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S.. 27	29.86	27	33	21	52	57	54	W.	W.	21	23	F.	C.	0.15
M.. 28	30.14	20	25	15	52	61	54	S.W.	W.	22	10	C.	O.	
T.. 29	29.90	20	24	15	93	78	86	N.W.	W.	7	8	N.	O.	
W.. 30	30.05	24	32	16	85	70	78	W.	S.W.	5	8	O.	F.	
T.. 31	30.25	24	30	19	76	69	72	N.W.	N.	10	8	C.	C.	
F.. 1	30.32	26	36	16	67	70	68	N.W.	S.W.	6	8	F.	O.	
S.. 2	30.11	30	34	27	89	75	82	W.	N.W.	3	16	O.	F.	
	30.09		30	18			70							0.30

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 2, 1895, TO FEBRUARY 8, 1895.

The extension of leave of absence granted CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, is further extended fourteen days.

The leave of absence on account of sickness granted FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon, is extended one month on account of sickness.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 9, 1895.

C. P. BAGG, assistant surgeon, detached from U. S. S. "Mohican" and ordered to the Naval Hospital, Mare Island, Cal.

F. G. BRATHWAITE, assistant surgeon, detached from Naval Hospital, New York, and ordered to examination preliminary to promotion.

JAMES STOUGHTON, assistant surgeon, ordered to examination preliminary to promotion.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 18th, at 8 o'clock.

Dr. C. F. Withington will read on "The Antitoxin Treatment of Diphtheria."

Dr. M. H. Richardson on "Intestinal Resection and Anastomosis" with cases.

JAMES G. MUMFORD, M.D., Secretary.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT.—The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday evening, February 20th, at 8 o'clock.

Dr. J. H. McCollom: "Observations on Diphtheria."

Dr. Richard Hogner: "Intra-Venous Medicated Injections, according to Prof. Guido Baccelli's Method."

JOHN L. AMES, M.D., Secretary.

THE AMERICAN ACADEMY OF MEDICINE.—The twentieth annual meeting will be held in one of the buildings of the Johns Hopkins University, Baltimore, on Saturday, May 4, and on Monday, May 6, 1895. The "headquarters" of the Fellows of the Academy and the meetings of the Council will be at the "Stafford."

Members preparing papers are urged to send a copy of the paper, or an abstract, to the Secretary as soon as possible, in order that time may be given him to prepare the press-reports. Members contemplating the preparation of papers, should give notice at once to the Secretary, as the completed programme must be issued early in April.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, February 21st, at 8 o'clock, by Asst. Prof. M. H. Richardson. Subject, "A Consideration of Intestinal Obstructions, Acute and Chronic, with Technique of Resections." Physicians are cordially invited.

APPOINTMENT.

DR. J. L. HILDRETH, of Cambridge, has been appointed by Governor Greenhalge, a member of the Massachusetts Board of Lunacy and Charity, vice Dr. R. M. HODGES, resigned.

RECENT DEATHS.

JONAS COWDREY HARRIS, M.D., M.M.S.S., died in Arlington, February 10, 1895, aged seventy-five years.

FREDERIC AUGUSTUS SAWYER, M.D., M.M.S.S., Vice-President of the Massachusetts Medical Society, died in Wareham, February 10, 1895, aged sixty-two years.

BOOKS AND PAMPHLETS RECEIVED.

Notes on the Sanitary Condition of Mexico. By G. P. Conn, M.D., Concord, N. H. Reprint. 1894.

A Résumé of Twelve Hundred Examinations for Life Insurance. By William H. Dukeman, M.D., of Los Angeles, Cal. Reprint. 1894.

The Drottwich Brine Baths as Therapeutic Agents in Various Diseases. By W. M. Tomlins, L.R.C.P. (Lond.), M.R.C.S. (Eng.). Reprints. 1895.

Memento Formulaire des Médicaments Nouveaux (Avec une Table alphabétique des indications). Par Henri Soulier. Paris: G. Masson, Editeur. 1895.

Archives des Sciences Biologiques publiées par l'Institut Impérial de Médecine Expérimentale à St. Pétersbourg. Tome iii, No. 2. St. Petersburg. 1894.

Blood Serum Therapy and Antitoxins. By Geo. E. Krieger, M.D., Surgeon to the Chicago Hospital, etc. With illustrations. Chicago: E. Colgrove & Co. 1894.

Appendicitis, with Especial Reference to its Diagnosis and the Indications for Operation. By Wm. B. Van Lennep, A.M., M.D., Philadelphia. Reprint. 1895.

Separat-Abdruck aus Klinische und anatomische Beiträge zur Pathologie des Gehirns. Von Dr. S. E. Henschen, Professor in Upsala. Teil III, S. 100-115. Upsala. 1894.

Sur Les Centres Optiques Cérébraux. Par le Dr. S. E. Henschen, Professeur de médecine interne à Upsal (Suède). Extrait de la Revue Générale d'Ophthalmologie, No. 8, 1894.

Laboratory Guide for the Bacteriologist. By Langdon Frothingham, M.D.V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders. 1895.

The Disorders of Speech. By John Wyllie, M.D., F.R.C.P. Ed., Physician to the Royal Infirmary, Edinburgh; Lecturer on the Practice of Medicine and on Clinical Medicine in the School of Medicine, Edinburgh. Edinburgh: Oliver & Boyd. 1894.

A Monograph on Diseases of the Breast; their Pathology and Treatment, with Special Reference to Cancer. By W. Roger Williams, F.R.C.S., Late Surgeon, Western General Dispensary and Surgical Registrar, Middlesex Hospital. With 76 figures. London: John Bale & Sons. 1894.

Original Articles.

BRIEF MENTION OF A FEW CASES OF NERVOUS AND MENTAL MALADY INVOLVING MEDICO-LEGAL QUESTIONS.¹

BY IRVING C. ROSSE, A.M., M.D., F.R.G.S., WASHINGTON, D. C.,
Ex-Professor of Nervous Diseases, Georgetown University; Membre du Congrès International d'Anthropologie Criminelle, etc.

I PURPOSE to submit for consideration a few cases which I trust may be sufficient to claim the attention of those having interest in forensic medicine. While not so interesting perhaps as the discussion of some current popular medical theory, the record of a few well-selected typical cases occurring in one's own work has, to say the least, more instructive and more immediate practical value.

In the case of disputed wills, where we are often called on to help settle the question of testamentary capacity of the testator, there is among lawyers of the present day a disposition on one hand to invalidate a will on account of the existence of mental states which would not be regarded as insanity from either a legal or medical point of view; while, on the other hand, the tendency is to be governed rather by the provisions of the will itself, and to maintain its validity, even in certain cases of insanity, when the provisions of the deed are rational. Inmates of asylums have made valid wills; and in the case of a testator who committed suicide within three days after its execution, the will was held to be good.

An attorney engaged my services some time since in a matter of the kind where a wealthy retired army officer had died and willed quite a large fortune to the Society for the Prevention of Cruelty to Animals. Searching the medical and military record of the deceased it was found that he had suffered from a specific trouble, and on one occasion was declared insane by a court-martial. This, with other evidence of a damaging kind, led the adverse party to offer a compromise, which was finally accepted.

A case of the same nature was that of a wealthy retired manufacturer from Massachusetts, whom I treated in May and June, 1893. He originally consulted me for obscure nervous symptoms resembling those of locomotor ataxia. A previous case of the kind suggesting diabetes, led to a urinary analysis which confirmed the diagnosis. For a time the patient did well under treatment, but during a summer holiday he fell into the hands of an irregular practitioner, and died suddenly, after willing his entire fortune of several hundred thousand dollars to the Baptist Church. On taking steps to contest the will, an inventory of the past habits of the deceased led to a satisfactory compromise.

The question of civil incapacity may also affect life insurance policies, as it did in the case of one of my patients, a hotel man, who died some time since of melancholia, when the company in which he was insured withheld the amount from his widow. The matter was, however, adjusted through the favorable medical representations that I was able to make.

Divorce and separation also come within the province of the medical legist. In June, 1892, I had a buxom-looking woman for a patient, who had been treated with indifferent success by several New York neurologists. She was one of those strange hysterical cases

just along the border-land of insanity, such as I have attempted to portray in a paper read at the Jefferson Medical School a few years since.² Inquiry led to the significant fact that she was married to a very old man, and that she suffered from nymphomania. The case resulted in separation and ultimate divorce.

Another case of a very puzzling nature lately occurred in one of my patients whose domestic infelicity and jealous rage showed itself in periodic attacks to destroy fragile objects. On various occasions she destroyed several thousand dollars worth of valuable glass and china from motives of revenge toward her husband, whom she accused of unfaithfulness. After the most rigorous examination I was unable to establish insanity in this case, although a separation seems to have taken place on that ground.

A sociological problem seems to be involved in that of kleptomania, which like many other questions of the kind lies close to civil government. In cases of alleged "shop-lifting" it is often a very difficult and delicate thing to decide whether the alleged act is criminal or the result of an insane and uncontrollable propensity to pilfer, such as sometimes occurs in epileptics, neurotics, and in pregnant or hysterical women. While much is to be said on the side of the shopkeeper, medical intervention is often necessary for the ends of justice. A case occurred several years ago in Washington of two highly respectable ladies who in shopping were arrested and rudely treated for the alleged theft of a small article which a detective did not find on searching their persons. Being released, they had the detective arrested and fined, and brought suit against the firm. One of these ladies I attended through a prolonged attack of nervous prostration, the result of the shock, and when the trial came off I testified in her behalf. The jury saw fit to give her a verdict of ten thousand dollars.

Another question, in which a considerable amount of the currency of the country is involved, occurs in the case of one of my patients who dates his breakdown from the disaster at the old Ford's Theatre. Although he was not visibly or outwardly injured by the accident, yet he claims that from being well and strong immediately before the accident he has become a neurasthenic invalid unable to do business, and claims a money compensation therefor. The matter, being investigated by a Congressional committee, is still in abeyance.

But of all the neurological cases in which knowledge is brought to bear in a medico-legal way those involving the money compensation of invalid pensioners are the most unsatisfactory. From a scientific point of view nothing can be more difficult to adjudicate than alleged disabilities plus the element of politics. It is therefore not to be wondered at that many of these cases are in a hopeless muddle. In a paper read at a meeting of the American Neurological Association at Long Branch in 1877, I attempted to show a few of the errors of diagnosis in such cases.³

My principal object, however, in mentioning this paper is to call attention to a case of aphasia, already reported in the *Virginia Medical Monthly* of July, 1890. The case merits particular study for the reason that this man having committed a criminal offence and being sentenced therefor, a question arises as to his

¹ Read at a meeting of the Medical Society of Virginia at Richmond, October 24, 1894.

² Clinical Evidences of Borderland Insanity. *Journal of Nervous and Mental Diseases*, October, 1890.

³ *Journal of Nervous and Mental Disease*, November and December, 1887.

responsibility. Many new features of aphasia in its medico-legal relations have lately been treated in an able article by my friend, Dr. Charles K. Mills, of Philadelphia.

Of the great number of claimants for pension that have come to notice, many of the alleged disabilities are about as doubtful in a neurological way as the cases of chronic diarrhea contracted in the Chickahominy campaign in subjects who are fresh-colored, apparently well-nourished, and weigh over two hundred pounds at the present time.

Such cases of malingering are hardly so much to be wondered at as that of a Washington clergyman, who like many of his class gives certificates to quacks and charlatans. This man, in a newspaper advertisement, stated that a certain charlatan had cured him of a chronic disease. Yet, in order to get a pension from the government, this reverend gentleman came to me to be examined for the very disease that he claimed had been so wonderfully cured.

In connection with this subject I call attention to three cases in which the anatomical lesions are somewhat remarkable, although bearing but little on the nervous and mental condition. The first is an acromegalous condition of the right arm following a gunshot injury of the right subclavian; the second is a case of dementia in which occurs the anomaly of a double inguinal and femoral hernia; while the third case, in a man of unsound mind, shows a duopagous penis having a slit in the end with some of the characteristics of a vagina.

In the matter of malingering, the so-called litigation cases of the railway surgeon furnish some of the best examples of a psychological feature arising from the prospect of receiving money compensation for alleged injuries.

The only case of "railway spine" that I have ever seen, among an unusual number of railway injuries observed, was that of a patient who came to me in October, 1888, who stated that his disability was the result of a railway accident at Pope's Creek, Va., in June, 1888, and that he had instituted a suit for damages against the road. The symptoms disappearing rapidly under the treatment, I was obliged to tell his attorney that, unless he soon brought the case to an issue, my testimony for his client would be very weak. On hurrying the matter, the road compromised at seven thousand dollars, and I waited a long time for that "handsome fee" the patient had so often promised. But, alas for poor human nature! I had to bring suit. The plaintiff employed a *sundown*⁴ "shyster" lawyer and gave perjured testimony; all of which, however, did not prevent my getting judgment and eventually my money.

Another case of alleged spinal injury was seen by me several times in Fredericksburg, Va., in January, 1893, at the request of the Pennsylvania Railroad Company. I found the patient neurasthenic and hysterical, and with Dr. Morton of Philadelphia, subsequently ascertained that the slight lateral curvature of the spine was owing to asymmetry of the lower limbs. The curvature disappeared on placing a book under the right heel so as to equalize the lower extremities, the right being an inch and a quarter shorter than the left. A settlement being effected in Alexandria, the plaintiff, who walked markedly lame on crutches before

signing a release and receiving a check, immediately thereafter walked out of the room without crutches or lameness. She was married shortly afterwards, and, up to last accounts from Dr. Martin of Fredericksburg, was in good health.

A third case of spinal injury in a man, which I have had under treatment since August 11th, was not so fortunate in the way of money compensation. The injury occurred several years ago on one of the western roads, but he failed to secure damages, owing to a legal technicality. At present there is unnatural prominence of one of the injured dorsal vertebræ; he is paraplegic, and has great difficulty with his bladder.

Although the foregoing cases touch medico-legal points that are particularly delicate and obscure, their consideration is hardly invested with the same degree of interest or forensic importance as that of many cases calling for inquiry into the mental condition.

Some time ago I was summoned to appear as a witness before a court-martial assembled at the Artillery School at Fortress Monroe, Va., for the purpose of trying an accused for a grave military offence. After the usual preliminaries, I was asked by the judge-advocate whether or not I considered the accused insane, which question I declined to answer, but stated that I would tell what I had noted in regard to the physical state and conduct of the accused, and the court might draw therefrom its own conclusion. To this there was no objection; when my testimony as to hospital record, insomnia, a horse-kick on the head and subsequent queer conduct, suddenly ended the trial. The accused was declared insane, and sent to the Government Asylum at Washington.

It is, however, not such plane-sailing in many other cases, especially those in which insanity is entered as a plea in extenuation of a crime or misdemeanor, or where the object is to sequester a person in order to get control of money or estate, or to bring an end to unpleasant domestic relations, as shown in the following cases:

An employé of the Post-Office Department, being accused of embezzling thirty thousand dollars, his friends tried to establish insanity as a defence, and I was accordingly employed to conduct the examination. A most searching scrutiny into the patient's antecedents, as well as his present physical and mental state, failed to reveal a single fact to build upon. At my suggestion a physician from the Government Hospital for the Insane was called, who came to the same conclusion, when we abandoned the case. But a few days later two physicians were found who certified to "melancholia," when the man was sent to St. Elizabeth, where he remained a few months. The affair blowing over he was released, to become a cashier in a business establishment, which position he managed with all the care and propriety of a man in full possession of his faculties. He died a short time since from an overdose of narcotic medicine.

In another case, of a woman whose husband wished to get rid of her on the ground of insanity, I failed at three different examinations to find the least clue to the alleged condition, and consequently failed to sign a certificate. I learned, however, that the parties were living a cat-and-dog life, aggravated by violent temper on the side of the woman and general worthlessness on that of the husband, who wished, by putting his wife in an asylum, to get control of a few thousand dollars. Subsequently, two doctors certified to this

⁴ One regularly employed in a Government bureau, and practising a profession after office hours.

woman's insanity, when the sanitary officer from the police headquarters, whose province it is to look after such cases, proceeded to take her from home. Being an experienced man in such matters, and having personal cognizance of the facts of the case, he ended the matter by refusing to take her to the asylum.

I was called in consultation to a similar case only a few days ago. Exhaustive examination failed to reveal any delusion or mental weak point on the part of the woman, whose tale was the old one of unfaithfulness on the part of the husband, her own ungovernable temper, and consequent domestic infelicity. To all appearances the woman was the saner of the two.

In 1890 I was requested by a prominent attorney in Washington to visit one of his clients, who was in jail under indictment for murder. He was alleged to be breaking down physically and mentally, and for this reason it was desired to secure his release on bail. A series of visits extending over several weeks did not impress me favorably with the case. But in view of the prisoner's evident failing health, albuminuria, insomnia, fibrillary twitchings, pulse 120, and extravagant and incoherent talk, I testified in substance that he was not in condition to undergo trial and that upon further incarceration he would grow progressively worse. The court taking this view of the situation released the prisoner upon bail, which was said to be a case without precedent, since prisoners indicted for similar offences are not bailable. The accused being able to work up a satisfactory defence, was acquitted. He resumed his dissipated habits, and was finally killed by an electric car, but whether the result of accident or suicide has never been determined.

About the same time that this trial was going on, I was called to the Twelfth-Street Police Station to examine into the sanity of a gentleman from one of the neighboring counties of Virginia. It seems that for several days he had been negotiating for most of the valuable property in Washington, and had already bought up all the best hotels, for one of which he gave a cheque for \$500,000 on a bank in which he had no money. I was affably received by the prisoner, who told me in a complacent way of his enormous money transactions, and ended by saying that he had been put off a street-car because he had not five cents to pay his fare. When asked why a man of his great wealth should want for such a small sum, he was nonplussed and did not attempt to explain. My chief reason for mentioning this case is that it illustrates so well in a clinical way the delusion of grandeur—a prominent mental characteristic of general paresis, and moreover, a symptom that caused no hesitation in signing the necessary certificate to enable the friends to provide for sequestration and treatment of this unfortunate man.

On October 25, 1891, I was requested to visit the Government Hospital for the Insane in order to examine a naval paymaster, whom it was desired to release by the proper legal proceedings. The patient had been addicted to alcohol and opium, but seemed clear and rational on all points, and even passed a fair examination in mathematics until he got to the binomial theorem, which he tried to explain in a letter to me next day. I produce the letter herewith, because it was one of the principal points upon which I differed with my esteemed friend Dr. Godding, who testified at the inquisition that he thought the hand-

writing indicative of general paresis. I thought otherwise, for the reason that the patient had broken his leg some time previously and being obliged to use artificial support in walking had contracted crutch paralysis, which he said had so affected the arms and fingers as to cause the peculiarity you here see in the letter. Besides, I had at the time a perfectly sane patient, the Register of the United States Treasury, General Rosecrans, whose chiropathy was similar. The Episcopal Bishop of Maryland had, moreover, the same peculiarity in a marked degree, and I have never heard of his being insane. The court was evidently of my way of thinking; for the petitioner was released. He led a correct life for some time afterward, but unhappily he took an overdose of laudanum before the days of permanganate of potassium, and died at a hotel in New York.

On January 28, 1893, I visited the district jail with Dr. Godding to inquire into the mental condition of a young man under sentence of death for the murder of his wife. This celebrated case, known as the *Schneider Case*, was attended by great public excitement: the inquisitorial procedure conducted by three judges was a long one, and the testimony was voluminous. From what was learned of the prisoner's antecedents and his condition I did not hesitate to express my opinion that he was a paranoiac. The court, however, thought the prisoner feigning, and allowed the law to take its course. Events following the inquiry up to the moment of the prisoner's execution, as well as the post-mortem findings, corroborated the diagnosis and leave serious doubt in the minds of many persons. A more detailed account of this case is found elsewhere.⁵

On March 26, 1894, I was summoned to testify as to the sanity of a young man accused of arson. From the attending physician I learned that he had never fully recovered from the effects of typhoid fever, that he suffered from sexual hypochondriasis, and had attempted suicide with strychnia. It required but slight inspection to satisfy one of the poor physical condition and mental incoherency of the accused, and of his inability to choose right from wrong. The court certified him to the Secretary of the Interior for confinement in St. Elizabeth, where he remained some time; but after release he again attempted suicide in Alexandria on two occasions, when he was sent to the asylum at Staunton.

July 28, 1894, I testified as to the capacity of a business man of Washington regarding whose property there was considerable family friction. The patient was stuporous, apathetic, and uncommunicative, and as far as I could learn was suffering from alcoholism. I opposed sending him to an asylum for the reason that it would worsen his condition. After an attorney had harangued the jury for some time with the usual antiquated "chestnuts" as to the worthlessness of expert medical testimony in such cases, the defendant was declared insane. But on being allowed to take an outing with a companion he promptly recovered, as I said he would. He was released, and is now attending to business.

Medical witnesses in such cases are often placed in an unfavorable and unjust light by the tactics resorted to by lawyers and approved by the courts. The expert being in no position to reply, the jury and the public hear only what the lawyers have to say. Aside

⁵ The Journal of the American Medical Association, February 2, 1895, also Virginia Medical Monthly, February, 1895.

from giving a blurred and distorted character to medical knowledge with which they are imperfectly acquainted, some inexperienced and superficial lawyers avail themselves of the unfair method of quoting antiquated authority in denunciation of expert opinion. While this is an unfairness frequently taken advantage of by lawyers, we seldom hear a medical man say, "A mere judge's opinion, worth nothing, and carries no weight." Yet error is inseparable from human procedure, and lawyers and courts often differ as to questions of fact, and even make mistakes by advocating false theories embodied in legal propositions.

Error and contradiction are not confined to the medical profession alone. Even in such a simple matter as lowering the topmasts of a ship to pass under the Brooklyn bridge, eighteen experienced persons testifying before a commission a few years ago, gave as many opinions, no two of which agreed.

Lawyers, being only human, are liable to error of judgment and difference of opinion. In fact, it is said that lawyers exist as a class only because they see differences in the same occurrences, and judges are found frequently disagreeing upon points apparently less recondite than the mental state of an alleged lunatic. Lawyers would scarcely be prepared to admit that legal decisions are worthless because three judges unanimously on appeal decided a case in favor of the defendant which three other judges in an inferior court had as unanimously decided in favor of the plaintiff, precedents for which may be readily cited.

The object of all legal inquiry is the truth; yet no less a person than Chief-Justice Coleridge of England, speaking of a book of celebrated legal decisions, says that the community would be none the worse off if all the cases therein mentioned had been decided the other way, and Sir James Stephen says that "The criminal law does not deal with truth."

Cases may be cited almost indefinitely showing the disagreements of judges and the fearful muddle that lawyers have made with plain matters of fact. Thus, in *King vs. The Victorian Railway Commissioners*, three judges had to decide the comparatively simple question: "Is the putting of the head out of the window of a railway carriage in motion a reasonable use of the carriage?" with the result that two said yes, and one said no.

Again, four judges dealt with the filing of a bill of sale in *Danby vs. The Australian Finance and Guarantee Company*. That the bill was good three judges held, one for reason (a), one for reason (b), and one for reason (c), each seeing nothing in the reasons of the others, while the fourth judge held that the bill was bad, none of the reasons being, in his opinion, satisfactory. Another instance, even more suggestive, is that of *Vagliano vs. The Bank of England*. After passing through two courts in favor of Vagliano, the case was decided by the House of Lords in favor of the bank by six to two, no two of the majority agreeing as to their reasons. Despite this conclusion, we find on counting heads in all the courts, that Vagliano had eight judges in his favor. Yet he lost his case. To these instances might be adduced differences of opinion even in such a seat of authority as our own Supreme Court, reports from which show as many as thirty-five cases disposed of with as many different opinions, concerning which occur the familiar phrases, "Bench pretty evenly divided," "Reverses its own decision," etc., while, more curious to relate, is the late

reversal of the opinion of Mr. Justice White by an Arkansas judge.⁶

In relation to criminal offences committed by the insane, the law, in applying its metaphysical test to determine the responsibility of those whom science states to be physically diseased, acts upon a theory which as a matter of experience medical men know to be utterly and hopelessly false. Yet the judge, to quote the words of eminent authority, sends to the jury a false theory, as in the old trials for witchcraft; the jury acts thereon; the judge tells the executive that the prisoner had a fair trial; the law takes its course, and the case is used to prop up the false theory in subsequent trials.

The certainty with which the law prides itself is, therefore, not shown in the application of the legal test, for a perusal of cases will show that in the matter of insanity the decision of the courts is often a matter of chance, dependent on the predilections of the judge or the sentiment of the hour.

Again, the legal habits of overlooking the physical basis that exists in insanity renders the legal test from a scientific point of view less than half a test. Applied to the irresponsibility of the insane it is wrong in theory, false in fact, cruel in its metaphysical conception, and unreliable in its practical application.

I am fully aware that the foregoing views will not meet the unanimous approval of my legal friends. But, let me ask, is the present method of procedure the best that keen legal insight and contemporary science can devise?

The great advance of medical knowledge in the last century, slowly pulling the law along in its wake, has even convinced learned judges of the absurdity and injustice of condemning innocent old witches to death, and as legal fictions disappear the time may come, we trust, when no intelligent lawyer will speak of "the vicious principle of considering insanity as a disease" or be guilty of quoting from an obsolescent volume, as some of them are fond of doing, that old chestnut of a down-East judge, who throws general discredit upon the opinions of medical experts with a force of judgment only equalled by that of Jack Bunsby.

CASES OF PREGNANCY COMPLICATED BY HEART DISEASE.¹

BY GEORGE G. SEARS, M.D.

CARDIAC lesions as a complication of pregnancy have not as yet received the attention in text-books which their importance demands, nor have the best methods of treatment in this condition been adequately discussed in them. This oversight has been partially corrected by monographs upon this subject, as well as by a number of papers which have appeared in the periodical medical press within the past few years, but as their conclusions have been chiefly drawn from cases which presented either very serious or unusual features, the gravity of the complication seems to have been, from the point of view of immediate results, as much overestimated in the latter as underestimated in the former. It is not an unusual experience in out-patient work for women to apply for relief of cardiac symp-

¹ To be published in the Sixth Series of the Boston City Hospital Medical and Surgical Reports.

⁶ In the celebrated pension case of *Long vs. Loehren*, the decision of Judge Cox has lately been reversed by Judge Bradley.

toms whose lesions were undoubtedly present during one or more pregnancies and yet were the cause of no serious manifestations or were even unsuspected by both the patient and her medical attendant. A number of these cases have been selected for a brief report owing to the fulness of the records in several important points, including two which are given in somewhat fuller detail, who sought advice during the early months of pregnancy and whose course has been followed up to the present time.

CASE I. Mrs. P., thirty-five years old, pregnant for the fourth time. Except for vague pains in muscles and joints no rheumatic history was obtained and her general health had always been good. The birth of the first child was followed by mania from which she recovered after an illness of three months. The second and third pregnancies were uneventful, but early in the fourth she began to grow somewhat short of breath, and toward the end of the fifth month she noticed that her feet and vulva were swollen. On examination the heart was found to be laterally enlarged but its exact limits could not be accurately determined owing to the great development of the breasts. A very rough systolic murmur, loudest at the third left costal cartilage, was audible over almost the whole cardiac area. At the apex the first sound was somewhat muffled, but no other modification was noticed. The second pulmonic sound was markedly accentuated and a few fine râles were heard at the bases of both lungs. The urine was repeatedly tested but was always free from albumin. Her diet and mode of life were regulated so far as her circumstances would permit, and digitalis and general tonics were ordered. Her condition, if anything, improved somewhat during the next four months, although the edema still persisted. Labor came on at term and lasted about forty-eight hours, but the early pains were infrequent and so slight that they caused but little inconvenience. Active labor lasted but an hour and a half, and as the head steadily advanced and her condition remained good no interference was thought necessary, but ether was freely given. Except towards the close of labor, when it rose to 74, the pulse remained at 60, but it was soft and easily compressed. After the birth of the placenta it fell to 56. The post-partum loss of blood was normal. An examination of the heart made two weeks later showed the following condition: the apex was in the fifth interspace fully an inch outside the normal line, while the area of cardiac dulness extended two fingers' breadth to the right of the sternum. The same rough systolic murmur was still heard all over the precordia, with seat of maximum intensity over the sternum opposite the third costal cartilage. Toward the apex the murmur became much softer in character and could be followed outward into the axilla. The pulmonic second sound was accentuated and reduplicated. Her strength returned slowly but she insisted on getting up during the third week. Although complaining of dyspnea in climbing a few steps she remained fairly comfortable during the next three weeks, when she "took cold" and began to cough, raising thin, white sputum somewhat tinged with blood. Dyspnea so increased that she was unable to lie down. Her expression was anxious and the extremities slightly cyanotic. The chest was filled with medium and coarse moist râles and there was slight dulness at both bases. The pulse was irregular and weak. This condition persisted for about two months,

with occasional remissions or exacerbations, one or two of the latter being so severe that stimulants were given hypodermically. She then began to slowly improve and is now able to attend to her lighter household duties, but dyspnea is still so marked that the ascent of a flight of stairs is attended with considerable difficulty. The baby at birth was a well formed and apparently healthy child, weighing seven and a half pounds, but it possessed no vitality and died of marasmus when four months old. The third child alone survives.

CASE II. Mrs. H., aged twenty-eight, had rheumatic fever about a year before the birth of her first child, six years ago, and again about four years ago. Her second child was born four years ago, and a few months later cardiac symptoms developed. Between this time and the birth of her third child, last October, she had three miscarriages artificially induced, all under four months. She first came under observation at the beginning of her last (sixth) pregnancy, complaining of palpitation, dyspnea and precordial pain. There was considerable lateral enlargement of the heart, a systolic murmur at the apex transmitted outward, and accentuation of the pulmonic second sound. There was neither albuminuria nor edema. Except for a slight increase in the dyspnea and a little swelling of the feet, she passed through her pregnancy without noteworthy occurrence. She was attended in her confinement by her family physician, who extracted the child by forceps after a seven hours' labor, without ether, delivery being followed by a pretty profuse hemorrhage. Four days later she had an attack of syncope, but without losing consciousness, and during the following week she had several similar attacks. Under a tonic regimen she has slowly improved, the murmur has diminished in intensity, and the heart itself has somewhat regained its tone, but she still complains of dyspnea, and seems to be living at a lower level than before the occurrence of this last pregnancy.

In both cases the history of previous easy labors, the comparatively slight severity of the cardiac symptoms and the absence of albuminuria, gave every reason to expect a favorable issue under treatment indicated for uncomplicated cases of failing cardiac compensation, and the immediate result justified the expectations. When, however, cardiac symptoms show a tendency to increase in severity, and the patient's condition begins to cause anxiety, it is questionable how far the expectant plan of treatment is justifiable in meeting a complication which, under such circumstances, is fatal in thirty-five or forty per cent. of the cases. In other complications of pregnancy, like uncontrollable vomiting or eclampsia, where the presence of the fetus is the immediate cause of danger, the necessity for emptying the uterus before the patient's condition becomes desperate is generally recognized; yet in both these conditions recovery, if it takes place, is complete, and there is but one risk to consider, while in heart disease, not only is the present danger very great, but, if this be successfully passed, the prolonged strain upon the weakened cardiac muscle is apt to permanently incapacitate the patient in a greater or less degree for any form of active life, and be the starting-point for a chain of symptoms which end in premature death. With two dangers to be considered, a remote as well as a present, it is difficult to understand why the same treatment should not have been

considered equally applicable to cardiac complications, unless it be that the induction of labor has usually been so long postponed that death has been wrongly attributed to the operation, when of necessity it was the only result to be expected. Within the past year a prompter resort to radical measures has been urged with more or less emphasis by several writers. Ssolowjew,² for example, says that when ordinary methods fail, labor should be induced even in desperate cases. E. Leyden³ is equally positive, and says that the results are so bad because it is postponed till too late. Allyn,⁴ in speaking only of mitral stenosis as a complication, says that the frequent occurrence of spontaneous miscarriage or premature labor is "an indication that it should be induced when dangerous pulmonary symptoms persist in spite of suitable treatment." Webster⁵ shows more conservatism in apparently taking the opposite view, when he declares that "the quiescent condition of pregnancy is less dangerous to the heart than the disturbance brought about by the emptying of the uterus," but gives no directions for continuing this quiescent state beyond the ninth month. If he means, as he probably does from a later statement, that when a patient's chances have become desperate, induced abortion may only hasten a fatal result, his position deserves little criticism, but should rather be emphasized, in order that she may be prevented from drifting into a condition where death is almost inevitable, no matter what is done.

So many outside considerations come up when the treatment of this complication is discussed, that the main issue becomes clouded, namely, that labor, so far as its effect on the heart is concerned, is primarily a succession of muscular efforts, whose length and severity, unlike voluntary exercise, can only be approximately estimated at best, and which follows a period in which the strength of an already weakened heart is steadily deteriorating. Unfortunately, the welfare of the mother cannot alone be thought of, since a second life is at stake for whose sake greater chances must be taken; but it is an open question if more consideration has not been given to the child, without benefit to either, than is warranted by facts. It is generally conceded that the expectation of life in children born of women with serious heart lesions is decidedly impaired; but the amount of impairment cannot be definitely given until more facts are at hand, reporters of cases not having sufficiently recognized the importance of giving the fate of the children. Beside the two given above, I have notes of five other cases which are complete in this respect, two of which have been reported in detail elsewhere, and will only be referred to briefly here.

CASE III. Mrs. C., thirty-two years old, suffering from double mitral lesion probably following chorea in childhood, has borne six children at term, and miscarried once at the fourth month. Excepting the first, marked cardiac symptoms were present in all the pregnancies. The third child alone survives, the others all dying within a few months after birth.

CASE IV. Mrs. B., thirty-six years old, had mitral regurgitation, probably due to an attack of acute rheumatism following the birth of the third child, but cardiac symptoms were first troublesome during her fifth pregnancy. The child lived but eighteen months. The

sixth pregnancy terminated spontaneously at the seventh month.

CASE V. Mrs. M., aged thirty-five, vi-para, had chorea when fifteen years old, and rheumatic fever a year or two later. Marked symptoms of failing compensation appeared first during her fifth pregnancy, although there had been a little edema and dyspnea during the previous four, but not of sufficient consequence to require the services of a physician. The sixth child was born about three weeks ahead of time. The last two children lived but a few months.

CASE VI. Mrs. T., age thirty-two, iv-para, began to complain of dyspnea shortly after her marriage, eleven years ago; but cardiac symptoms did not become severe until her first pregnancy, eight years ago. Since then she has had three children, the last being born about one year ago. Attacks of syncope, dyspnea, edema of legs, cough, with sputum occasionally tinged with blood, were present in all her pregnancies, while in the latter part of the third she was unable to lie down. In all, menstruation occurred regularly during the first eight months, and after delivery hemorrhage was always so profuse as to "alarm the doctor." Forceps were used in every instance. The first child is living, but in the last stages of consumption. The second child lived three months, and died of convulsions. The third child, now five years old, is strong and well. The fourth died of some acute pulmonary trouble when two months old.

CASE VII. Mrs. H., aged thirty, iii-para, had an attack of rheumatism when twenty years old, and has since suffered from dyspnea on exertion, which has increased in severity since the birth of her first child about four years ago. The first pregnancy passed without noteworthy increase in symptoms until two or three weeks before the birth of the child, when she had a severe paroxysm of precordial anxiety and pain with loss of consciousness. These paroxysms have occurred at irregular intervals since.

The labor was very long, but terminated spontaneously, and was followed by a hemorrhage. The baby lived but fifteen minutes, the only assignable cause of death being the length of the labor. During the second pregnancy there was no increase in the dyspnea and no edema; labor was short, and the child is still living. She again became pregnant last spring, when the cardiac symptoms increased in severity and were accompanied by vomiting. As in the last case, the menses, though scanty, recurred regularly and led to a mistake in diagnosis on the part of the attending physician, whose efforts to relieve a congestion of the womb resulted in a miscarriage at the fourth month. At the time of examination the heart was found to be somewhat enlarged and a soft, diastolic murmur was heard at the fourth left costal cartilage transmitted toward the apex. At the apex the first sound was rough.

Leaving out of consideration the four cases of abortion, either criminally or accidentally induced, as well as the child whose death was probably due to a too protracted labor, these seven women were collectively pregnant thirty-one times. Of the fifteen children born before the cardiac symptoms became so severe as to require the advice of a physician, twelve are living and three are dead, while as a result of the sixteen other pregnancies but three children still survive, of whom one has but a few months more of life. The sharp contrast between the two sets is so marked that it can

² Petersb. med. Woch., Russ. med. Lit., i.

³ Zeitschrift. f. klin. Med., vol. xxii.

⁴ Univ. Med. Mag., April, 1894.

⁵ The Hospital, June 9 and 16, 1894.

scarcely be due to mere coincidence, and should anything like the same mortality rate, as seems not improbable, be found in a sufficiently large number of cases for definite conclusions to be drawn, much of the force of the most serious objection to an early resort to induction of labor would be lost.

In a paper on the same subject, published about a year ago, among other conclusions the following propositions were formulated: that the frequency of miscarriage and the doubtful fate of the child make the welfare of the mother the more important consideration in deciding the question of abortion; that the necessity for inducing abortion is very probable in the presence of grave symptoms in the early months, or of a progressive lesion, or of a history of great danger in the preceding pregnancy; and that when the necessity becomes apparent, the sooner it is done the better. Later experience, both with these cases and with a number of others, who applied for relief from cardiac symptoms dating from some previous pregnancy or shortly after labor, but whose records are, I regret to say, too incomplete to report here, has strengthened rather than weakened this opinion; but the special points which I wish to emphasize are the necessity for classifying heart-disease among other conditions in which the presence of the fetus is the immediate source of danger, in order that in this complication the same chance of recovery may be given to the mother which is accorded her in the so-called uncontrollable vomiting of pregnancy or in eclampsia, and that the remote effects of pregnancy and labor, as shown by impaired cardiac compensation, should receive the consideration which their importance demands in deciding the question of the induction of labor.

CÆSAREAN SECTION, WITH THE REPORT OF A CASE.¹

BY GEORGE HAVEN, M.D.

PELVIC deformity begins when the true conjugate falls below four inches, and the difficulty of delivering a living child through the pelvis at term increases as the diameter decreases, and becomes impossible when the conjugate measures three inches or less. The size of the child in all cases should be estimated so far as possible, and of special moment is the size, hardness and compressibility of the head. Delivery is accomplished in the lesser degrees of contraction by nature, forceps or version. In the greater degrees of contraction three methods are to be considered: first, emptying the uterus during the early months of pregnancy; second, induced labor at the seventh, or eighth month; and, third, the major obstetrical operations, namely, craniotomy, Porro, symphyseotomy, and Cæsarean section.

I do not wish in this paper to consider the subject of abortion, and shall confine myself to induced labor and the major operations. It is clearly our duty to select the operation which offers the best ultimate result for mother and child. How far respect for fetal life should determine the method is a matter to be decided by the family, operator, and in Catholic families by the priest. It is, however, safe to say that no operator will destroy fetal life if other methods of procedure offer which are equally, or almost equally, safe for the mother.

Induced labor is by no means an absolutely safe operation for the mother, and the fetal mortality is very large. In twenty-three cases of induced labor, at the Boston Lying in Hospital, 19 children died. Selecting the cases which are on the records subsequent to the introduction of antiseptics, or, in other words, the cases occurring since 1885, we have one maternal death in 12 cases or a mortality of between eight and nine per cent. Dr. Theodore Wyder, in an exhaustive article in the *Archiv für Gynäkologie*, Band 32, reports 225 cases operated upon since the introduction of antiseptics. Of these 12 died, or a mortality of 5.3 per cent.; and the fetal mortality in these cases was a little under 50 per cent. This is distinctly less than Winkle's estimate of 66 per cent. for the fetus. With our increasing knowledge of asepsis, I have no doubt that the maternal mortality can be reduced, but fear that it can never be eliminated. The fetal death-rate, with improved methods of caring for the child, may also be reduced but *must* remain very high.

Craniotomy is fatal to the child, unless we accept a report which comes from the West, where the brain substance was replaced and the child lived. The maternal mortality, quoting once more from Wyder, is about five per cent., and his table is made up of the following cases: 104 cases are from the Berlin Polyclinic, with six deaths, or a death-rate of 5.8 per cent.; 35 cases are from the Halla Clinic, with two deaths, or a death-rate of 5.7 per cent.; 76 cases are from the Leipsic Polyclinic, with four deaths, or a death-rate of 5.3 per cent.; in all, 215 cases with a mortality of 5.6 per cent. In the Lying-in Hospital there have been 15 perforations with one death, or a percentage of about six. The latest figures by Leopold place the mortality at two per cent.

I shall only speak of Porro's operation in passing, as the mortality is so high that I think it will only be undertaken in cases where hemorrhage cannot be controlled, or where for some other reason the Cæsarian section is contraindicated. The mortality in the United States, quoting from Dr. Robert P. Harris, is 61 per cent.; in Italy it is between 38 and 50 per cent., and in Germany it is claimed to be only a little above 10 per cent.

Symphyseotomy has already been spoken of by Dr. Jackson, and his paper has so exhaustively and so ably treated the subject that it leaves nothing for me to add. This brings me to the subject of my paper, Cæsarean section.

Schröder says, that the first authentic case of Cæsarean section was that of Trautmann in 1610. Much greater antiquity has been accorded the operation, but apparently without sufficient data. The section is indicated when delivery by the natural passage is impossible, or of extreme danger to mother and child. This may be caused by deformity of the pelvis, intro pelvic growths, or advanced malignant disease of the cervix. For many years the mortality, 80 per cent. and over, which attended the Cæsarean operation, led to its practical abandonment, and we have to thank asepsis and Säger for its present splendid showing. The former, as through it the danger of opening the abdominal cavity has been reduced to a practical no per cent.; and the latter for teaching us how to do the operation, and for dispelling the belief that, owing to the contraction and relaxation of the organ, suturing the uterine wound was not to be thought of.

Much has been written as to time of election, whether

¹ Read before the Obstetrical Society of Boston, December 15, 1894.

we should wait until the pains begin, and also how much dilatation should be present, or whether we should operate at our convenience any time during the last days of pregnancy. Dr. H. C. Coe believes that the best time to operate is before labor has begun, and his opinion is strengthened by that of Dr. Robert P. Harris. Personally, I can see no object in waiting, and believe that results will be better if we thoroughly prepare the patient for operation, and then operate at our convenience. The argument that we may have a dangerous hemorrhage in cases where labor has not begun, is, I think, false; and one of the strongest proofs to the contrary is to be found in cases where, for one reason or another, the uterus is emptied during pregnancy but before the advent of labor. There are hundreds of such cases; and I have never yet heard of one where the organ did not contract, and of very few where hemorrhage, to any alarming extent, was present. The other argument against the operation of election was that the cervix, being undilated, would not permit free drainage. I believe this to be also a mistake. The cervical canal is always open, and is usually, during the last few days of pregnancy, so soft and dilatable always with multipara that the point of the finger can be introduced through it. This certainly gives sufficient outlet for all fluids, and moreover, a strip of gauze can be pushed from the uterine cavity down through the cervix into the vagina, giving all the needed drainage.

One other point, about which much has been written, is whether the uterus should be opened outside or inside the abdominal cavity. Both methods have warm supporters. I think, however, that the consensus of opinion is that it should be opened outside, Dr. H. A. Kelley to the contrary. Many cases where the uterus has been opened inside have later, on account of hemorrhage, necessitated the removal of the organ to the outside.

The cleanliness of the abdominal cavity is much better cared for when the uterus is outside; in fact, it need not be in the slightest degree soiled. The patient should, if possible, enter the hospital several days before the operation. The total amount of urine passed in twenty-four hours should be noted, and a careful examination of the secretion made. If there is any diminution in the amount, she should be encouraged to drink as much water as possible, and should have some mild diuretic. The skin must be in good condition, and hot baths are to be recommended. Her bowels must receive careful attention, and the rectum should be emptied by enema the day before the operation. The abdomen is to be scrubbed with green soap and peroxide of hydrogen, to be covered with a soap poultice for two or three hours, to be followed by a corrosive one which remains in position until the time for operating. The vagina is to be scrubbed with soap, and washed out with peroxide of hydrogen and corrosive sublimate, and lastly packed lightly with gauze soaked in peroxide. The bladder should be emptied just before the operation. Four assistants are needed; one to etherize, one to handle instruments and sponges, one to hold the uterus, and one to take care of the baby. The instruments are to be sterilized, and the assistants' hands and arms treated as in preparing for any laparotomy.

The incision is in the linea alba, and should be long enough to admit of easily taking the uterus outside. Hot sterilized towels are placed around the organ, and, if possible, the placental site determined; if it cannot

be, an incision should be made through the uterine wall, in the median line, just below the top of the fundus, and extend down for about three and a half inches. A rubber ligature is placed lightly round the uterus at the cervical junction, not to be used save in case of grave hemorrhage. One assistant places both hands around the uterus, and in this way controls hemorrhage. If the incision exposes the placenta, it should be rapidly separated, and the child removed by grasping it around the neck, and given to an assistant.

The uterus is now freed from any remnants of placenta and membrane. Deep sutures are introduced about half an inch from the wound, and going down to the mucous lining of the organ, but not through it, and between these superficial sutures unite peritoneum to peritoneum. The number of sutures will depend upon the length of the incision, and will vary from three or four to eight. The material best suited for this purpose is braided silk, and should be of a size sufficient to insure against breaking. The abdominal wound is to be closed with silk or silkworm-gut; ergotine (five to ten minims) is given subcutaneously, and the patient placed in bed. There is usually very little nausea following the operation, and in many cases the mother is able to nurse her baby.

Before reporting the case upon which I operated I wish to speak of the statistics of the operation. The result of Säger's operations from 1880 to 1888 showed a mortality of 17.9 per cent. A report comes from Leipsic of 38 cases with three deaths, or eight per cent. I have collected 40 cases, operated upon in the United States since 1888, and of these nine died, a mortality of 22½ per cent. Of the nine deaths one case was operated upon without any antiseptic precautions; one had been in labor six days, and had had forceps and version tried; another had advanced malignant disease, and was dying at the time of operation; still another had been in labor two days, and had had forceps and version. This is true of a fifth, and the sixth death was in a case where labor had lasted five days and where the woman was septic. These cases should not properly be counted. If we omit them, we have three deaths in 34 cases, or a death-rate of between eight and nine per cent. It is also interesting to note that all cases operated upon in hospitals recovered, save one, and this was the case of advanced malignant disease. I think we can then assume that in all properly selected cases the mortality is not greater than nine per cent., and that in cases operated upon at the time of election, in hospitals, the mortality will be very much below nine per cent.

We then have Cæsarean section with a mortality of nine per cent., craniotomy with a mortality of five per cent., and induced labor with a mortality of five per cent.; in other words, Cæsarean section is, taking all cases, nearly twice as dangerous for the mother as craniotomy or induced labor. Undertaken in proper surroundings and by skilled operators, I doubt very much whether the mortality is greater, and the fetal mortality is wonderfully less.

It is a pity that statistics are so disappointing. Men prove whatever they wish, and in collecting statistics take many cases which should be omitted; for instance, if it is wished to prove that craniotomy or induced labor, is much safer than Cæsarean section, we have but to include all the cases of which I have spoken as unfit for the operation, our mortality immediately rises and the proof we wish is forthcoming.

Case.	Operator.	No. Preg.	Previous Operations.	Age.
1	W. H. Lusk	....	....	..
2	W. H. Lusk	....	....	..
3	W. H. Lusk	....	....	..
4	W. H. Lusk	....	....	26
5	J. S. Hawley	Sixth	....	32
6	J. E. Allen	Several misc.	Tried forceps and version before Cæ-sarian operation	35
7	J. M. Hays	Fourth	Craniotomy	..
8	H. H. Vinke	....	Tried forceps and version before Cæ-sarian operation	20
9	Seth Hill	....	Ditto	21
10	D. H. Fay	....	....	..
11	H. A. Kelley	First	....	26
12	F. M. Donohue	First	....	30
13	H. A. Kelley	Fourth	2 craniotomies	..
14	H. A. Kelley	....	1 misc.	..
15	H. A. Kelley	Third	Forceps	26
16	D. Logaker	Twelfth	....	40
17	A. H. F. Biggar	Fourth	3 craniotomies	28
18	A. H. F. Biggar	Third	....	34
19	R. A. Murray	Second	....	25
20	H. C. Coe	First	....	..
21	H. C. Coe	Second	....	37
22	Henry Gibbons	....	....	..
23	J. N. Bartholomew	Second	....	17
24	H. A. Kelley	....	2 craniotomies	..
25	H. A. Kelley	....	....	36
26	H. C. Coe	..	....	22
27	H. C. Wyman	First	....	..
28	Seth Hill	....	....	..
29	J. H. Corstens	First	....	24
30	P. H. Ingalls	Second	....	33
31	William Goodell	Twelfth	....	32
32	C. Kellock	....	....	..
33	T. G. Thomas	First	....	20
34	A. H. F. Biggar	Fifth	3 craniotomies	28
35	A. H. F. Biggar	Fifth	3 craniotomies	34
36	G. S. Mitchell	First	....	24
37	M. L. Wescheke	....	....	36
38	A. Worcester	....	1 craniotomy, 1 version, at 8 mos.	..
39	A. P. Dudley	Third	2 craniotomies	..
40	George Haven	Third	1 craniotomy, 1 version. Forceps	35

Case.	Operator.	No. Preg.	Previous Operations.	Age.	Labor.	Conjugate. Inches.	Cause of Operation.	Uterus.	Antiseptic.	Mother.	Child.	Where.	Reference.
1	W. H. Lusk	....	....	..	In labor	..	Probable deformity	....	HgCl ₂	Well	Well	Hospital	Trans., Gyn., 1888
2	W. H. Lusk	....	....	..	In labor	..	Carcinoma of uterus	....	"	"	"	"	Ditto
3	W. H. Lusk	....	....	..	6½ days	2½	....	Outside	"	"	Dead	"	Ditto
4	W. H. Lusk	....	....	26	....	..	Gen. cont. pelv.	"	"	Dead	"	"	Med. Jour., New York, 1889
5	J. S. Hawley	Sixth	....	32	....	..	Carcinoma of vagina	....	....	Dead (nearly so when op.)	"	"	Ditto
6	J. E. Allen	Several misc.	Tried forceps and version before Cæsarian operation	35	6 days Exhausted	2½	....	Outside	Carbolic	Dead	"	Home	Am. Jour. of Ob., New York, 1889
7	J. M. Hays	Fourth	Craniotomy	..	....	..	Flat pelvis	"	HgCl ₂	"	"	"	N. C. Med. Jour., 1889
8	H. H. Vinke	....	Tried forceps and version before Cæsarian operation	20	2 days	..	....	"	"	"	Well	"	Med. Assoc., Mo., 1889
9	Seth Hill	....	Ditto	21	2 days	..	Gen. cont. pelv.	....	"	"	"	"	Ditto
10	D. H. Fay	....	....	..	36 hours Exhausted	1½	Gen. cont. pelv.	Outside	"	Well	"	"	Trans. Gyn., 1890
11	H. A. Kelley	First	....	26	2 weeks Exhausted	2½	....	Inside	"	"	"	"	Am. Jour. of Ob., New York, 1890
12	F. M. Donohue	First	....	30	5 days Exhausted	..	Fibroid	"	"	"	Dead	"	Ditto
13	H. A. Kelley	Fourth	2 craniotomies 1 misc.	..	Not in labor	..	Rachitic fibroid tumor	"	"	"	Well	Hospital	Ditto
14	H. A. Kelley	....	....	..	....	2½	....	"	"	"	"	"	Ditto
15	H. A. Kelley	Third	Forceps	26	....	2½+	Flat pelvis	"	"	"	"	"	Ditto
16	D. Logaker	Twelfth	....	40	30 hours	..	Tumor	....	"	"	"	Home	Med. and Surg. Rep., 1890
17	A. H. F. Biggar	Fourth	3 craniotomies	28	....	..	Rachitic pelvis	....	"	"	"	Hospital	Med. Rec., New York, 1890
18	A. H. F. Biggar	Third	....	34	5 days Septic 3 days Exhausted	..	....	....	....	Dead	Dead	Home	Ditto
19	R. A. Murray	Second	....	25	....	3½	Impacted shoulder, gen. cont. pelvis	....	HgCl ₂	Well	Well	Hospital	Med. Jour., New York, 1890
20	H. C. Coe	First	....	..	....	3½	Rachitic.	Outside	"	"	"	"	Trans., Gyn., 1891
21	H. C. Coe	Second	....	37	....	..	Fibroid.	"	"	"	"	"	Ditto
22	Henry Gibbons	....	....	..	24 hours	2½	....	....	"	"	"	Home	Occident. Med. Times, 1891
23	J. N. Bartholomew	Second	....	17	....	2	Rachitic pelvis Gen. cont. pelv.	Inside	Carbol., 5%	"	"	"	Med. Jour., New York, 1891
24	H. A. Kelley	....	2 craniotomies	..	....	3	....	"	HgCl ₂	"	"	Hospital	Ditto
25	H. A. Kelley	....	....	36	....	3	Rachitic pelvis	"	"	"	"	"	Johns Hop. Bul., 1891
26	H. C. Coe	....	....	22	....	3½	Gen. cont. pelv., result of acid't Deformed pelv.	Outside	"	"	"	"	Internat. J. S., New York, 1891
27	H. C. Wyman	First	....	..	....	..	....	....	"	Dead	Dead	Home	Med. Rec., New York, 1891
28	Seth Hill	....	....	..	1 week	..	Gen. cont. pelv.	....	"	Well	Well	"	Proceedings Can. Med. Soc., 1891
29	J. H. Corstens	First	....	24	....	3	....	Outside	"	"	"	Hospital	Am. Jour. of Ob., New York, 1892
30	P. H. Ingalls	Second	....	33	24 hours Exhausted	2½	Gen. cont. pelv.	"	"	"	"	"	Ditto
31	William Goodell	Twelfth	....	32	....	..	Carcinoma of uterus	Inside	"	"	"	"	Med. Press, New York, 1892
32	C. Kellock	....	....	..	....	..	Flat pelvis Dwarf	....	"	"	"	Home	N. C. Med. Jour., 1892
33	T. G. Thomas	First	....	20	2d stage	2.5-6	Gen. cont. pelv.	....	"	"	"	Hospital	Med. Rec., New York, 1892
34	A. H. F. Biggar	Fifth	3 craniotomies	28	....	..	" " "	....	"	"	"	"	Ditto
35	A. H. F. Biggar	Fifth	3 craniotomies	34	Same patient as No. 34 2 days Exhausted	..	" " "	....	"	"	"	"	Ditto
36	G. S. Mitchell	First	....	24	....	1½	Tumor	Outside	"	"	"	Home	Am. Jour. of Ob., New York, 1893
37	M. L. Wescheke	....	....	36	Several days	..	Deformed.	....	Soap	Dead	Dead	"	Pacific Med. Journal, San Francisco, 1893
38	A. Worcester	....	1 craniotomy, 1 version, at 8 mos.	..	34 hours	4½	Emergency Gen. cont. pelv.	Inside	HgCl ₂	Well	Well	Hospital	Boston Med. and Surg. Jour., 1893
39	A. P. Dudley	Third	2 craniotomies	..	....	2½	" " "	....	"	"	"	"	Post Grad., New York, 1893
40	George Haven	Third	1 craniotomy, 1 version. Forceps	35	Not in labor	2½	" " "	Outside	"	"	"	"	

I shall end this paper by reporting a case which I had the pleasure of operating upon in July, 1894.

E. F., born in England, thirty years old, of slight build, weight about one hundred pounds, entered the Boston Lying-in Hospital on the 10th of July, 1894. She was a patient of Dr. George G. Sears, and was referred by him to the hospital. She was pregnant for the third time. Her first pregnancy was terminated by craniotomy, which was followed by sepsis, and she made a very slow recovery. The second was terminated by a very difficult version, subsequent to high forceps, by Dr. Edward Reynolds. The result in both cases was a dead child. Her pelvis was carefully measured by Dr. William L. Richardson, Dr. Charles M. Green and myself with the following results: spines 9 in., crests 10 in., trochanters $10\frac{1}{2}$ in., the true conjugates $2\frac{1}{2}$ in. The conjugate was apparently less than at the preceding delivery. The reason for this has not been determined. It must be stated here that she came to the hospital two months before the operation, seeking an induced labor, but was advised against it by Dr. William L. Richardson, as the danger was considered about equal to that of Cæsarean section, and she was very anxious to have a living child.

I shall make no comments upon the pelvis, save to say that it was too small to allow of but two operations, Cæsarean section and craniotomy. She was prepared for operation by the method already spoken of, and at 11.15 A. M., Sunday morning, July 15, 1894, she was given ether. She was on the table at 11.30. Drs. E. Reynolds, C. W. Townsend, J. W. Bartol, and Harlow assisted, and Drs. Richardson and Green were present. First cut in the abdominal wall 11.33, abdominal cavity opened 11.34. Uterus delivered from abdominal cavity 11.35 $\frac{1}{2}$. Ligature round neck of uterus 11.36 $\frac{1}{2}$. Uterus opened 11.38 $\frac{1}{2}$. Placenta delivered 11.38 and 45 seconds. Baby delivered 11.38 and 55 seconds. Membranes delivered 11.39 and 20 seconds. Sutures begun in uterus 11.42, finished at 12.04. Sutures begun in abdominal wall 12.07, finished 12.19. Patient in bed 12.35.

There was no bleeding from the abdominal incision. Thickness of abdominal wall was about one-half inch. The bleeding from the uterus was very slight after the first gush, which was apparently merely the blood held in the organ. After the sutures were in position there was no bleeding. The abdominal cavity was not washed out, and the organ was merely replaced after suturing and the abdominal walls united. A subcutaneous injection of ergotine was given. The patient had in the evening an enema of bromide of potash. She was for a day or two more or less hysterical, was given bromide and champagne. The baby was nursed from the beginning, and gained steadily in weight. The mother was up in three weeks and left the hospital in four weeks. Her temperature chart is uninteresting. There was a slight rise during the first forty-eight hours, to be followed by a practically normal chart. Her pulse was never above 100. I saw her a short time ago. She was well, and had a remarkably healthy and fine son. The baby's initial weight was eight pounds.

I am indebted to Dr. Courtney for preparing the table of cases.

In Toronto, children suffering from phthisis are forbidden attending public schools on the ground that they have a contagious disease.

SYMPHYSEOTOMY.¹

BY JAMES M. JACKSON, M.D.

NATURE has made a wise provision in certain of the lower animals, notably the guinea-pig, by which the symphysis separates sufficiently, just before parturition, to permit of easy transit of the fetus through the pelvis.

The operation which we are about to discuss is then an imitation of one of Nature's provisions. In these days an imitation is often quite as good as the original; but whether it will prove to be so in this case remains to be seen.

Symphyseotomy was first performed by Sigault, in Paris, in 1774. The mother and child both survived. This good result naturally enough led many operators, especially amongst the Italians, to attempt the operation. The subsequent results were so bad and the mortality so great that it was finally abandoned, to be revived in 1866 by Morisani and Novi of Naples, with some degree of success. Three years ago the operation made its exit again from Italy and was taken up by Zweifel, Freund and Pinard. These men attempt to show that the operation is a practical and safe one under certain conditions, and we now find reports of cases in almost every obstetrical journal of to-day.

Sufficient time has not elapsed since the revival of the operation in 1890 and 1891 for us to form an honest estimate of the ultimate result, but enough cases have been reported to convince one that it is in reality a very serious operation.

At first glance it seems a very simple and easy procedure, which may be done in any household; but after following a case through from the operating-room to the pathological institute one may be excused, I think, for changing his opinion.

There are two methods of operating, the subcutaneous and the open; but as the time is limited I will describe the one in general use; the open method being by all odds the best, inasmuch as it gives the operator a chance to watch the separation of the symphysis and also to tie bleeding points. The operation is never done until the os uteri is nearly or fully dilated and until high forceps have been attempted, — never after attempt at version.

Owing to the great liability to sepsis, the utmost care must be taken in rendering the lower part of the abdominal wall and vagina as aseptic as possible. An incision is made over the symphysis, extending upwards far enough to permit the operator to insert a finger back of the symphysis. Short lateral incisions are made at the lower end of the wound, and the fascia freed from its attachment to the pubes. The urethra is held to one side by inserting a stiff catheter. Then with a blunt-pointed, slightly-curved bistoury the symphysis is divided by cutting downward and backward. The sub-pubic ligament must also be divided in order to get sufficient separation. The pubic bones then spread apart a varying distance, but should not be allowed to separate more than eight centimetres, lest the sacro-iliac synchondrosis be ruptured. Up to eight centimetres there is little or no danger, as the articulation between ilium and sacrum is now known to be a true joint capable of slight movement. The head sinks at once into the pelvis.

Another great danger at this point is hemorrhage

¹ Read, by invitation, before the Obstetrical Society of Boston, December 8, 1894.

from the prevesical space thus opened. Vessels here cannot be tied and deep stitches do but little good, so that there is nothing left to do but pack with gauze. If this is not sufficient counter-pressure may be made by packing the vagina.

We may wait for a spontaneous delivery or apply forceps and deliver at once. Zweifel recommends waiting even twenty-four hours, if necessary, provided the fetal heart-sounds are good. A spontaneous delivery is of advantage because there is likely to be less damage done than by artificial delivery. Out of 44 cases which Harris cites, there were only eight spontaneous deliveries; and in 12 by Zweifel, only two. If after a reasonable time has elapsed without advance of head, or if the fetal heart-sounds give warning of danger, forceps should be applied. During the delivery the pelvis should be held by assistants lest too great a separation of symphysis takes place.

Delivery is usually easy, owing to the quite considerable increase in the diameters of the pelvis; but it is also very easy to wound the vagina at this stage, and herein lies one great objection to the operation. Several cases have been reported, and I have myself seen one case at autopsy, where the anterior wall was so torn that the finger could be passed from above the symphysis through into the vagina. The urethra in this case was also ruptured. Further, the sacro-iliac synchondrosis may be so stretched that a rupture of the capsule occurs, sometimes with direful results. In a pelvis which I once saw there was a large blood-clot in each joint, and also considerable pus, the woman having died of septicemia.

After delivery the symphysis is forced together, and may be held in place either by strips of adhesive plaster across the pelvis, or by suturing the pubic bones. Zweifel drills holes in each side of the symphysis and holds the ends together with catgut. With this a firm bandage should be worn. The prevesical space is always drained for one or two days.

The after-treatment consists in keeping the woman quiet in bed for three weeks with knees tied together. She is then allowed to get up if union of the symphysis has taken place. For six months she is not allowed to do any heavy work or straining. Each case must, of course, be treated *per se*, for there are cases in which the union is greatly delayed.

It seems illogical to think that symphyses should heal in so short a time, but, as a fact, most of them do, at least that is what is claimed. I know of a case in Vienna where the woman was in bed the greater part of six months, and even then could walk only with the greatest difficulty on account of failure of union in the symphysis and great laxity of the sacro-iliac joints. In another case, the woman waddled in walking, which was also due to partial non-union, though she was able to get about without much difficulty.

I wish here to cite a case reported by Garrigues. The operation was a success, and everything went well. At the end of a month the patient went home, apparently well. The symphysis at that time had united except at the lower end, which would just admit the finger-tip. At the end of three and a half months the patient returned, with waddling gait and pain in all three joints of the pelvis when walking. Examination showed that the lower end of the symphysis had separated half an inch.

Another source of danger, which I may mention here, is from cystitis or even suprapubic fistula of the

bladder, due to a pinching of the bladder wall between the ends of the symphysis.

Garrigues says that by division of the symphysis the distance from the middle of the promontory to the ends of the pubic bones increases 14 millimetres, and during birth an additional gain of 6 to 8 millimetres is made, or 20 to 22 millimetres in all, and that the increase in other diameters may amount to as much as 35 millimetres. Döderlein estimates that by a separation of the pubic bones of 6 centimetres a superior strait of 105 square centimetres would be increased to 155 square centimetres. The distinct advantage of such a gain in pelvic measurements needs no comment.

The disadvantages, as already noted, are as follows:

(1) Rupture of the sacra-iliac joints. Now that we know that a separation of more than eight centimetres of the symphysis is liable to rupture the capsule of these joints, such an accident need hardly occur.

(2) Rupture of soft parts of vagina and urethra. This is not a rare complication, and to my mind is a strong point against the operation.

(3) The danger of non-union of the symphysis. Sandberg, in his article on symphyseotomy in the *American Journal of Obstetrics*, for February, 1894, says: "Faulty union of pubic bones, resulting in impaired locomotion was one of the great objections to the operation in its early period. Since its revival and especially during the last six or seven years, failures in this respect are almost unheard of, whether the operator applies bone sutures or only keeps the divided bones in apposition by a firm bandage." In my very limited acquaintance with the operation I know of two cases of non-union. I will admit, however, that such cases are, as he says, "almost unheard of." Zweifel reports three cases of waddling gait out of 23 symphyseotomies; Fritch four out of four; Grandin one out of four; and Garrigues one out of two. In all of these 33 cases, nine had disturbed locomotion.

It has occurred to me that there is an analogy to be drawn between the healing of the symphysis after this operation and the healing of a compound fracture of the patella. We know that in the case of the latter 6.6 months on the average are necessary for a union (according to Dr. J. G. Mumford's statistics) which in most cases is by cartilage, and that about half these cases break down or stretch afterwards. If the analogy is correct is it not just to infer that a like result may take place in the symphysis? The case of Garrigues already cited, seems to be a good illustration of this point.

(4) The length of time required in convalescence, which may be said to be quite as long as in Cæsarean section. Three weeks in bed, getting up gradually according to the amount of union in the symphysis. No hard work for six months to a year.

(5) The great liability to sepsis which is shown in cases where there has been a bad laceration of the vagina. I judge merely from autopsies and post-mortem specimens which I have seen and from a few reported cases, all of which were under the care of good operators.

Lastly, the rate of mortality. It has been placed at 10 per cent.; but this I feel is entirely too high. It ought not to exceed two or three per cent., with our recent methods and with greater care in selecting cases. It is obviously unfair to count cases that have been tampered with by meddling midwives and unclean doctors before the operation, or cases in which labor

has been going on for one or two days until the patient is in a low condition. It is on this account that the mortality in America is so high, according to Garrigues, namely, 15.39 per cent. for mothers and 30.77 per cent. for children in 26 cases.

We must admit that as yet operators are inexperienced, and the mortality is high on that account. Zweifel, in his 14 reported cases, has not lost a mother, though he has lost two children, which may give us considerable hope of the future success of the operation.

Indications. Symphyseotomy finds its proper field in contracted pelves, both flattened and generally contracted, and in certain impacted, faulty presentations of the vertex.

The following limits should be carefully observed: in flattened pelves, with conjugate vera of from 6.5 to 8.5 centimetres, and in generally contracted pelves from 7.5 to 9.5 centimetres. In pelves below these measurements Cæsarian section is indicated, forceps or version above. The operation should not be done until high forceps has been tried; nor is it indicated if the woman is in poor condition or the child dead.

Symphyseotomy comes, then, as a direct competitor of Cæsarean section, craniotomy and premature deliveries. The feeling here in Boston is so strong in favor of saving the mother always, even at the expense of the child, that it will be a long time before either Cæsarean section or symphyseotomy will be generally practised; for even in the most skilful hands there is considerable danger in these operations, while in craniotomy or premature delivery the mortality ought to be nearly nothing. Again, the same difficulty arises with symphyseotomy as with Cæsarean section, namely, the length of time necessary for complete recovery, which is of considerable moment amongst the poorer classes. Enthusiasts in the new operation claim that it is no longer justifiable to elect deliberately embryotomy in place of Cæsarean section and symphyseotomy, but until they can show a lower rate of mortality; both maternal and fetal, and better after-effects, the conservative American will continue to practise as heretofore. There has been some controversy over the question as to whether the operation should ever be attempted outside a clinic. So many assistants are required and such careful nursing afterwards that it makes the operation impracticable except in clinics and rich families.

In closing, I may say that the opportunities of this operation are enormous, provided certain present objections can be removed. I do not agree with many who claim that the great mortality is sufficient to condemn the operation, for in skilful hands the death-rate ought not to exceed two or three per cent. In 100 cases by Zweifel, Pinard and the Italians the mortality was only two per cent., which makes a very good showing.

My personal objections to the operation are rather on account of the lacerations which may occur during delivery and the bad after-effects; and until we can be assured of better results in these respects the operation is *not*, I hold, a success, for of what advantage is it to save a child and perhaps cripple the mother for years? Then, and not till then, will Dr. Garrigues' remarks be pertinent, in which he says: "Craniotomy on the living child is a repulsive operation that has met with just condemnation from many sides. As long as the only alternative was Cæsarean section I

did not hesitate to sacrifice the child in order to save the mother; but since in symphyseotomy we have got an operation almost without danger to mother and with moderate danger to child, I do not think that any man should be compelled to, or justified in, deliberately murdering the child, provided the necessary conditions for a successful symphyseotomy can be brought about.

. . . If we take the most skilful operators, the mortality of symphyseotomy is practically nothing, against eight per cent. in Cæsarean section. One must, therefore, be a fanatic worshipper of the latter operation in order to think of performing it when the former is practicable.

Clinical Department.

A CASE OF PERSISTENT HEMATURIA.

BY CHARLES F. DENNY, M.D., ST. PAUL, MINN.

My only apology for offering this case for publication is its chronicity, and its ultimate cure without recourse to operative methods. It shows that by perseverance in treatment we sometimes may succeed where we least expect, without radical measures. On November 27, 1893, I was consulted by a gentleman, who gave the following account of himself:

Mr. J. K. M., a Scotchman, married, age thirty-nine years. Both parents living in good health. Grandparents all died old. One sister died of scarlet fever. One brother died of phthisis, induced by a cold; no other cases in the family. At ten years of age, he was seriously sick with a fever, presumably of a typhoid type. At twenty-nine years of age, he had a mild case of gonorrhea, and in the summer of 1891 he had a diarrheal difficulty which lasted from four to six weeks.

During September, 1892, while on a hunting trip, he got chilled to the extent, that he claims his teeth chattered, and soon after this he noticed his urine was dark colored, as though mixed with blood. From that time to the present his urine was never free from its dark color. His habits in regard to liquors were correct, as he never abused or made a steady use of them. Tobacco he does not use in any form.

His general health is excellent. He suffers no pain or discomfort whatever in his bladder or genitals. Long standing or overwork of any kind will produce a darker urine. For the relief of his condition he consulted several physicians, among the number two of the most distinguished regular practitioners in this vicinity. From both he received the information that he had bloody urine. From both he received internal treatment. From neither did he receive any local treatment. From the one who treated him the longest he received but little encouragement as to cure. When he presented himself to me it was not with a great deal of enthusiasm as to permanent results. Examination showed a large knotty varicocele on the left side, the vessels standing well out on the scrotal surface, and the cord easily felt beneath. On calling his attention to this, he said "that it had existed since a horse-back ride when fifteen years old, and was aggravated by a blow received, four years prior to his present trouble, on his privates, while in a saw-mill." The varicocele, large as it was, gave him no discomfort whatever and that fact was accounted for by his use of a suspensory bandage.

Nothing was noted in reference to the penis save it was long, and pendulous. The meatus was free from any discharge, and easily admitted a 19 A. (29 F.) sound. On passing a full-sized Otis bulb slight catching was felt at one inch, and at two and three-quarters inches from the meatus. These slight strictures evidently resulted from his gonorrhea, and offered no obstruction to the passage of the 19 A. sound. A No. 11 A. bougie at five and a half inches from the meatus seemed to meet more resistance than normal on pushing it on into the bladder, but this was probably a simple spasmodic contraction, as the No. 19 sound ran easily into the bladder. Rectal examination detected no prostatic or vesicular hypertrophy; not even tenderness on pressure was noted.

On applying the two-beaker test (Thompson's test), both catches of urine were dark-mahogany color. The urine when drawn by a catheter directly from the bladder was the same color. He was requested to bring a specimen of the morning urine the next day, which he did. Its specific gravity was 1.028; its reaction was acid; and it rapidly precipitated, leaving a heavy, dark red-brown sediment in the glass. Placed under the microscope this sediment showed free blood-corpuscles in profusion. A few bladder cells and fibrinous shreds. Acetic acid developed a few round nucleated cells. The amount of urine was up to the daily normal average.

I explained to him that I believed he had a small villous growth in the bladder which was the cause of his hematuria, and that local treatment might be of curative action, and should be tried before any operative measures were taken.

Before taking the case it was distinctly understood that he was to be treated until it was clearly demonstrated he could not recover without an operation. It was due to his willingness to keep this compact that the ultimate result was so satisfactory. He had previously been treated internally with ergot and gallic acid. My first endeavor was to see how much internal medication would affect the hemorrhage. He was given large doses of gallic acid, ergot, tr. ferri chloridi, ol. erigeron, and others, singly and in combination. Since Jamaica rum had been successfully given in a case of hematuria, he was dosed with that beverage. Fl. ext. pichi was given a trial. But beyond the most trifling effect as to color, nothing resulted. Everything was fairly and thoroughly used.

December 14, 1893. The bladder was first washed out, through a catheter fitted to a Hosmer tube, with warm water from an irrigating bottle until it ran clear, then a weak solution of permanganate of potassium, two grains to one pint, was allowed to run in. The last six ounces were retained in the bladder for several minutes, the catheter being withdrawn. He then passed the greater part himself, except about an ounce which was allowed to remain.

Shortly after this the urine was somewhat clearer, though still dark tinted. The microscope showed less blood but rather more bladder and prostatic epithelium in stringy masses. The permanganate solution was used in increasing strengths up to two to three grains to one ounce. But beyond slight improvement no material change was noted. The bladder was exceedingly tolerant, and very distensible. He could with ease retain large amounts of urine.

January 16, 1894. Hot water was used, gradually increasing the temperature up to 110° F. and at times

even warmer. During this period a few medicated injections of alumnol, tannic acid, and Lloyd's hydrazitis were used, always after the hot irrigation. These hot injections were allowed to thoroughly distend the bladder, and were retained for several minutes, the process being repeated until about a quart of the water was used. This was continued every other day for several weeks, with improvement. On Sundays, when resting, the urine was much clearer, still never transparent or free from a dirty-white tinge.

March 27, 1894. Dr. G. A. Renz, of St. Paul, examined the urine carefully for me, for bacilli, with negative results, so as to exclude tubercular disease. March 19th, prior to the examination for bacilli, silver-nitrate solutions were commenced, after thoroughly cleansing the bladder with warm water. Two ounces of half-grain to one-ounce strength were injected, and held for a short time before withdrawing. This was done every two or three days, slowly increasing the strength until six grains to one ounce was reached.

These injections never gave any trouble save a slight desire to urinate a short time after treatment. His tolerance was far above the average in this respect. The urine voided several hours after injection was darker and heavier. Specimens he brought and passed for me at this time showed a dark, whitish sediment, which under the microscope disclosed less blood and decidedly more cells and fibrinous string. As treatment progressed, this sediment became thinner, until a point was reached where it seemed to reach a standstill.

On Saturday, April 7th, I gave him an injection of silver nitrate (five grains to the ounce), and the following morning his urine was very dark and thick, and then became lighter the rest of the day. On the next day, to his surprise, his first passage of urine was clear and transparent. On April 10th he voided, in my presence, an apparently normal urine. This, on standing, settled to a light, whitish cloud, no more than is often seen in normal specimens, and the microscope showed a few scattering blood discs and a trace of epithelium.

On May 7th no blood was found. Again, on July 30th, an examination failed to find blood, and no more epithelial débris than normal. A few calcic-oxalate crystals and a small mucous string were the only results.

Up to the present date of writing, December, 1894, no relapse has occurred, and he considers himself cured.

In considering this case it is to be regretted that a cystoscopic examination of the bladder could not have been had, and the villous growth actually demonstrated; but a Leiters instrument was not at my command. Had it been used, I believe the growth would have been found at the base in the vicinity of the trigone.

These cases are always troublesome, and slow in their course, oftentimes giving rise to no symptoms save hemorrhage. They should be carefully studied.

After a considerable experience of genito-urinary disorders during the past thirteen years I can testify to the fact that careful study and perseverance are the essentials of success in this branch of medicine. "Make haste slowly," is only too true, and should be firmly fixed in the mind of all who assume such work. To simply say "you have blood in the urine" is small consolation to a patient. You must seek its source, from what part of the urinary tract it arises, its cause

if possible, and then direct your efforts towards its cure. Try one thing at a time thoroughly, and shelve it when it proves of no use. In no class of cases should the tolerance of a patient's bladder be more fully considered. This fact should be ascertained by gradual increase in strength of solutions used, and any irritation that does not readily subside should be avoided.

My experience has taught me that of all chemicals used in genito-urinary work silver nitrate is the most useful. It is an agent of great good, or great evil, as its proper or improper use will quickly demonstrate. No agent is so much abused in its use as this, and no other agent can be made to do so satisfactory work with proper care.

One of the first essentials in bladder applications of all kinds is thorough cleansing. It matters little whether mild carbolic or boric-acid solutions or warm water alone are used, the organ must be washed out until the washings run clear, in order that the active medication may have full play in an organ as free from foreign matter as possible. With silver solutions mild strengths should be first used, half a grain to the ounce, from two to four ounces being injected at once, and retained a short time and then withdrawn. The time of retention may be slowly increased with benefit from time to time. This is purely a matter of judgment, to be decided wholly by the tolerance of the patient. The solution is slowly increased in strength up to ten grains to the ounce in some cases. Some cases are very intolerant of strong solutions, hence the necessity for slowly feeling your way grain by grain. If more than ordinary reaction occurs, they should not be continued. As a rule, silver injections should not be used oftener than every three to seven days.

The subject of bladder growths is so fully considered in the many text-books, that it is not my purpose in a clinical picture of this kind to enter into any extended discussion. But I do wish to emphasize the fact that many cases are brought to the operating-table which more perseverance in local treatment might subdue. And while I am fully aware of the prejudice that exists in the minds of many against the stronger solutions of silver, and while at the same time no one more than myself would shun their careless abuse, I must say, that with due care no harm, much good, and many cures will result where otherwise surgical operation would be required. I do not decry operating in proper cases, many of which occur.

MULTILOCULAR CYST OF THE OVARY; DOUBLE OVARIOTOMY; RECOVERY.¹

BY JOHN S. PHELPS, A.M., M.D.

Mrs. M., age twenty-five, born in Ireland. Seen for the first time in August, 1894, with reference to present trouble. Owing to her poor physical condition, interference was postponed until her return from the summer hospital where she was to go with her sick baby, in hopes that the rest and change might build up her own strength as well as that of her child. She presented herself in September markedly improved.

She never was rugged, but always had enjoyed good health. She was married in April, 1893, and gave

birth to a child in February, 1894. She first noticed a swelling in her lower abdomen one year before marriage, which swelling had increased in size slowly up to the present time. In the hands of different physicians she had been tapped on three occasions. The first time in March last, nearly two years after the appearance of the swelling, eighteen quarts of "muddy" fluid were withdrawn. Five weeks later thirteen quarts were taken away; and in May last she was relieved of five quarts, according to her statements.

She had no gastric disturbances; never any marked bladder symptoms. Catamenia normal since childbed. No metrorrhagia, general health had grown steadily worse in the last six months with loss of flesh and nervous depression.

Physical examination showed her to be a woman of slight frame and fairly well nourished. Heart and lungs were negative. Urine negative. The abdomen was markedly distended and appeared larger than that of a gravid uterus at full term; dull on percussion. The tumor apparently was movable and very tense. She never had had any symptoms of local peritonitis.

Vaginal examination showed uterus to be free from adhesions, two and a half inches deep and somewhat anteverted. There was moderate tenderness in the regions of the ovaries.

The operation was performed October 5, 1894, at St. Margaret's Hospital, Dr. Farrar Cobb assisting. An incision two inches long, over the most prominent part of the tumor, in the median line, showed it to be firmly adherent to the parietal peritoneum. The incision was then enlarged to three and a half inches upwards, opening the peritoneal cavity. Inserting the hand, the extensive adhesions to the abdominal wall were with difficulty finally separated. The tumor was then aspirated after being walled off, and several quarts of gelatinous fluid welled out through the lacerated opening made by the large canula. Inserting the hand into this cyst allowed the puncture of a second cyst, and the escape of a large quantity of a clear yellow serous fluid with partial collapse of the tumor enabling its delivery. Adhesions to omentum and bladder and intestines were ligated and cut away.

The tumor had a long pedicle about one and a half inches in width arising from the right tube, with obliteration of the ovary. This pedicle was clamped, doubly ligated with braided silk, and cut away. No bleeding. Further examination showed the left ovary cystic and enlarged to the size of an orange. This was likewise removed. The abdominal cavity was thoroughly dried by dry gauze sponging, and the wound of incision sewed up with interrupted silkworm-gut sutures. The operation lasted one hour, leaving the patient in excellent condition.

The convalescence was uneventful, the pulse and temperature remaining practically normal. Some abdominal pain developed on the second day, which was relieved by the escape of gas through a rectal tube, and later by an enema combined with the administration of salts.

Examination of the wound on the seventh day showed perfect coaptation and union, and the stitches were removed. Patient went home on the sixteenth day wearing a firm abdominal support.

The weight of the tumor, estimated from the weight of the patient before and after operation was about twenty-five pounds. The extensive adhesions caused

¹ Read before the Surgical Section of the Massachusetts Medical Society, January 2, 1895.

by repeated aspirations impeded the progress of the operation.

The girth of the abdomen at navel before operation and after was thirty-four and a quarter and twenty-seven inches respectively.

Since operation the patient, under moderate tonic treatment, has gained rapidly in strength and bodily weight, as is not unusual in this class of cases.

Specimens shown.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D.

FOLLICULAR TONSILLITIS.

A PAPER by Dr. Norris Wolfenden on "The Nature of So-called Follicular Tonsillitis and its Relation to Infectious Disorders,"¹ describes recent progress in the study of this disease, with special reference to its bacteriology. The author believes that the time is not far distant when we shall classify the inflammatory condition of the tonsils and throat upon a bacteriological and not a clinical basis. He describes briefly four varieties, omitting all cases in which the bacillus of diphtheria plays a part, under the head of staphylococcal, streptococcal, pneumococcal, and Roux and Yersin coccal angina. In all of these forms there may be throat symptoms which resemble diphtheria. "Follicular" tonsillitis is not really follicular at all; it is an acute cryptic infection due to one of these forms of cocci. Its contagiousness appears established in some cases, but is generally not very easily traced. It never appears to attack large masses of people simultaneously, although a number of persons living under the same roof or in the same conditions are frequently affected at the same time, suggesting insanitary surroundings as a common cause. The pathological enlargements of the tonsils, in which a chronic process of catarrh is present in the crypts, form not only the best culture media for a large number of micro-organisms but give their products an opportunity to invade the system. Clinical appearances alone often allow so little ground for diagnosis of simple tonsillitis from diphtheria that in the absence of bacteriological diagnosis it is wise to isolate such patients from the first.

SURGICAL TREATMENT OF TUBERCULAR LARYNGITIS.

At the recent International Medical Congress this subject was taken up at length by two or three writers and discussed by members of the section. The result on the whole tends to show that there still exists a very wide difference of opinion as to the amount to be hoped for by the more active methods of dealing with this disease. An exhaustive paper by Heryng contains a long list of conclusions generally favorable to surgical interference. He has observed spontaneous healing in fourteen cases out of three thousand, all of them simple cases. The best chances for recovery are where the disease shows itself in the form of infiltration on the posterior wall of the larynx and in which the epiglottis and cartilages of Santorini are not affected, and where the lung affection is slight. For relief of dysphagia, or difficulty in breathing, operations may be necessary from which there is no hope of curing the disease. The healing of deep ulcers of the

larynx resting on inflammatory infiltrations is effected quickest by scraping, or removal of the tubercular tissue. Lactic acid is indicated in superficial, circumscribed ulcers of a dirty character, covered by spongy granulous tissue on the vocal cords, false cords and posterior wall of the larynx, and is useless in most cases of large, hard and diffuse infiltrations. Surgical treatment is contraindicated in advanced disease of the lungs and in all cachectic conditions, in diffuse miliary tubercle of the larynx, in severe stenosis, and in patients exhibiting fear and nervous excitability. Surgical treatment demands great perseverance and patience, well-made sharp instruments, and careful after-treatment for a long time. The galvano-caustic treatment of hard tumors of the false cords, of sclerotic infiltrations of the epiglottis and formations of granulations in the ventricles is often of use. Serious bleeding is rare; it can be stopped by an application of a mixture of lactic acid and sesquichloride of iron. In rare cases a dissemination of the tubercle has been observed after surgical interference. Recurrence takes place frequently at the place operated upon and may be explained in some cases by the imperfect performance of the operation.

The discussion on this paper and on one by Gouguenheim on the same subject brought out considerable difference of opinion. Sokolowski calls attention to the fact that cicatrization of laryngeal tuberculosis takes place when the general tuberculous process has a tendency to stop in its development, more or less independent of different therapeutic methods. Lactic acid, iodol, iodoform, menthol, parachlorophenol, as well as surgical treatment sometimes result in improvement, but results are more often negative. He was inclined to favor thyrotomy if any extensive surgical treatment was considered advisable. Egidi favored tracheotomy as a curative proceeding for the larynx. Several speakers had obtained good results from the local action of phenol sulphoricinate. From these different papers we may conclude that up to the present time we cannot expect to get more than temporary relief in cases of laryngeal phthisis except in very rare cases, and that no one form of treatment is applicable to the large number of appearances which tuberculosis may present in the larynx.

EMPHYEMA OF THE ANTRUM.

Garel,² in a paper on this subject, comes to the conclusion that irrigation by the natural orifice is the most expeditious therapeutic method and the first that ought to be tried. It is useless to try to penetrate by the most dependent part, as statistics show no better results in these cases than in any cases perforated higher up. When an artificial opening is to be made, the inferior meatus gives better results than through the alveolar process, except in those cases where it is necessary to extract a foreign body from the cavity. Rebellious cases which have resisted all treatment by irrigation may require opening through the canine fossa and curetting as a last resort. As an irrigating fluid nothing gives better results than a solution of boric acid.

Dundas Grant³ advocates perforation of the antrum, when this is necessary on account of empyema, through the inferior meatus. The advantages of this opening are, that it confines the discharge of pus to the nose,

¹ Journal of Laryngology, August.

² International Medical Congress.

³ British Laryngological Association, October, 1894.

that it is easily performed by local anesthesia or by short general anesthesia, that the cavity is easily irrigated by the surgeon, and that it hastens recovery. Though not at the most dependent part, it is very near it, and generally sufficiently so. Its disadvantages are that it requires a certain amount of skill on the part of the operator, often requires his aid for subsequent irrigations, and that the opening tends to close rapidly. Krause's instrument, a slightly curved trocar, as sharp as possible, is introduced into the inferior meatus a distance of about one and a half inches. The point is then pushed upwards and backwards and very cautiously forced, with more or less of a crunching sound, through the outer wall of the meatus. The trocar is then withdrawn and the canula is pushed inwards and the cavity washed out with a warm solution of boracic acid. The subsequent washings are done by again introducing the canula, under cocaine, armed with a blunt obdurator in the place of the trocar.

RECURRENT EPISTAXIS.

Roth,⁴ in a paper treating of the various causes of recurrent nose-bleed, shows that the description of the most common cause deserves special attention from the general practitioner who frequently does not appreciate how easily it may be both temporarily and permanently stopped. An erosion or varix of the cartilaginous septum, generally but a short distance within the nose, is often the cause of frequent and annoying bleeding. It may be readily stopped by tamponing during the bleeding, and permanently by the application of the galvano-cautery, trichloracetic or chromic acid. The bleeding spot is often easily found by gentle friction with a probe. A pledget of cotton, moistened with cocaine, is laid against the surface until the bleeding stops, and an application of the cautery or caustic can then be readily made.

REMOVAL OF ADENOID VEGETATIONS BY THE COLD SNARE.

Professor Chiari,⁵ of Vienna, recommends this method of removing adenoids in cases where the nasal passages are straight enough to allow the introduction of the instrument. Both nasal passages are cocaineized by cotton-wool swabs dipped in a twenty-per-cent. solution of cocaine. The snare, placed vertically, is then passed through the inferior meatus until it reaches the naso-pharynx; it is then turned horizontally, the wire passing underneath the vegetations, and elevated. By closing the snare the growths are readily removed in most cases. After repeating this process three or four times through both nostrils, the loop being closed in different parts of the naso-pharynx, the patient goes home, to return later for a subsequent operation if necessary. The hemorrhage is slight, and the after-effects generally nothing. With reasonable children no assistance is required; with unruly ones, the head is held firmly and the body wrapped in a sheet. The after-treatment consists in gargles and a wash of a mild solution of permanganate of potash. The second operation should not be undertaken until the nasal mucous membrane has recovered from all irritation. In most cases from one to three sittings are sufficient. Unless the nostrils are narrow this operation is done even on very young children. Chiari considers this method at least not inferior to others, and in many cases much more thorough. There is an almost absolute freedom

from danger, since the snare introduced in this way can seize nothing except the vegetations. The bleeding is very slight and by cocaine can be made painless. Where septal spurs or other obstructions prevent the complete removal in this way, it is sometimes necessary to use Gottstein's curette, or cutting forceps.

BEDNARS APTHAÆ.

E. Fraänkel⁶ describes this benign affection as found only in the new-born, and as always situated over two symmetrical parts of the hard palate. Examination shows that it begins with the entrance of bacteria under the epithelium, producing an elevation with a little serous exudation beneath and sometimes laceration of the mucous membrane. Careful cleaning is the best treatment.

TUBERCULOSIS OF THE NOSE.

Strauss⁷ has found tubercle bacilli in the nasal fossæ of several pupils and nurses in the hospital. In spite of this fact, local tuberculosis of the nose is comparatively rare. Chiari⁸ has seen only six cases in about six thousand patients. Generally the ulcer first appears with granular edges, giving rise to bleeding and obstruction, but with no pain.

SPONTANEOUS CURE OF PHARYNGEAL TUMORS.

D'Aguanno⁹ reports a few cases in which new growths of the pharynx or naso-pharynx have disappeared without the aid of any method of treatment. That this takes place in the case of adenoid vegetations is well known, and certain new growths which though unsuspected may be syphilitic will disappear under iodide of potash; other benign tumors also not infrequently decrease in size or disappear without any very evident cause; but the author has collected a few cases in which sarcomata, apparently steadily advancing and threatening life, have taken on a retrograde growth, or even disappeared. This occurs especially in those tumors very rich in vessels. The retrogressive phase takes place most frequently through alterations in the walls and contents of the vessels; and in other cases the growth appears to be destroyed by some special parasitic infection, notably erysipelas.

RHINOSCLEROMA.

Paewlowsky¹⁰ describes the treatment of two cases of this disease by an extract of cultures of the rhinoscleroma bacillus. A glycerine extract was injected subcutaneously, and was followed, in the cases suffering from the disease, by a general and local reaction, the affected tissue becoming much reddened and swollen. Injections were continued every second day for six months and a year respectively, at the end of which periods the disease had made no progress. The author believes that the extract may be used as a diagnostic agent.

ONE of the curiosities of surgical therapeutics is the treatment of tubercular peritonitis by insufflations of air (H. Folet, *Revue de Chirurgie*). After removing serous fluid with an aspirator, the peritoneum is blown up like a bag, three or four litres of air being thrown in. The results are said to be good.

⁶ Jahrb. des Hamburg Krankenhaus, 1894.

⁷ Bull. Acad. de Med., July 3d.

⁸ Arch. Laryngol. and Rhinol., Bd. 1, 1893.

⁹ Section in Laryngology of the Eleventh International Medical Congress.

¹⁰ Deutsche med. Woch., 1894, No. 13.

⁴ Wiener med. Presse, No. 23, 1893.

⁵ International Medical Congress.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, December 8, 1894, the President, DR. CHARLES M. GREEN, in the chair.

DR. J. M. JACKSON read, by invitation, a paper on
SYMPHYSEOTOMY.¹

DR. GEORGE HAVEN read a paper on
CÆSAREAN SECTION.²

DR. A. D. SINCLAIR referred to the mobility of the symphysis in the lower animals resulting in easy parturition.

DR. H. F. VICKERY said he had twice induced labor prematurely at the eighth month in women who had previously lost children in difficult labor. In both the pelvis was of a masculine type with narrow arch. In both the infants lived.

DR. EDWARD REYNOLDS said that the operation of Cæsarean section was, with the modern methods, a very easy one, and not to be compared with many abdominal operations which are done every day. Some three years ago he looked up some forty cases of Cæsarean section that had been operated on early, under good conditions, and with no complications present, in which sero-serous sutures were used. Among these there was only one death and that from sepsis, and under these conditions he does not believe the operation is more dangerous than any abdominal operation.

As regards premature delivery, he thinks the mortality for the mother, if healthy, ought to be *nil*; but with the children the results are poor, as so many die.

The differences obtained in the measurements in Dr. Haven's case he believes were due to the fact that the vagina was dilated when the first measurements were taken, and was contracted by cicatricial adhesions in the second instance.

DR. F. B. HARRINGTON said he should think it would be best to perform the Cæsarean section under favorable circumstances rather than wait for the onset of labor. The operation does not impress him as being a very difficult one.

DR. W. L. BURRAGE said he saw at the New York Infant Asylum a symphyseotomy done by the open method where there was a separation of two and a half inches. It impressed him as an operation of considerable magnitude, with many unfortunate possibilities, and not to be undertaken lightly.

DR. J. B. SWIFT believed that Cæsarean section should be an operation of election as to time, this of course points to the importance of measuring the pelvis before labor.

DR. EDW. REYNOLDS said that the field for symphyseotomy was a narrow one. The operation had been done where the pelvis was normal and there was no need for it, also where the pelvis was too small and where Cæsarean section was alone to be considered. In cases where there is moderate narrowing of the pelvis, and where the labor has been tedious and forceps have been tried in vain and where the child is still living, here Cæsarean section is very fatal, but symphyseotomy has its proper field. When one man can report thirteen cases in one year with only one death, the operation is certainly worth consideration.

¹ See page 181 of the Journal.

² See page 179 of the Journal.

DR. G. HAVEN would prefer in case of election the Cæsarean operation. The mortality from both symphyseotomy and Cæsarean section ought to be nothing, but in symphyseotomy we have the great danger of chronic invalidism from the effect on the pelvis.

As to induced labor, there is certainly a mortality here, but it is due to the method. To use a catheter and let it stay in several days is very apt to cause sepsis, manual dilatation with immediate delivery should be done at the first.

DR. W. L. BURRAGE showed a sterilizer.

Recent Literature.

A Manual of Organic Materia Medica and Pharmacognosy. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs, Comprising the Botanical and Physical Characteristics, Source, Constituents, and Pharmacopœial Preparations. With Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. By LUCIUS E. SAYRE, Dean of the School of Pharmacy, Professor of Materia Medica and Pharmacy in the University of Kansas, etc. With 543 Illustrations, the majority of which are from original drawings. Pp. xx, 555; 8vo. Philadelphia: P. Blakiston, Son & Co. 1895.

This work is rather a new treatise than a revision of the author's earlier "Organic Materia Medica and Pharmacal Botany," which appeared in 1879.

The 624 drugs mentioned in this new work are classified according to physical characteristics and also according to their botanical relationship, but by a system of numbering, their place in either classification is at once apparent. The nomenclature and general character of the text conform to that of the last revision of the United States Pharmacopœia, unofficial drugs being distinguished, however, by a different type and setting of the article.

The 222 illustrations in Part I are, except those of the starches, taken mainly from Bentley's "Manual of Botany." Most of the remaining 320 illustrations in the work are new, and were prepared under the direction of C. E. McClung, Ph.G. (Kansas University 1892).

The preparation of the text and illustrations have been creditably done, and the work is one that students and teachers of materia medica and pharmacognosy will find very useful. B. F. D.

A Treatise on the Diseases of the Ear. By T. MARK HOVELL, F.R.C.S. Edin., M.R.C.S. Eng. London: J. & A. Churchill. Philadelphia: P. Blakiston, Son & Co.

Of the 697 pages of this book 81 are devoted to a description of the structure and functions of the ear, and the remainder to a consideration of the various diseases and their treatment; there are 122 excellent wood-cut illustrations in the text; and these together with the systematic arrangement of the subject-matter and the plan of beginning important paragraphs with headlines to attract the eye, make the book a convenient one for purposes of reference, while more careful reading shows that the author has not only brought to bear upon his subject the results of a valuable personal experience, but has taken into consideration, and used

for purposes of comparison, the work of other writers. An example of this is to be found in the chapter upon the mastoid operation, while, on the other hand, the question of middle-ear operations is dismissed in a few paragraphs.

The following remarks upon the removal of adenoid growths may be read with interest in view of the differences of opinion among rhinologists as to the method of treating this condition.

"Owing to the frequency with which this disease occurs, a large number of patients have to be operated upon at hospitals and on account of the time occupied by the administration of the anesthetics, there is a tendency among some surgeons to remove the growths without the patient being anesthetized. If the object aimed at was merely to re-establish nasal respiration, no great amount of harm would be done by adopting this course; but as the middle ear is very frequently affected, it is most important to remove the source of the naso-pharyngeal catarrh which usually co-exists. This end will not be gained if portions of growth are allowed to remain; and I am well aware that this usually occurs when the operation has been performed without the patient being anesthetized. At the present time, sufficient attention has not been paid to the ear complications associated with post-nasal growths by surgeons who do not make a special study of aural diseases; but it is to be hoped that they will soon awaken to the fact that the establishment of free nasal respiration should not be the only object for which the operation is performed.

"With regard to the choice of anesthetics, it is best in most cases to place the patient fairly under ether, and to keep up the anesthesia with chloroform whilst the actual operation is in progress. An exception must be made, however, when dealing with infants, and in their case chloroform or the A. C. E. mixture should be employed in preference to ether. Many surgeons prefer chloroform throughout for all cases; and, at first sight, this anesthetic appears to be specially indicated. But in addition to the greater safety of ether as a routine anesthetic, it is certainly far safer than chloroform in operations about the naso-pharynx, involving free hemorrhage. The deep and audible breathing under ether; the tendency to occasional coughing and swallowing which attends its administration; the remarkable manner in which the circulation holds out, when, as occasionally happens, respiration becomes temporarily interfered with during the operation; and the rapid and permanent cessation of hemorrhage after the anesthetic has been withdrawn, are all weighty reasons for selecting this agent. It is true that patients breathe more easily under chloroform, and hemorrhage may be less during the operation; but the noiseless manner in which breathing may become obstructed under chloroform; the rapidity with which the circulation runs down should any embarrassed breathing take place; and the greater liability to secondary hemorrhage when the circulation becomes brisk with returning consciousness, are all unfavorable points against the use of this anesthetic throughout the operation. When the patient has been placed well under ether, however, small quantities of chloroform may with great advantage be given to keep up the anesthesia."

The work throughout is free from padding, and may as a whole be heartily commended both to the student and the practitioner.

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THE MICROBIOLOGY OF ACUTE PERITONITIS.

COURTOIS-SUFFIT, in his recent monograph on "Diseases of the Peritoneum"¹ classes first in order among the pathogenic microbes in peritoneal inflammations the bacillus coli communis. This micro-organism is a facultative anaërobic, a normal inhabitant of the intestines, but pathogenic under morbid conditions such as occur in all kinds of peritonitis of intestinal origin. Its presence has long been recognized in peritoneal exudations, while it is constantly found in septic peritonitis following intestinal wounds, perforating (gastric, typhoid, enteric, appendicular) ulcers, ischio-rectal abscess, cancer of the colon, hernia, thrombosis of the mesenteric vessels, etc. It has been affirmed² that under certain circumstances, as when disordered circulation, strangulation, extreme fecal distention, undue pressure or mechanical injury has impaired the integrity of the bowel and lowered tissue-resistance, this bacterium may become migratory, gain the peritoneum, and excite inflammation. Cornil found such bacteria actually in the substance of the wall of a partly necrosed intestine.³ The possibility of such migration may explain many cases of so-called idiopathic peritonitis attending stercoral impaction, severe bowel inflammations, etc.; the germs passed through the intestinal walls and provoked peritonitis. It is doubtful if peritonitis has ever followed cystitis, yet Achard and Renaut have proved the identity of the colon-bacillus with the bacterium pyogenes of the bladder (Courtois Suffit).

The pneumococcus has very rarely any causal relation to acute peritonitis, whether the infection occur as a sequel to pneumonia or independently of that disease.

¹ Traité de Médecine, t. iii, p. 606.

² American Gynecological and Obstetrical Journal, January, 1895, p. 58. (Article by Dr. Richard Douglas.)

³ Loc. cit., p. 59. The observation has been confirmed by Chado, and independently by Fraenkel in relation to cases of peritonitis following strangulated hernia, even when occurring apart from any solution of continuity or gangrene of the intestine, the microbes, in fact, pass through the intestinal walls which are so modified in their vitality as to offer them little resistance.

The streptococcus pyogenes has been found in the pus of a great many cases of peritonitis, where it existed to the exclusion of every other micro-organism (post-operative and puerperal peritonitis). Cases of streptococcus-peritonitis following erysipelas of the face have been reported by Cheurlin⁴ and others, and in rare instances this disease has succeeded scarlet fever, a malady in which the streptococcus seems to have a predominant part.

Penetration, by the microbes, of the abdominal wall is said in rare instances to have taken place in cases of erysipelas of the abdominal integument; and puerperal peritonitis from extension of a streptococcus-inflammation from the pelvic peritoneum and uterine cavity is of very common occurrence.

Acute peritonitis has been in numerous instances ascribed to the staphylococcus (aureus and albus) found apart from other micro-organisms in the pus (Fraënkell). In other cases, the staphylococcus was associated with the streptococcus, or with the rod-shaped or round micro-organisms of putrefaction. The saprogenous microbes seem to have been influential in certain cases. The colon-bacillus is probably a bacterium of saprogenous character, with possibilities of greatly exalted virulence.

Suppurative salpingitis is a recognized cause of acute peritonitis. When the salpingitis has developed under the influence of the true pyogenic organisms (streptococci and staphylococci), a generalized peritonitis which is almost always fatal follows the rupture of the tube. The case is not so serious, according to Bumm, when the salpingitis succeeds gonorrheal infection, and in which the exudates contain only the diplococcus of Neisser. The latter micro-organism, Bumm says, can exert its action only on mucous membranes, being inoffensive to the serosa and cellular tissue. Naturally, then, the rupture of such a pus tube, or the leakage of pus from the fimbriated end into the peritoneum would not be followed by a general septic peritonitis, but the exudate would be resorbed like any aseptic fluid.

With regard to the effect on the peritoneum of rupture of one of the hollow organs of the abdomen, the result, as Courtois-Suffit remarks, is variable, depending on the presence or absence of microbes in the extravasated fluid. The bursting of the healthy bladder with effusion of normal urine into the peritoneal cavity is not followed by acute peritonitis. This has been proved by the experiments of Gosselin, Robin, Albarran, and others. The case is altogether different when the urinary passages are infected and the urine contains the streptococcus pyogenes, the septic bacterium of Clado, or other pyogenic organisms.

What is true for the urine is equally exact for the bile, as abundant experiments on animals have shown. This is made plain by Dupré in his now classic work on "The Biliary Infections." But the biliary passages and the bile may become infected from various causes, and rupture of the gall-bladder would then be followed by a fatal peritonitis. A case of this kind has been

reported by Fraënkell, who found in the peritoneal exudate streptococci and staphylococci.

Penetrating wounds of the stomach allowing small quantities of gastric juice and other contents to escape into the peritoneal cavity are not necessarily fatal if the wound be not large, and the leakage not great. The stomach is not a good culture field for pathogenic microbes, the gastric juice being aseptic and antiseptic. The result of a penetrating wound of the stomach or a perforating ulcer will, of course, be far graver if the stomach or its secretions has become pathologically altered, and if there be considerable escape of its contents into the peritoneum.

When the intestine is the source of the peritoneal lesion, whether by traumatism or profound ulceration, the peritonitis is likely to be spreading and fatal, especially if there be a massive infection. The microbes which are chiefly concerned are those which are found in a normal state in the intestine; the coli-communis, the bacillus albuminis (Bunstock), the bacillus mesentericus vulgatus, the septic vibrio of Pasteur. There is a law laid down by Malvoz, which, as far as it is accurate, may be of help from a medico-legal point of view. If the peritonitis be of intestinal origin, the bacterium coli will show it; if it be of uterine origin (as when consecutive to abortion), the presence of the streptococcus will prove this, even though there should be no visible inflammatory lesions of the genital organs.

THE SIXTEENTH ANNUAL REPORT OF THE MASSACHUSETTS STATE BOARD OF LUNACY AND CHARITY.

INCLUDING the short life of "that grotesque alliance," the State Board of Health, Lunacy and Charity, the Massachusetts Board of Lunacy and Charity will have been in existence sixteen years next June. Thirty-five members have been appointed to the board, of whom one has recently resigned, although his term of service expires next June. Eighteen others have resigned during their terms of service; two have died in office. The membership of the board is nine; and they serve without pay.

The apparent readiness of gentlemen to decline service on the board cannot be from a failure of the legislature to provide opportunities for usefulness or liberal appropriations of money.

The powers and duties of the board include the supervision, visitation, and inspection of all public and private institutions for the insane, the State Almshouse, the State Farm, the three State Schools, the city and town almshouses containing insane inmates, and all places where State paupers are supported; the care and custody of insane patients boarded in families; the supervision of juvenile offenders, including attendance in court in the interest of such offenders; the care and maintenance of indigent and neglected children boarded in families, and the visitation of all minor wards of the State in families; the licensing of boarding-houses for infants, and the prosecution of

⁴ Thèse de Paris, 1879.

cases of violation of the infant-boarding law; the removal of non-settled paupers to other States and countries; the administration of the laws concerning the support of State paupers by cities and towns; the prosecution of cases of bastardy among non-settled persons; the tabulation of returns from overseers-of-the-poor of paupers supported by towns; and the care and maintenance of alien immigrants falling into distress within a period of one year from the time of their landing. In addition to its power of transfer of patients from one State charitable institution or hospital for the insane to another, the board has the power of discharge from the State Almshouse and sole power of discharge from the State Farm and the State Primary School, and also shares with the trustees of the hospitals for the insane the power of discharge therefrom.

The sixteenth report¹ of the board is chiefly a detailed statement of excellent work for the year. The insane at the close of the year were 5,551 in hospitals and asylums, 809 in town almshouses, 211 in private families. The children cared for were 524 in institutions, 1,459 self-supporting in families, 582 at board in families. There were 159 licensed houses for boarding infants, of whom there were 1,156 including 526 illegitimate. The visits to the sick poor were 9,316, and these involved 497 persons and 246 patients where provisions had to be made on account of diseases dangerous to the public health — 125 small-pox, 36 scarlet fever, 23 diphtheria and 10 measles.

Since State supervision of immigration began, in 1848, the number of immigrants at the port of Boston has been 986,460.

The State Institutions under the general supervision of the Board are the State Primary School, the Lyman School for Boys, the State Industrial School for Girls, the State Almshouse, the State Farm, the Hospitals for the Insane at Worcester, Taunton, Northampton, Danvers and Westborough, the Asylum for the Chronic Insane, the Hospital for Dipsomaniacs and Inebriates. The School for the Feeble-Minded and the Hospital Cottages for Children are only partly under State Control. Its supervision of the Boston Lunatic Hospital, the McLean Hospital, and seven private insane asylums is little more than nominal.

Much is said in the report in praise of the McLean Hospital for the Insane, where, in the last thirteen years, 457 of the patients admitted have been without certificates of commitment, under the admirable law of 1880 which allows voluntary admissions to hospitals for the insane. The many excellent features of this hospital place it in the front rank of institutions of its kind in the world.

Such a vast amount of labor naturally implies faithful and intelligent service on the part of highly-trained salaried officers and their assistants, and devoted work by the members of the board. The visitation of young girls boarded in families is by eighty-one carefully

chosen ladies who live near enough to their wards to be familiar with their needs and who volunteer their services.

The board makes several recommendations for legislation in which the medical profession has an opportunity to show its interest; providing for the appointment of medical examiners in lunacy;² providing for medical certificates of lunacy to be issued by the State Board; amending the law which prevents physicians of insane hospitals from certifying to cases of insanity; making separate provisions for adult epileptics.

HAFFKINE'S INOCULATION AGAINST CHOLERA.

At the Indian Medical Congress Haffkine made a report on his method of inoculation against cholera, and the results attained up to the present time. The virus which he employs is obtained by the cultivation of attenuated cholera bacilli in the peritoneal cavities of guinea-pigs. He portrayed the difficulty which he had had in overcoming the prejudices of the people against inoculation; a year had passed before he was able to carry out his method in suitable places, and under favorable conditions.

In upper India he had inoculated 22,603 persons; in Bengal, Behar and Assam, 9,563; in all, 32,166, of which records were kept. Yet the month of March, 1894, was the first in which he was able to perform 1,000 inoculations during a moderately severe epidemic in Calcutta, and in the part of the city where the epidemic was most prevalent. In all, 3,478 persons were inoculated in Calcutta during 1894.

The method pursued was that of inoculating a part of the members of certain households, in which an outbreak of cholera was thought likely to take place. In 13 houses, 85 out of 181 persons living under the same sanitary conditions were inoculated. Among those inoculated 1.18 per cent. died of cholera; of those not inoculated 15.03 per cent. "took" the disease, and 11.63 per cent. died. In August, 1894, cholera broke out in the garrison at Cawnpore, 872 strong; of this number 75 had been inoculated thirteen months before. There were 19 cases and 13 deaths, all among the soldiers who had not been inoculated. The results in Gaya jail were also favorable, those in Lucknow less so, where 18.7 per cent. of the cases were among the non-inoculated, and 13.53 per cent. among the inoculated. The following table gives a summary of the results at Calcutta, Gaya, Cawnpore and Lucknow.

	Non-Inoculated.	Inoculated.	Total.
Number of observations	1,735	700	2,435
Cases	174	21	193
Per cent.	10.63	4.20	
Deaths	113	19	132
Per cent.	6.51	3.80	

Haffkine holds that if any conclusion can be drawn from this tabulation, it must be a favorable one. At all events his experience so far has demonstrated the entire harmlessness of the inoculations.

¹ Public Document, No. 17. Sixteenth Annual Report of the State Board of Lunacy and Charity of Massachusetts. January, 1895. Boston: Wright & Potter Printing Co., State Printers, 18 Post-Office Square. 1895.

² When we use the objectionable words *lunacy* and *lunatic*, it goes without saying that we quote them.

MEDICAL NOTES.

OBSTETRICAL SOCIETY OF CINCINNATI. — At its recent annual meeting the following officers were elected for the ensuing year: President, Dr. A. W. Johnstone; Vice-President, Dr. Sigmar Stark; Secretary, Dr. E. S. McKee; Corresponding Secretary, Dr. W. D. Porter; Treasurer, Dr. Geo. E. Jones.

DIPHTHERIA IN LONDON AND NEW YORK. — During the last week in January there were but 29 deaths from diphtheria in London, a progressive fall having taken place from 50 deaths in the week ending January 5th. The close correspondence in time with the report given in the last number of the *JOURNAL* of a falling off of 25 per cent. in the cases of diphtheria in New York City during the same period is extremely interesting. If, as is thought by the health-officers of New York, the abatement in that city is due to the use of antitoxin, may not the decrease in London be due to the same cause? It is also noteworthy that in Paris, between January 20th and 26th, there were but 7 deaths from diphtheria, the average for past years being 33.

"COMMITTEE ON LITTER." — The following members of the "Committee on Litter," appointed by the Association of Military Surgeons of the United States, to report a desirable form of military litter for the comfortable, safe and expeditious transportation of the sick and wounded, solicit from medical officers of the National Services and the National Guard of the several States, suggestions, plans or models of such an appliance, to be delivered to either of them, on or before the first of April, 1895: Albert L. Gihon, Medical Director, U. S. Navy, U. S. Naval Hospital, Washington, D. C.; John Van R. Hoff, Major and Surgeon, U. S. Army, Governor's Island, New York Harbor; Myles Standish, Captain Ambulance Corps, M. V. M., 200 Dartmouth Street, Boston, Mass.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, February 20, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 82, scarlet fever 40, measles 29, typhoid fever 6.

CONVENTION OF SUPERINTENDENTS OF TRAINING-SCHOOLS FOR NURSES. — The second annual convention of the American Society of Superintendents of Training-Schools for Nurses was held in Boston during the three days beginning Wednesday, February 13th. The programme of the convention consisted of business meetings, at which papers were read on subjects connected with the training of nurses and the management of training-schools. "A Uniform Curriculum of Study for Training-Schools" was the subject of a paper and discussion. A reception was given to the Society at the Boston City Hospital, and another at Perkins Hall, by the Graduate Nurses Association. Visits were made by the Society to the hospitals of Boston and vicinity. The Superintendents of most of

the larger training-schools of this country attended the convention.

THE BOSTON TRAINING-SCHOOL FOR NURSES. — The report of the Boston Training-School for Nurses, attached to the Massachusetts General Hospital, for the year 1894, has just been issued. The year is considered to have been a satisfactory one, the character of the pupils having been of a high standard, and the instruction given having been broadened and increased in interest. The expenses of the school, however, have been unusually heavy; and, owing to the death or absence of several annual subscribers, the income has largely fallen off. The treasurer reports a deficit for the first time. The need of funds is therefore a very serious one, and for the lack of them the usefulness of the school is curtailed in many directions. The school is not a corporate part of the Massachusetts General Hospital, and the heavy running expenses must be met out of its own funds. Subscriptions of any amount from friends of the school are desired. The accepted probationers were 37 out of 834 applications. 23 were graduated during the year. An important development in the instruction given was the establishment of the cooking-school on a new basis. This work had hitherto been done outside the hospital. Through the efforts of the directors and the kindness of the hospital trustees the cooking-classes are now held in the hospital kitchen.

ALUMNÆ ASSOCIATION OF BOSTON TRAINING-SCHOOL FOR NURSES. — Fifty graduates of the Boston Training-School for Nurses met at the Thorn-dyke, Thursday afternoon, February 14th, and formed an Alumnæ Association. The Association is to be called "The Alumnæ Association of The Boston Training-School for Nurses, attached to the Massachusetts General Hospital." Miss Maria B. Brown, superintendent of the school, was elected President of the Association by acclamation. The other officers elected were Miss Alice O. Tippet, Vice-President; Mrs. D. H. Kinney, Treasurer; Miss Florence F. Rice, Secretary; Miss Blanche M. Thayer, Miss Elizabeth McPhail, Miss Lucy Webster, Miss Carlina Cayford, and Mrs. Mary Bryant, were appointed as a special committee to assist in framing a constitution. Miss Davis, Superintendent of University Hospital, Philadelphia, and Miss Sophia Palmer, of Washington, D. C., who have been prime movers in bringing about the meeting, were present, and stated the object of the meeting and need of an association. Miss Richards and Miss Anna A. Maxwell, both former superintendents of the school, were also present; and each in a brief address expressed her interest and sympathy in the movement, urging the necessity of alumnæ associations to keep graduates of a school in touch and sympathy with each other, also to foster a kindly feeling towards members of the nursing profession who are graduates of other schools. The meeting was then adjourned to meet March 14th, hour and place of meeting to be appointed by the president of the Association.

DIAGNOSIS OF DIPHTHERIA AT HARTFORD, CONN.

—The Hartford Board of Health has provided facilities for the bacteriological diagnosis of diphtheria in that city, being the first city in the State to take this step in public hygiene.

NOTIFICATION OF CONTAGIOUS DISEASES IN CONNECTICUT. — The *Monthly Bulletin of the State Board of Health of Connecticut*, for January, calls the attention of the local health officers to the fact that reports as to the prevalence or non-prevalence of contagious diseases have been made to the State board by only about one-half of the towns in the State. Unless such reports are sent in, it is impossible to obtain a knowledge of the public health sufficient to ensure prompt and efficient action by the State board for the restriction and control of contagious diseases. It is also important, when no cases of contagious diseases have occurred, for the State board to be notified of the fact. A failure to make prompt and accurate monthly returns to the central board is hardly indicative of a proper conception of his duties on the part of a local health officer.

NEW YORK.

ANOTHER CASE OF SMALL-POX. — The first report of a case of small-pox in the city since January 29th was made on February 12th. At that date there was but one small-pox patient at the Riverside Hospital on North Brother Island.

DR. VANDER VEER APPOINTED REGENT. — On February 13th Dr. Albert Vander Veer, of Albany, was elected by the legislature Regent of the University of the State of New York.

THE HOSPITAL BOOK AND NEWSPAPER SOCIETY. — The twentieth annual report of the Hospital Book and Newspaper Society states that the amount of reading matter distributed during the past year was as follows: Books, 6,310; magazines, 18,853; illustrated papers, 63,326; newspapers, etc., 152,385.

DEATH-RATE OF NEW YORK CITY. — The number of deaths reported during the week ending February 16th was 959, an increase of 37 over the mortality of the preceding week, and 95 above the average of the corresponding weeks for the past five years. The number of deaths from diphtheria was 29, a decrease of 10 from the week ending February 9th.

Miscellany.

THE MISSING LINK FOUND AT LAST.

DR. D. G. BRINTON writes to *Science* under this title, and says that Dr. Eugene Dubois, a Dutch army surgeon stationed in Batavia, Java, has found the "link." He, the surgeon, describes three fragments of three skeletons which have been exhumed from the early pleistocene strata of Java, and which introduce to us a new species, as well as a new genus and a new family, of the order of primates, placed between the *Simiidae* and *Hominidae*.

The material, we are told, is sufficient for a close osteological comparison. The cubical capacity of the skull is about two-thirds that of the human average. It is distinctly dolichocephalic, about seventy degrees, and its *norma verticalis* astonishingly like that of the famous Neanderthal skull. The dental apparatus is still of the simian type, but less markedly so than in other apes. The femora are singularly human. They prove beyond doubt, says Dr. Brinton, that this creature walked constantly on two legs, and when erect was quite equal in height to the average human male. Of the various differences which separate it from the highest apes and the lowest men, it may be said that they bring it closer to the latter than to the former.

The line of descent, according to Dr. Dubois is: *Prothyllobates*, *Anthropopithecus sivalensis*, *Pithecanthropus erectus*, *Homo sapiens*.

The discovery of Dr. Dubois leads him to think that man originated on the southern slopes of the Himalayan chain, which is, after all, not so far from the Garden of Eden; and is just south of the present abode of the mystical Mahatmas. We trust that Dr. Dubois is *homo sapiens*. — *Medical Record*.

BICYCLE RIDING FOR WOMEN.¹

"At the meeting of the Société de Médecine Publique, Mme. Gaches-Sarrante read a paper on the utility of the bicycle for women. For the last three years she has been practising this masculine exercise to the great benefit of her health. Alluding to the costume to be adopted, she insisted on the fatigue produced by the corset; the least up-hill provokes oppression from the stricture of the thorax. As regards the genital organs, all acute inflammation should forbid the use of the machine; but when the lesions were chronic, moderate exercise might be permitted and even enjoined. In any case, riding is much less fatiguing than standing or walking. Salpingitis, or chronic salpingo-ovariitis, do not constitute a counter-indication, and in cases of chronic peri-uterine inflammation the bicyclette can replace with advantage the Swedish method of massage.

"Bicycling exercises, consequently, a healthy influence on the physical nature of women; they sleep better, digest better, their chest expands so as to find it necessary after a short time to enlarge the corsage of their robes. Mme. Sarrante concluded by drawing a vivid picture of the moral rôle of the bicyclette, the only physical exercise that husband and wife can take together."

TOTAL RESECTION OF THE STOMACH.

LANGENBUCH reports in the *Deutsche med Wochenschrift*, 1894, No. 52, two cases in which almost the entire stomach was removed for carcinoma, with one recovery and one death. The successful case was that of a woman fifty-eight years old. The new growth occupied the posterior wall of the stomach, but there were nodules on the greater curvature, extending into the greater omentum. The stomach was brought out through the abdominal wound, and about seven-eighths of it removed. On suturing the cardiac to the pyloric

¹ From the Paris Correspondence of the Medical Press and Circular, December 26, 1894.

stump, the newly formed stomach was about the size of a hen's egg. It was fixed by gauze and sutures in the abdominal wound. The operation occupied one and three-quarter hours, and very little chloroform was used, the anesthetist claiming that only ten drops (!) were employed. On the evening of the day of the operation a little milk and egg with sugar was given by mouth and retained, and on the day following the operation liquid nourishment was given repeatedly. On this day the pulse and temperature were so that the patient was regarded as lost, but fell to normal on the following morning. The patient had a slight attack of pneumonia during convalescence but gained twenty-two pounds before she left the hospital several weeks after the operation.

In the second case, which was operated in a similar manner, the stomach was so softened, that rupture at the cardiac extremity took place during its removal. The opening was closed by sutures, however, and the operation completed. On the second day the dressings were found soiled with gastric contents, and it was evident that some of the sutures had given way. An attempt was made to introduce a tube through the gastric fistula into the duodenum, but the effort to accomplish this so disturbed the parts that local peritonitis occurred, resulting in death on the sixth day. At the autopsy the peritonitis was found to be local, and not to have involved the general peritoneal cavity.

Correspondence.

THE INVALID TOURIST.

A BÊTE NOIR IN SOUTHERN CALIFORNIA.

REDLANDS, SAN BERNARDINO CO., CAL.,
February 3, 1895.

MR. EDITOR:—For the past ten years invalids, especially consumptives, have frequented Southern California in great numbers. The majority of these were in the last stages of the disease before leaving home, and expected the climate to work a miracle. Given up by their physicians, and beyond the reach of any relief from medicines, these unfortunates have made the long and tedious journey to the Pacific Coast only to die there, or to make the same hurried journey back again for the consolation of dying among friends. Hundreds of them have died in Pullman cars or at way stations *en route*.

During these same ten years, and particularly during the last three or four, the press, including medical journals, magazines and newspapers, has been full of articles upon the danger of contagion in cases of consumption. In this way the public has been educated to a horror of the disease. It is asserted that one-seventh of the human race are dying of consumption. And the fact has been carefully impressed upon the minds of the remaining six-sevenths that any chance breath may fill their lungs with virulent microscopic germs floating in the air in the neighborhood of consumptives.

Now, there are in Southern California few sanitariums. Either from a lack of patronage or from unskilful management, such institutions have not flourished. Not one consumptive in a hundred will go to a health-resort, managed strictly as such, a place where he can be properly cared for and nursed, and kept from contaminating the atmosphere which well people are supposed to breathe. Not one in a hundred will admit that he has consumption. It is always "a little throat trouble," or "a touch of *la grippe*." Hence it happens that nearly all of these invalids expect to be received into resort hotels, already partially filled with pleasure-seekers, investors, and residents of the country.

These have been educated, as just stated, to a fear of consumption second only to the popular fear of cholera or yellow fever.

As a class, the keepers of these hotels are humane men and women. They desire to do what is right and to assist the unfortunate; but it puts one of them in a very trying position when a guest arrives whose chances of living a week are perhaps not one in ten, and whose cavernous cough can be heard the length and breadth of the dining-room. Within twenty-four hours after such a guest arrives a dozen healthy, and therefore desirable, guests will probably call for their bills and seek other quarters. What is the landlord to do in such a case?

Tell the would-be guest that he cannot be received, of course. Yes, but that might result in great hardship. The man may arrive in the evening. The other hotels may be filled, or, if not, are equally unwilling to receive invalids. Rooms may have been engaged in advance, the coming guest neglecting to say that he brings a plague with him. It is hardly polite or dignified to inform him, after he has already been cordially welcomed by mail, that the rooms reserved for him are occupied by another. It is equally hard to "come out flat-footed," and tell a despairing man, perhaps accompanied by an equally despairing wife or mother, that he cannot be given food and shelter.

Send him to some private family, suggests another. That would be very well for him, if families would receive him. But they are even less willing to do so than the hotels; and, being private families, they can easily refuse, although it may be understood that they "take boarders." There are no families in Southern California that are not educated regarding the danger from consumption, and there are very few willing to run that danger for any amount of money.

The result usually is that the guest is received, temporarily at least. If he is alone the landlord looks after him as best he can in the press of his other duties. If he dies the landlord remains with him, as he crosses the dark river, and gives him the feeble aid of a friendly hand-clasp. No one can be hired for this duty. Then he wires the unfortunate's family, arranges with the undertaker for the things that must be done, and writes a letter to the dead man's home, describing his last hours. There is nothing fanciful in this picture. It is understated rather than overdrawn, and it occurs every few days during the tourist season. When the duties mentioned are all done, there remains the task of cleaning and disinfecting the room lately occupied. Every article of furniture must be taken out. The walls and ceiling must be cleaned with disinfectants, and after this is done, and the articles removed are restored to their places, the room must remain vacant perhaps a fortnight, until it loses its odor of drugs and the guests forget that there has been a death in it. For all this worry, expense and delay, as a rule, the landlord receives nothing whatever.

If the invalid is accompanied by friends the landlord, of course, has less responsibility. But the strain upon his sympathies, if he has any, is often even greater. "What are you doing here?" I asked one day of a friend at a railway station. He pointed at a long, narrow box, which the trainmen were placing in the baggage-car, and then at a couple of girls who stood at the door of the depot, evidently prepared to take the overland train.

"Came over to see them off," he said. "Poor children. It's a sad case. They came out with us from Chicago a week ago. That's their mother in the box. Been here just a week. Going back with the body to-day. Excuse me, I must see them aboard."

There the two children were, brave little things, the elder perhaps sixteen, but very girlish, the other three or four years younger. The father was in Chicago, doubtless unable to leave his business. My heart ached for them as I thought of the mournful journey before them. But nothing more could be done to help them.

The reflection which occurs to a layman in such a case is naturally about as follows: "Why was that woman permitted to go West? Was not her death an absolute

moral certainty in the mind of her physician, and should he not have insisted upon her remaining at home? Why add to the horrors of her inevitable and speedy death the tortures of that long journey westward and the dread overshadowing her last hours, of that even more wretched trip homeward, which her children were obliged to take?"

I have known twelve of these deaths to occur in a single little country hotel, of forty rooms, in one season. Sometimes the proprietor of such an hotel is put in a position where it is absolutely impossible for him to entertain such guests. It may mean simply ruin for him. Only the other day I asked a certain young man how they were getting along at a hotel in which I had a friendly, but luckily not a financial, interest. "Got another consumptive," he said. "Bad case this time. Everybody ready to go out through the windows." In this instance the landlady became desperate, and finally told the invalid and his wife that they must leave the house. In her excitement and dread of the interview she probably lost her usual tact and said more than she intended. At least there was considerable talk about the occurrence. A good Samaritan, hearing of it, took the man home, saying that he should be cared for as long as he lived. That period was just three days, and he was not in California more than two weeks.

Thousands of people are living in Southern California who went there in early stages of disease and received a benefit from the climate without which they would probably have perished. Scores of others would be alive to-day, who are dead, but for that curious mania for overtaxing their strength which seizes so many who begin to recover. A long walk, a fatiguing horseback-ride, exposure to the air half an hour later than usual, some trivial thing of this sort, undoes the slow and careful work of months, and kills many a promising convalescent. Equally fatal is the tendency to homesickness. Many an invalid has partially recovered his health, and then sacrificed it for a single visit to his former home, incurring some fatigue, or risking some exposure that exhausted the slender store of dearly acquired vitality and brought on a fatal relapse.

Of the several hundred cases of advanced consumption which have come under my personal observation, during a residence of seven years in Southern California, I should say that about one per cent. are cured. I have an acquaintance, a hale and hearty, rugged man, who is said to have been a skeleton when he reached the country. I met another man, a policeman, in Los Angeles, a few years ago, who told me a singular story. He said that when he reached that Mecca of the invalid, Los Angeles, he was suffering from what was pronounced a case of tuberculosis. He could barely walk, and was too weak to carry his valise from the 'bus to the hotel office. He had some twenty thousand dollars, and might have stopped, and died, at one of the best hotels. Instead, he gave the money into the care of a friend, and went, alone, into the high mountains back of San Bernardino. He built a rude hut, and lived almost entirely upon trout and quail caught by himself. When I knew him he was tall, erect and ruddy, and no one would have thought that he had ever been an invalid; but I believed his story to be true.

The third case that I believe to be recovery from pronounced tuberculosis as a result of residence in Southern California, I have watched with interest for three years, and desire to mention at some length, as it shows how invalids coming to California should live. In this instance consumption followed an attack of pneumonia. The invalid was about thirty years of age, and had possessed a splendid constitution, uninjured by disease or dissipation of any kind. A young woman, strong, cheerful and perfectly well, thought enough of him to marry him after his illness began and to come to California with him.

Their physician advised this couple to live in a tent, and they did so. The first summer was a very hard one. The weather became too warm in the valley and they went to the mountains. Here the invalid's strength failed so rapidly, on account of the heat, that they were obliged to make a hurried trip to the coast, where he recuperated.

But it seemed for a long time very doubtful whether he could rally. In the following fall they abandoned their small tent for a more elaborate "tent house," in which they lived for more than a year. This was destroyed by fire, and they built a still better one. It has a foundation and floor like any house. For five or six feet from this the walls are of wood, the rest of the way they are of canvas. There is a double roof, one of canvas and another of the ordinary sort, with about two feet of air space between. The interior is divided into five or six handily arranged rooms. It is finished in red wood, varnished but not painted. The lot, house and furniture cost about seven hundred dollars. It is warmer in summer than a wooden house would be, but it cools very rapidly at night. A single fire keeps it warm in the severest winter weather. Living in it is the next thing to living out-of-doors. The owner is always sure of pure air without danger of draughts. He is recovering a degree of health, after a long and tedious struggle, a difficult period of incessant watchfulness. He has a small fruit-ranch upon which he spends some of his time in out-door labor. But even now, three years after his first illness, when his cough has nearly left him, he practises infinite precaution, is never out of his home after four o'clock, except in mid-summer, and, in matters of dress, etc., never forgets for an instant that he is an invalid. Profiting by the experiences of others, he has no desire to return to the East, even for a short period. He will doubtless make as complete a recovery as is possible after so severe an attack of so virulent a disorder.

The logical conclusion from these facts would seem to be that persons in an advanced stage of consumption might better remain at home than to clutch at that last straw of hope, a journey West; and that those who seem to have a fair "fighting chance" against this dread destroyer, who go West, should go with a better understanding than is usual of the conditions awaiting them on arrival. Since these people will not live together, in hospitals or sanitariums, each cherishing the delusion that he is not a victim to consumption, each believing that he would risk infection by associating with consumptives, they should come prepared, as far as possible, to live by themselves. There are always cottages to be rented in any Southern California town, if the invalid does not care to follow that best plan of all and to construct a tent-cottage. Housekeeping is cheaper than hotel living and infinitely better. The patient may be more quiet, and he may have such articles of food prepared as he desires, a very decided advantage over hotel life. Southern California is full of warm-hearted, sympathetic people, and no one following the plan suggested need fear that he will be totally isolated among strangers. On the contrary, he will soon learn that his course will be approved, and that he will find friends.

But to come, as I have seen hundreds, alone, to a strange town and an unfamiliar way of life, to take a cheap room, in a cheap hotel and there to live upon cheap food, hastily served, to spend day after day lounging in the sunshine, or, in bad weather, confined to the narrow walls of a little room, in either case with insufficient exercise, to shun all bearing the same unmistakable marks of a terrible disease, to be shunned by all others — such a course is simply placing one's self in the clutch of death, like a mouse in the claws of a cat, to be a plaything for a little while, before the final, inevitable blow. Such a procedure is of benefit only to the railroad companies and the undertakers; and the sensible, thinking people of Southern California, who see it so often, are coming more and more to wonder at the ignorance which prompts it. In many cases absolutely beyond help the victim is a poor man, and the money expended in this useless pilgrimage might far better be kept for a few comforts to ease his last days and for the support of his family. In thousands of other cases, where the element of expense is of no importance, the result is the same; and the journey, undertaken, perhaps, with high hopes, and followed out with every attention and comfort that money can buy, ends in swift and crushing disappointment.

Very truly yours,
WM. M. TISDALE.

METEOROLOGICAL RECORD,

For the week ending February 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weath'r.		Rainfall in inches.			
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.		
S... 3	30.36	18	24	11	57	70	64	N.	N.W.	12	8	C.	O.	0.11
M... 4	29.94	22	24	21	92	86	89	N.W.	N.W.	11	13	N.	N.	
T... 5	29.86	8	13	3	49	50	50	N.W.	W.	14	20	C.	C.	0.01
W... 6	29.79	4	13	-6	51	60	50	W.	W.	26	18	C.	C.	
T... 7	29.67	8	14	1	71	80	76	W.	N.	11	12	F.	C.	0.83
F... 8	28.93	19	36	2	68	55	62	S.	W.	25	33	N.	C.	
S... 9	29.37	8	17	0	69	61	65	S.W.	W.	13	13	F.	O.	0.95
29	29.70	20	5				65							

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 9, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York	1,956,000	921	314	9.90	20.57	.22	5.39	.99
Chicago	1,600,000	—	—	—	—	—	—	—
Philadelphia	1,139,457	465	148	14.74	16.72	2.20	8.58	.44
Brooklyn	1,043,000	469	181	10.71	22.68	.21	7.98	.21
St. Louis	540,800	—	—	—	—	—	—	—
Boston	501,107	187	64	10.07	16.96	—	6.89	2.12
Baltimore	500,000	—	—	—	—	—	—	—
Washington	285,000	97	23	7.21	15.45	—	6.18	—
Cincinnati	325,000	128	31	7.80	20.28	1.56	4.68	—
Cleveland	325,000	85	30	6.90	22.42	—	1.18	3.54
Pittsburg	272,000	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	25	9	8.00	8.00	—	—	4.00
Charleston	65,165	28	9	3.57	7.14	3.57	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	29	11	3.45	24.15	—	3.45	—
Fall River	92,233	38	16	15.78	21.04	5.26	5.26	2.63
Lowell	90,613	32	13	9.39	—	—	3.13	—
Cambridge	79,607	24	4	12.18	33.28	4.16	8.32	—
Lynn	65,123	18	2	11.11	5.55	—	11.11	—
Springfield	50,284	19	6	15.78	15.78	—	10.52	—
Lawrence	49,900	13	2	15.38	—	—	—	7.69
New Bedford	47,741	25	5	—	12.00	—	—	—
Holyoke	43,348	13	7	30.76	15.38	7.69	—	—
Brookton	33,939	8	2	—	50.00	—	—	—
Salem	33,155	10	2	—	—	—	—	—
Haverhill	32,925	7	3	28.56	—	—	14.28	—
Malden	30,209	5	2	—	40.00	—	—	—
Chelsea	29,806	17	5	—	—	—	—	—
Fitchburg	29,383	5	1	—	—	—	—	—
Newton	28,837	8	1	12.50	25.00	12.50	—	—
Honolover	27,293	—	—	—	—	—	—	—
Taunton	26,954	8	0	—	—	—	—	—
Waltham	22,058	3	3	—	—	—	—	—
Quincy	19,642	6	2	33.33	16.66	—	16.66	—
Pittsfield	18,802	10	1	10.00	20.00	—	—	—
Everett	16,585	6	4	16.66	—	—	16.66	—
Northampton	16,331	7	4	14.28	28.56	—	—	—
Newburyport	14,073	3	0	—	33.33	—	—	—
Amesbury	10,920	1	0	—	—	—	—	—

Deaths reported 2,709: under five years of age 925; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 288; acute lung diseases 539; consumption 344; diphtheria and croup 161; diarrheal diseases 24; scarlet fever 23; typhoid fever 22; whooping-cough 19; erysipelas 12; cerebro-spinal meningitis 11; measles 10; small-pox 6.

From typhoid fever Philadelphia 8, Washington 6, Brooklyn, Cincinnati and Lowell 2 each, New York and Boston 1 each. From whooping-cough New York 8, Brooklyn 5, Philadelphia 2, Fall River, Haverhill, Quincy and Northampton 1 each. From erysipelas New York 6, Brooklyn 3, Providence 2, Nashville 1. From cerebro-spinal meningitis New York 6, Holyoke, Boston and Pittsfield 3 each. From measles New York 6, Philadelphia, Brooklyn, Cleveland and Springfield 1 each. From small-pox New York and Philadelphia 3 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 9th, the death-rate was 19.7. Deaths reported 4,000: acute diseases of the respiratory organs (London) 377, whooping-cough 76, diphtheria 70, measles 48, diarrhea 45, fever 33, small-pox (London) 2.

The death-rates ranged from 11.8 in Croydon to 27.9 in Liverpool; Birmingham 16.0, Bradford 19.8, Gateshead 21.8, Huddersfield 16.8, Leeds 20.3, Leicester 16.9, London 19.0, Manchester 23.5, Newcastle-on-Tyne 21.2, Nottingham 17.0, Portsmouth 14.6, Sheffield 18.6, Sunderland 20.4, Swansea 22.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 9, 1895, TO FEBRUARY 15, 1895.

COLONEL CHARLES C. BYRNE, assistant surgeon-general, is relieved from duty as medical director, Headquarters, Department of Dakota, and announced as medical director, Headquarters, Department of the East.

LIEUT.-COL. HENRY R. TILTON, deputy surgeon-general, is announced as medical director, Headquarters, Department of Dakota.

FIRST-LIEUT. GUY C. M. GODFREY, assistant surgeon, will proceed without delay from Fort D. A. Russell, Wyoming, to Fort Omaha, Nebraska, and report for temporary duty.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING FEBRUARY 15, 1895.

PURVANCE, GEORGE, surgeon. Detailed as chairman, Board for examination of assistant surgeons for promotion, to convene in Washington, D. C., March 11, 1895. February 8, 1895.

HAMILTON, J. B., surgeon. Granted leave of absence for six days. February 7, 1895.

AUSTIN, H. W., surgeon. Detailed as member, Board for examination of assistant surgeons for promotion. February 8, 1895.

IRWIN FAIRFAX, surgeon. Detailed as recorder, Board for examination of assistant surgeons for promotion. February 8, 1895.

STIMPSON, W. G., passed assistant surgeon. To assume temporary command of Service at Port Townsend, Washington, during absence of Passed Assistant Surgeon J. O. Cobb. February 13, 1895.

EAGER, J. M., assistant surgeon. Ordered to examination for promotion. February 9, 1895.

BLUE, RUPERT, assistant surgeon. Granted leave of absence for six days. February 13, 1895.

NORMAN SEATON, assistant surgeon. Ordered to examination for promotion. February 9, 1895.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, on Wednesday evening, February 27, 1895, at 8 o'clock.

Dr. Cumston: "Report of Case of Osteomalacia; Operation; Recovery."

Dr. S. E. Courtney: "Remarks on Four Cases of Eclampsia Occurring at Boston City Hospital."

Dr. C. H. Hare: "Report of Case of Eclampsia; Death."

GEO. H. WASHBURN, M.D., Chairman.

J. M. JACKSON, M.D., Secretary.

RECENT DEATHS.

STEPHEN WALLACE BOWLES, M.D., M.M.S.S., died in Springfield, February 12, 1895, aged fifty-nine years.

PROF. J. GOITSTEIN, the eminent laryngologist, died in Breslau, January 10th, aged sixty-three. He is best known as the inventor of the curette for adenoid growths, which bears his name, and as the author of an excellent text-book on diseases of the larynx. His original work in laryngology has been of the greatest importance in the progress of that specialty.

BOOKS AND PAMPHLETS RECEIVED.

The Life-Saving Society, Handbook of Instructions for the Rescue of the Drowning. Third revised edition. 1895.

Transactions of the American Orthopedic Association, Eighth Session, held at Washington, D. C., May 29, 30 and 31, 1894. Volume VII. Philadelphia: Published by the Association. 1895.

Original Articles.

TRAUMATIC GLYCOSURIA.

OBSERVATIONS MADE IN TWO HUNDRED AND TWELVE CASES OF HEAD INJURIES.*

BY F. A. HIGGINS, M.D., AND J. B. OGDEN, M.D.

EVER since the time of Claude Bernard, who first experimentally demonstrated the existence of the so-called sugar centre in the floor of the fourth ventricle, head injuries have been recognized as playing a certain part in the etiology of some cases of diabetes. In addition to permanent glycosuria following traumatism of the head, there is another form observed by some writers, and of which a number of cases have been reported. This last is merely transitory, and comes on directly after the traumatism, or in a few days. On the other hand, the permanent form of glycosuria occurs at a period of weeks, or even months afterwards.

In this article very little work has been directed towards this last form. The work recorded here was undertaken with the purpose of establishing whether any relation exists between various head lesions resulting from traumatism and transitory glycosuria. It is obvious that this could be done only by following out a considerable number of cases such as would be seen in a large municipal hospital. Accordingly, the work has been performed, with the permission of the surgeons of the Boston City Hospital, upon all cases of head injuries, regardless of severity, admitted to the hospital wards during the thirteen months beginning December 1, 1893, and ending January 1, 1895, comprising in all 212 separate cases. The observations are the results of frequent and systematic examinations of the urine, obtained as soon as possible after the injury, and continuing from time to time during the patient's stay at the hospital. This was done in order to ascertain if any connection existed between the nature of the injury, whether mild or severe, and the appearance of sugar in the urine. Further, to see if such a condition when it occurred could render any assistance in diagnosis, especially in those not infrequent cases in which the diagnosis may be obscured or doubtful, such as many so-called fractures of the base of the skull, resulting in recovery with no other prominent symptoms than temporary unconsciousness and hemorrhage from the ear. The pathology of the disease is not entered upon at all, but a number of cases in which autopsies were performed are reported in full.

First will be considered the literature of permanent glycosuria, and second, that of transitory glycosuria.

LITERATURE.

The literature of permanent traumatic glycosuria is comparatively meagre, yet traumatism is generally mentioned as one of the etiological factors in most works on diabetes.

A few examples of traumatic glycosuria are found in the works of Seegen, Fritz, Reichtlghausen, Fischer, Mahe, Tood, Cyr, Itzigsohn and Leydon; but Charcot is of the opinion that many of these are more often cases of persistent glycosuria than of true diabetes.

Lyman¹ says, "Injuries (and tumors), especially if they involve the fourth ventricle, are often accompanied by the development of diabetes."

Strümpell² says, "Glycosuria may result from severe concussion of the brain and fracture of the skull."

Tyson³ says, "Excepting the injuries to the nervous system, which are known to cause diabetes, our knowledge of its causes are not precise. With regard to the former, it is well known that blows upon the skull, with or without fracture, and concussions, communicated to the brain, spinal cord and vaso-motor centres in other ways, as by falls, are such causes."

Griesinger⁴ found that 13 out of 225 cases which he collected were of traumatic origin.

Luce⁵ reports the case of a healthy lad who fell while skating, striking the back of his head heavily on the ice, and died shortly afterwards of diabetes.

Friedrichs⁶ out of a large number, could only trace eight cases of diabetes to traumatism.

Bacelli⁷ reports the case of a young man who became diabetic after a concussion of the brain. At the autopsy a necrobiotic point was found in the centre of the pons-Varolii.

Vogel⁸ reports a case of a fireman upon whose neck a beam fell. In a few weeks there followed a severe glycosuria ending in death. At the autopsy nothing abnormal was found in the brain, and it is thought that diabetes resulted from concussion of the spine.

Senator⁹ says that mechanical injuries are among the most important of exciting causes, such as concussion of the brain and spinal cord, or even of the whole body. Glycosuria usually makes its appearance in a few hours or days after the infliction of the injury, rarely not until later.

Lasegue¹⁰ reports a case of glycosuria occurring three months after the accident, in a man who fell down stairs, causing cerebral concussion.

Bernstein-Kohan,¹¹ out of 45 cases traced 25 to head injuries, and reports that sugar does not always appear immediately after the injury. If the sugar appears early, it is very apt to be mild. If late, it may be severe and rapidly fatal.

Spencer¹² says, "Injuries of the head and spinal cord are often the cause of sugar in the urine. The sugar may last for a few hours only, or for a few days. As a rule, it quickly disappears, but in some cases the sugar persists, and the patients begin to be diabetic from the time of the injury."

Brouardel and Richardiere,¹³ in an article on "Traumatic Diabetes from a Medico-legal Point of View," state that traumatism is a well-recognized cause of diabetes, and that in a considerable number of cases in head injuries, examination of the urine reveals sugar when it has been before unsuspected.

This completes, in brief, a summary of the literature touching upon the subject of permanent traumatic glycosuria, and is sufficient to establish the fact that traumatism does play a more or less important part in the etiology of diabetes. With respect to traumatic glycosuria of the transitory form, it has been the object of much less notice on the part of medical writers and investigators. In connection with this form, the work reported in this article has been principally performed. In the works of Alladoff, Schiff, Pavey and Eckhardt, this subject receives but a passing notice.

Redard¹⁴ says, "A glycosuria uniformly presents itself after all forms of traumatism of the head, whether accompanied by fracture or not. It may show itself almost immediately after an accident." He quotes eight cases where it appeared in two days, and a num-

* Being one of the two papers receiving a Second Lyman Prize for the year 1894. This Paper will appear in the Boston City Hospital Medical and Surgical Reports, Sixth Series.

ber of other cases where it appeared after a number of weeks. He affirms that sugar, if carefully sought for, is nearly always found.

Robin¹⁶ reports a case of temporary glycosuria following cerebral concussion, sugar lasting four days.

De Pietro¹⁶ says that after wounds and injuries of the head, glycosuria may last from two to eleven days, according to the severity of the lesion. That it appears later and lasts longer in fractures than in simple wounds.

Nuzzi¹⁷ says that glycosuria is more or less constant after head injuries. The time of appearance and the quantity of glucose varies greatly. His results are generally negative. In 115 observations on 39 patients he found glycosuria only three times.

Oppenheim and Eisenlohr¹⁸ have observed the transitory form of glycosuria in a few cases.

Buch¹⁹ reports twenty cases with literature, in which injuries occurred to parts of the head, the glycosuria following, being of the transitory form.

Lancereaux²⁰ says that glycosuria following traumatism is much less serious than the other varieties. It is temporary, it may disappear in a few days, and it never continues longer than a few months.

This concludes a short review of the literature of transitory glycosuria. It consists merely of mere mention of the existence of such a condition by some writers, and reports of a limited number of cases by others. There seems to have been no attempt made to investigate any considerable number of cases with head injuries, or to trace any connection between the glycosuria and the nature of the head injury. Redard attempted to find a connection between the appearance of pus in the wound of the head and glycosuria, but that any connection between the two existed was denied by De Pietro.

We have tabulated the results of the observations on 212 cases, and have arranged them in classes according to the nature of the head injury, without regard to lesions in other parts of the body; yet whenever there have been such lesions, they have been noted both in the tables and in the description of individual cases. The tables will be found in the paper as published in the City Hospital Report. The description of the individual cases follows:

CLASS 1, includes the simple scalp wounds and other minor head injuries.

CLASS 2, scalp wounds with bone exposed.

CLASS 3, cases of concussion, meaning those followed by loss of consciousness without fracture.

CLASS 4, includes fractures of the vault of the skull.

CLASS 5, fractures of the base of the skull.

CLASS I.

CASE 24, CLASS 1. J. D., male, age forty, laborer. Service of Dr. Cushing. Nine days before entrance was struck on the head by an iron bar, sustaining a scalp wound three or four inches long. There were ten stitches taken in the wound at that time. Three days later erysipelas of the face and scalp developed. On entrance, beside the erysipelas, a discharging sinus was found at one point in the unhealed scalp wound. The patient was discharged on the fifteenth day, the erysipelatous blush having entirely disappeared, and only a very slight discharge from the wound.

Urine.—The urine was examined the day following entrance, but no sugar found. Two days later, (twelfth day after injury and ninth day after the ap-

pearance of erysipelas) the urine had a specific gravity of 1.020, and contained a slight trace of sugar, it being, however, too slight to quantitate. This trace of sugar continued for two days, then disappeared, and was not found again during his stay in the hospital.

There is obviously some doubt as to the cause of the sugar in this case. It appeared for the first time twelve days after the injury, and at a time when the erysipelas was rapidly improving. It would appear, however, as if the erysipelas had an exciting factor in the production of the sugar, yet it may have been due directly to the injury, even though the sugar did not appear for twelve days. Brouardel and Richardiere report four cases of injury to the head where the sugar did not appear until from one to two weeks after the injury.

CASE 27, CLASS 1. W. E. T., male, age four years. Service of Dr. Post. Was run over by an express-wagon, and on entrance was found to have a hematoma over the left frontal eminence, beside a lacerated wound of left ear and contusion of left shoulder. The wound of the ear was dressed antiseptically. At no time were there any head or nervous symptoms. The patient was discharged on the twelfth day, apparently in excellent condition.

Urine.—The urine, obtained nine and half hours after the injury, was found to have a specific gravity of 1.025; albumin, the slightest possible trace; sugar, 2.92 per cent. Fermentation by yeast was very active. Two days later the urine had a specific gravity of 1.035; albumin, slightest possible trace; sugar, a very faint trace. A specimen obtained on the fifth day after the injury showed a complete disappearance of the sugar. Repeated examinations of the urine while the patient remained in the hospital, failed to show any trace of sugar after the fifth day.

CASE 52, CLASS 1. J. O'B., male, age forty-seven, janitor. Service of Dr. Watson. The patient, while intoxicated, fell from a roof, a distance of ten feet, sustaining a scalp wound one and a half inches long, running transversely between the left parietal eminence and the median line. Several contusions about the left shoulder and right side. The pupils were equal and reacted to light. Mental state dubious, because of the alcoholic condition. Scalp wound sutured and dressed antiseptically. The following day the mental condition was good, and he was feeling very well except for lameness resulting from the fall. The patient was discharged well on the seventh day.

Urine.—The urine which was passed about eighteen hours after the injury had a trace of sugar, this being the only time that it was found. Three months after the injury a specimen of urine was obtained from the patient and found to contain no sugar.

CASE 73, CLASS 1. P. F., age twenty, female. Service of Dr. Gavin. Was confined in November, 1894. While suffering from puerperal mania, which developed fifteen days later, she jumped from a third-story window (thirty feet) striking on the ground. She was brought to the hospital suffering from an incised wound of left super-orbital ridge, three-quarters of an inch in length, bone not exposed. Also on the inner aspect of the left breast a small wound one-half an inch long and a quarter of an inch deep. Milk expressed from both breasts. The wounds were dressed antiseptically. For the first few days the breasts were relieved of their secretion by means of a breast-pump. The patient remained delirious during her stay in the

hospital. The wounds entirely healed, so that she was discharged on the sixth day.

Urine. — On the day after entrance a trace of sugar was found in the urine. The amount of sugar increased considerably in the next few days, for on the sixth day after entrance nearly one per cent. was found. There was not only a reduction of copper in Fehling's solution, but also a noticeable fermentation with yeast.

CASE 74, CLASS 1. E. M. S., age thirty-eight, female. Service of Dr. Burrell. Was confined in March, 1894. Nine months later was struck on the head and face in a quarrel with her husband. On examination she was found to have a large hematoma over the left parietal and frontal eminences and extending down onto the left cheek. There was marked swelling of nose and about the left eye, sufficient to close it. A small contused wound behind left ear, also on left cheek. The arms, legs and lower part of trunk were covered with small excoriations and bruises. There was also a fracture of the second phalanx of the right ring-finger. There was no paralysis or head symptoms. As the patient had been nursing her child up to the time of entrance to the hospital, the breasts required massage during the first twenty-four hours only, there being no trouble afterward.

Urine. — The first specimen of urine, obtained about twelve hours after entrance, was found to have a specific gravity of 1.018, a large trace of albumin, and to contain a slight trace of sugar. After forty-eight hours the sugar had increased to a distinct trace, yet too slight to be quantitated, the urine having a specific gravity of 1.026, and containing a very slight trace of albumin. There was a definite fermentative reaction obtained by yeast. An examination of the urine made ten days after entrance showed a specific gravity of 1.023, a very slight trace of albumin and a complete disappearance of the sugar. Repeated examination, made later, failed to show the presence of sugar.

(Patient still in hospital, at the time of writing.)

In the consideration of these last two cases, we are confronted by the question, Have we to do with a lactosuria or a temporary glycosuria as a result of injury to the head and a general "shaking up"? In both cases, each was nursing a young child up to the time of injury, and according to Ord,²¹ lactose appears in the blood during lactation. Blot,²² de Sinetz,²³ Hoffmeister,²⁴ Kaltenbach,²⁵ Halliburton²⁶ and Hammersten,²⁷ say that lactose appears in the urine, as such, although Ord,²¹ Moritz²⁸ and Voit²⁹ seem to have found it appearing in the urine as glucose, yet Moritz³⁰ later asserts the probability of a lactosuria.

In distinguishing between glucose and lactose we find that, according to Hammerstein, the latter is not fermentable with pure yeast, yet both reduce copper. If then, this be true, although the non-fermentation of lactose is disputed by Halliburton, we may have to do, in these two cases, with a glycosuria, either alone or coincident with a lactosuria.

CLASS II.

CASE 87, CLASS 2. D. C., age twenty-nine, male. Service of Dr. Bolles. Fell twenty-five feet from a staging striking on right side of face, causing a wound three inches long, beneath which the malar bone, zygoma and the coronoid process of jaw were fractured. In addition, there was a small wound one inch long,

with bone exposed in middle of forehead and a Colles' fracture of left wrist. Patient was unconscious, remaining so several hours, following which was delirium lasting most of the time till death; pupils reacting, but unequal; no paralysis. In dressing, a number of small pieces of bone from the face were removed. The wounds healed almost throughout by primary union. On the sixth day a right facial paralysis was first noticed, with mouth drawn to the left, probably due to injury of the facial nerves. At night on the same day, patient had difficulty in swallowing, and on the next day developed a pronounced tetanus in the facial muscles, with spasm of the tongue. Following this he failed rapidly and died on the eighth day.

Autopsy. — Brain normal, with dura adherent to the bone at the base. No fracture about the head except in the bones of the face. Right kidney was ruptured, with hemorrhage into the suprarenal capsule. There was also hemorrhage into the capsule of the liver, on right lobe under surface. There was an acute splenic tumor, congestion of lungs, and a few small patches of sclerosis in aorta and coronary arteries.

Urine. — An examination of the urine passed about twelve hours after the accident, disclosed the presence of 1.04 per cent. of sugar, with a specific gravity of 1.020 and a large trace of albumin. Repeated daily examinations of the urine gave a smaller percentage of sugar each day up to the sixth, when it had entirely disappeared. A positive test by fermentation.

As on the sixth day the first symptoms of tetanus appeared, it is perfectly evident that the glycosuria could not have been caused by this complication. To which of the other lesions it was due it is impossible to determine.

CASE 112, CLASS 2. J. M., male, age fifty. Service of Dr. Monks. Five days before, fell in getting off a moving electric-car, striking head on a post. At time of entrance, on patient's head were two irregular, suppurating cavities in scalp, the first over vertex about one by one and a half inches; the second over left parietal eminence, about one-half by two inches, appearing as if the flesh had been torn away, leaving the bone uninjured, exposed beneath. In six days erysipelas of the face and scalp developed, following a chill, headache and a rise in temperature the day before. Patient did well until the twenty-second day, when without apparent cause he suddenly became unconscious and died.

Autopsy. — There was no evidence of fracture of the skull; great excess of serous fluid in the subarachnoid spaces and in the ventricles. The veins of the brain were distended with dark fluid blood. The puncta cruenta were prominent; no meningitis. Brain substance firm, and on section no evidences of hemorrhage or pathological changes. Other organs of the body normal, except for a moderate edema and congestion of the lungs.

Urine. — The urine of this patient, from the time of entrance till his death, was examined frequently, and at all times was found to be above 1.030 in specific gravity and to contain a large amount of sugar, the greatest amount at any one time being 5.55 per cent. varying between that and four per cent. There was active fermentation at each examination.

As the erysipelas developed on the sixth day, it may at once be excluded in considering the cause of the glycosuria. It is possible, in view of the early presence of a large quantity of sugar in the urine, continuing

undiminished several weeks till death, that we have to do in this case with a diabetes existing prior to the injury. The previous history of the patient with respect to thirst, frequent micturition, etc., is, however, entirely negative. Charcot says that cases of persistent glycosuria following blows on the occiput are more common than, and are apt to be mistaken for, cases of true diabetes. It seems probable, then, that this may be a case of that kind.

CASE 119, CLASS 2. M. R., male, age fifty-three. Service of Dr. Cheever. Knocked down by a team in the street, causing over occiput an irregular lacerated wound three inches long, bone exposed. In addition, there was a fracture of one rib. Patient was very restless, with a mild delirium at times for several days. The wound united well by primary union, and on the twelfth day he was removed from the hospital.

Urine.—The first urine examined was passed ten hours after the injury. At that time the specific gravity was 1.033, with a trace of albumin and 3.84 per cent. of sugar. Two days later there was four per cent. of sugar present, with a specific gravity of 1.043. From this time on until the patient's discharge the sugar gradually decreased to 1.91 per cent. at the last examination on the twelfth day. There was a pronounced yeast fermentation at all times.

CASE 122, CLASS 2. G. A., male, age eleven. Service of Dr. Burrell. While crossing the railroad track was struck by a locomotive, causing a large hematoma over occiput, with a scalp wound two and a half inches long, bone exposed beneath. In addition, there was a compound fracture of the right leg and a bad crush of right arm necessitating amputation above the elbow. The boy suffered from profound shock, remaining unconscious for about twenty-four hours, followed by delirium lasting four to five days. He is now making an excellent recovery, still remaining in the hospital.

Urine.—The first urine was passed twelve hours after the injury. It contained a trace of albumin, a very small percentage of sugar, and had a specific gravity of 1.028. On the third day the trace of sugar had disappeared, and frequent examinations up to the present time have not detected its presence again.

CLASS III.

CASE 147, CLASS 3. J. S., male, age twelve. Service of Dr. Gavin. Was thrown from a carriage in a "runaway" accident, striking on his head. He was picked up unconscious, remaining in this condition for about two hours. On arrival at the hospital, there was found a hematoma over the right parietal and occipital regions. No depression or fracture of the bones could be made out. Pupils were equal and reacted to light. He complained of slight pain in the head, this, however, being the only subjective symptom. The patient was discharged relieved on the eleventh day, in a very good general condition.

Urine.—The urine was unfortunately not examined for thirty-six hours, at which time 1.2 per cent. of sugar was found. On the fourth day after injury it was found that the sugar in the urine had diminished to 0.3 per cent.; on the sixth day only a faint trace; and a complete disappearance on and after the ninth day. At each examination of the urine the fermentation test with yeast was tried with a satisfactory reaction

as long as the sugar remained. At no time were we able to get a reaction for acetone or diacetic acid. On the thirty-seventh day after the injury another specimen of urine was obtained from the patient, and was found to be free from sugar.

CLASS IV.

CASE 169, CLASS 4. W. M., male, age forty. Service of Dr. Gavin. Shot himself in the head during a fit of melancholia. The patient was brought to the hospital in a semi-conscious condition, having a perforating wound one and one-half inches above and same distance back of the right ear. The pupils were equal and reacted to light; no paralysis. The wound was probed by Dr. Gavin, who found an opening having jagged edges through the skull. An effort to find the bullet was unsuccessful. Two days later the patient regained consciousness, and at this time slight paralysis on the left side, with deviation of the eyes to the right was noticed. On the fifth day became delirious and noisy, this continuing for four days. There was retention of urine on the tenth day, and at this time there was a sero-purulent discharge from the right ear. The patient's mental condition had improved somewhat, and the general condition remained pretty good to the twenty-eighth day, when he became unconscious; the retention of urine had given way to incontinence, still paralysis of left side. Death occurred on the twenty-ninth day.

Autopsy.—A well-marked cicatrix situated two inches behind and one and one-half inches above external angular process. On removing the scalp a circular opening through skull was found. A fracture one-half inch behind coronal suture, penetrating the great wing of the sphenoid bone. Bullet was found just inside the opening in the skull and over the third frontal convolution just anterior to the ascending limb of Sylvius. This frontal convolution was softened and destroyed. There was no abscess cavity at this point.

Urine.—An examination of the urine, made seventeen hours after the injury, had a specific gravity of 1.025; albumin, slightest possible trace; sugar, a trace, too slight to be quantitated. Repeated examinations were made during the life of the patient, but no sugar was found at any time after the first examination.

CASE 191, CLASS 4. G. M. R., male, age fourteen. Service of Dr. Watson. Was struck on the head by the shaft of a planing-machine, sustaining a lacerated wound extending from the bridge of nose to supraorbital ridge of frontal, destroying left eye, and involving the nasal, frontal, malar, and possibly superior maxillary bones in compound comminuted fracture. On entrance to the hospital was conscious, pulse rapid but of low tension. The patient was operated upon by Dr. Monks, who enucleated all remains of the eye, removed fragments of bone, thoroughly cleansed and dressed the wound antiseptically. The next day, while dressing the wound, a rather profuse discharge of sero-sanguinous matter was observed. There followed a good recovery, and he was discharged on the nineteenth day.

Urine.—An examination of the urine, twenty-four hours after the injury, showed specific gravity of 1.035, slightest possible trace of albumin, 0.85 per cent. of sugar. The fermentation test was active. During the patient's stay in the hospital, unfortunately the urine was not examined again; but five months after the injury the patient returned for observation, and

the urine was found to have a specific gravity of 1.020, slight trace of albumin, and contained no sugar.

CASE 180, CLASS 4. M. K., female, age fifty-two. Service of Dr. Bolles. In an encounter with a burglar was struck twice on the head with an unknown implement. She remained in an unconscious condition about four and a half hours. On entrance, the patient was found to be a fleshy woman with a scalp wound about three inches in length over the right frontal eminence, and a crack in the bone running forward. No depression of bone. The wound was treated antiseptically. No pre-existing history or symptoms of diabetes in patient or in ancestors. An uninterrupted recovery followed, without any notable subjective symptoms. The patient was discharged on the nineteenth day.

Urine. — Eighteen hours after entrance, specific gravity 1.040; albumin, very slight trace; sugar present (not quantitated). The amount of urine passed in the first twenty-four hours was 1,080 c. c.

Third day, amount, 960 c. c.; specific gravity 1.037; albumin, very slight trace; sugar, 2.5 per cent. Marked fermentative reaction.

Fourth day, amount, 1,260 c. c.; specific gravity 1.024; albumin as before; sugar, 1.19 per cent. Marked fermentative reaction.

Seventh day, amount 1,500 c. c.; specific gravity 1.016; albumin as before; sugar, 0.35 per cent. Very slight fermentation.

Ninth day, amount, 1,800 c. c.; specific gravity 1.016; albumin as before; sugar present, but too slight to quantitate. No fermentative reaction.

Eleventh day, amount, 1,380 c. c.; specific gravity 1.028; albumin, a slight trace; sugar, a trace, too slight to quantitate.

Twelfth day, amount, 1,830 c. c.; specific gravity 1.030; albumin, a very slight trace; sugar, 3.84 per cent. Fermentation very active.

Thirteenth day, amount, 1,260 c. c.; specific gravity 1.042; albumin as before; sugar, 4.16 per cent. Fermentation very active.

Fifteenth day, amount, 650 c. c.; specific gravity 1.042; albumin as before; sugar, 5.43 per cent. Fermentation very active.

Sixteenth day, amount, accidentally lost; specific gravity 1.036; albumin as before; sugar, 2.38 per cent. Fermentation active.

Nineteenth day, amount, 1,350 c. c.; specific gravity 1.033; albumin, very slight trace; sugar, 1.29 per cent. Fermentation active. Discharged on this day.

Acetone and diacetic acid were not obtained at any time, although tested for at each examination of the urine.

There are some points in this case which would tend to show a pre-existing permanent diabetes, namely, a corpulent individual, the continued presence and invariable large percentage of sugar. On the other hand, we could get no history of diabetes (pruritis, excessive thirst, a noticeable increase in the daily amount of urine, etc.). The daily amount of urine while in the hospital, was generally below 1,500 c. c. (although this might well be in a case of permanent diabetes).

CASE 181, CLASS 4. F. R., male, age nineteen. Service of Dr. Bolles. During a quarrel he was struck on the head with an iron bar about an inch in diameter. His mind was perfectly clear after the accident. On entering the hospital, there was found a scalp wound about three inches in length over the

right temporal bone, with an exposure and depression of bone. The depression extended over an area of about half an inch and about one-eighth of an inch in depth. There were no subjective symptoms except for rather severe headache. The temporal bone was trephined, and several small pieces of bone removed. No subjective symptoms. A good recovery followed, and he was discharged on the nineteenth day.

Urine. — At the first examination, made three days after injury, there was a specific gravity of 1.028, and no sugar or albumin present. On the sixth day the urine had a specific gravity of 1.030 and a very slight trace of albumin and sugar. There was a complete disappearance of the sugar two days later, and no recurrence during his stay at the hospital.

CASE 183, CLASS 4. J. R., male, age twenty-four. Service of Dr. Bolles. Was struck on the head by a large piece of coal which fell from a staging above. He was knocked down, and was insensible for only a few moments. He then walked home without assistance. Three hours and a half later he became unconscious, and was brought to the hospital in this condition. Examination showed a well-developed man. Pulse rapid (160); respiration 40, and simulating the Cheyne-Stokes character. Both pupils dilated; left more than right, and reacting sluggishly to light. A small scalp wound at the coronal suture, in the median line. All extremities were rigid, relaxing momentarily at times. The operation of trephining was performed by Dr. Bolles, who removed a button at the point of scalp wound and another one over the course of the left middle meningeal artery, but nothing was found in either place to account for the symptoms. Death occurred fifteen hours after the injury. There was no autopsy.

Urine. — About eight hours after the injury, the urine was drawn by catheter, and found to have a specific gravity of 1.033; albumin, a very slight trace; sugar, a faint trace (too slight to quantitate). Only one examination was made before death.

CLASS V.

CASE 212, CLASS 5. C. A. L., age forty-two, male. Service of Dr. Watson. Was thrown out of carriage one-half hour before entrance. When seen first, there was slight stupor, from which he could be aroused sufficiently to give name and age, but relapsed immediately on being allowed to remain undisturbed, and at the end of another hour was totally unconscious, soon becoming delirious. Over right parietal region was a large swelling beneath which nothing could be felt; hemorrhage from left ear; no paralysis, knee-jerks slightly increased, examination otherwise negative. About three hours after the accident an incision was made over swelling, revealing a crack in the bone, running downwards and forwards towards the base. Bone was trephined, finding the dura lacerated with considerable hemorrhage, necessitating tying the posterior branch of the middle meningeal artery. Patient did not recover consciousness after the operation. He continued noisy and delirious, dying forty-five hours after the accident.

Urine. — It was possible to obtain only one specimen of urine from the patient. A small quantity was drawn by catheter sixteen hours after the injury. At that time it contained a very slight trace of albumin, with a specific gravity of 1.030; and a trace of sugar was found by Fehling's and the fermentation tests.

CASE 201, CLASS 5. J. S., age thirty-seven, male. Service of Dr. Bolles. Twenty-four hours before entrance fell into the hold of a vessel, striking on head. At entrance unconscious, very restless and delirious; no paralysis. Over occiput, a scalp wound three inches long, bone exposed beneath, in which a fracture was found extending into base beyond limits of wound. No depression or fissure. There was a bloody serous discharge from right ear, also a slight exophthalmos of right eye. Patient continued delirious, and died thirty-four hours after the injury. No autopsy.

Urine.—Catheter specimen was obtained twenty hours after fall. Specific gravity was 1.027, containing a trace of albumin, and sugar to 1.25 per cent. This was the only examination made.

CASE 208, CLASS 5. G. L., age twenty three, male. Service of Dr. Bradford. Shortly before entrance fell twenty feet, striking on frozen ground. No external signs of violence; paralysis of right arm and leg. Unconscious, delirious, and very restless, lasting for about six days without other special subjective symptoms. Patient then made gradual improvement mentally and in the use of right arm and leg; and on the twenty-ninth day, being up and walking about, was discharged.

Urine.—On the third day after the injury, the urine was found to contain a very small amount of sugar with a slight trace of albumin, and a specific gravity of 1.030. This was the only time that sugar was found present.

CASE 193, CLASS 5. C. H. C., age fifty-four, male. Service of Dr. Monks. On the morning of entrance patient was struck on the head by a piece of falling machinery; was brought to the hospital unconscious, cyanotic; no paralysis; respiration slow and stertorous; pupils fixed, and there was slight external strabismus of both eyes. Over right parietal and temporal regions was a large hematoma, beneath which nothing could be distinguished. There was no hemorrhage from ears, nose or mouth. An immediate operation was performed; on removing the flap over an area two inches in diameter, the bone was found comminuted and depressed, with line of fracture extending into nose. Beneath, the dura was badly lacerated. Between the bone and dura was a large clot from the middle meningeal, which was ligated. Fragments of bone and the clot were removed, and the wound closed and drained. Patient failed rapidly, dying nine hours after the injury. No autopsy.

Urine.—The only specimen of urine obtained was drawn by catheter about six hours after the accident, immediately before operation. It had a specific gravity of 1.022, the slightest possible trace of albumin, and 2.17 per cent. of sugar.

CASE 196, CLASS 5. T. O'C., age twenty-seven, male. Service of Dr. Monks. Twenty hours before entrance to hospital was assaulted in an unknown manner. Patient was unconscious, very restless and delirious, with no marks of injury about head. There was evidence of old hemorrhage from left ear, but otherwise physical examination was negative. Death occurred about thirty hours after injury.

Autopsy.—Over left occipito-parietal region there was considerable infiltration of the scalp over an area four inches in diameter. Skull was fractured, beginning at about one inch to the left of the junction of the occipital and two parietal bones and extending to the left, downwards and forwards, across parietal

and temporal bones, through the petrous, and stopping near the middle of squamous portion. There was no fissure or depression. Surface of brain vessels markedly injected with little free blood within arachnoid spaces. At the base pia moist and opaque, covered with a thick exudation of pus and serum. To a less degree, some exudation found along sulci from base to vertex. Base of frontal lobes bruised over an area one inch in diameter and one-quarter inch deep, also slight bruising at tip of left temporal lobe. Substance of brain moist and soft. Kidneys slightly enlarged, injected and granular. Organs otherwise normal.

Anatomical Diagnosis.—Fracture base of skull, contusion of brain and purulent meningitis.

Urine.—A catheter specimen was obtained immediately after entrance, twenty hours after the injury. The specific gravity was 1.030; it had a large trace of albumin, and sugar was present to less than one per cent., too small to determine quantitatively.

RESULTS.

Total number of cases examined 212; cases of glycosuria 20, or 9.43 per cent.

Class I. Number of cases 34; glycosuria 5, or 5.95 per cent.

Class II. Number of cases 43; glycosuria 4, or 9.3 per cent.

Class III. Number of cases 40; glycosuria 1, or 2.5 per cent.

Class IV. Number of cases 24; glycosuria 5, or 20.8 per cent.

Class V. Number of cases 21; glycosuria 5, or 23.8 per cent.

These figures show the results obtained in percentages of cases having sugar, taken both collectively and as they have been arranged in classes.

Assuming that of all the twenty cases which had glycosuria, none were diabetic before the injury, there is then a percentage of 9.43 in general for all classes of head injuries. This is fully as high as could be expected, considering the large proportion of the whole number of cases (167 out of 212) in Classes 1, 2 and 3. These would generally be considered as minor accidents.

It does not seem unfair to argue upon the assumption that in all the patients the glycosuria occurred as the result of the trauma and that they were not diabetic before. This seems especially reasonable when the fact is taken into consideration that of 1,563 patients, the whole number of accident cases admitted to the hospital for the same thirteen months during which the head cases have been studied, no case apart from those with head injuries was found to have glycosuria. As it is, there are only three cases out of the whole number—J. M., Case 112, Class 2; M. R., Case 119, Class 2; and M. K., Case 180, Class 4—in which there can be any question. From a careful study of these after the accidents and taking into consideration their previous histories, it seems very probable that a permanent glycosuria was consequent upon the head injury, rather than that a diabetes existed previously.

With the exception of Class 3, which shows a surprisingly small percentage of sugar cases, there is considerable increase in the number with each higher class. This is, as would naturally be expected, very noticeable in the increase of the last two over the preceding one. The difference between these two considered together, apart from the other classes, is not sufficient to be of any marked significance. It has been of considerable interest, however, to consider them separately in this paper.

In general, then, it can be said that all classes of head injuries taken together, about 10 per cent. mani-

fest glycosuria as the result of traumatism, while the severe cases, fractures both of the vertex and base, from 20 per cent. to 25 per cent. have glycosuria.

Sugar may be present in the urine following any head injuries, however slight. It is present much more frequently following severe injuries. From a diagnostic standpoint it is difficult to see how the presence of a glycosuria can render any assistance.

INJURIES TO THE SPINE AND BACK.

During the period over which our observations have extended, a limited number of cases of injury to the spine and back have been followed, but intentionally left out of the tables. According to Vogel,⁸¹ Warren,⁸² Ebstein⁸³ and others, transitory glycosuria, but more often permanent diabetes, may follow such injuries, and is considered by most of the above observers to be due to concussion of the spine. Of such cases seen in the hospital during the thirteen months, none presented sugar in the urine, although carefully sought for.

EXAMINATION OF THE URINE.

The greatest care has been used in the examination of the urine of all cases, and in each especial reference made to the test for sugar.

Fehling's solution was used for both the qualitative and quantitative tests. The routine qualitative tests were made as follows: Taking about three to five cubic centimetres of a freshly prepared Fehling's solution, boiling, and then adding five to fifteen drops of the urine, from which the albumin (if more than a very slight trace) had been previously removed. The solution was *not* boiled after the addition of the urine, but immediately set aside and carefully watched for a reduction. If no reduction of the copper appeared within an hour or two, it was set aside for twenty-four hours and again examined for a deposit of the suboxide of copper. The amounts of sugar which have been designated as a trace and a very slight trace, appeared only after twenty-four hours, and in every instance a distinct precipitate of the suboxide of copper was found. No effort to quantitate slight traces of sugar was undertaken, for such would have been useless. In every case, however, where the amount of sugar was sufficient, a quantitative test was made.

In most of the sugar cases the fermentation test was made, not as a means of quantitation, but to detect the presence of glucose; and in all cases in which it was used it proved confirmatory.

Albumin, together with casts and abnormal blood, was found in every case containing sugar, probably secondary, in most instances, to the renal irritation produced by the sugar, even though it had been eliminated only a short time.

Since acetone and diacetic acid are a frequent accompaniment of sugar in the urine, especially in the permanent forms of diabetes, it is of interest to note that they were not found in any of the sugar cases here recorded.

Ebstein⁸³ reports a case in whose urine acetone and diacetic acid were found, not until eight years after an injury, resulting in a permanent diabetes. As far as found, there is no literature bearing on this subject in those cases where sugar follows a head injury immediately or in a few days. It would appear, then—in cases J. M., Case 112, Class 2; M. R., Case 119, Class 2; and M. K., Case 180, Class 4, where there

is some question as to a permanent pre-existing diabetes—that a point in favor of a permanent glycosuria following the injury is the absence of acetone and diacetic acid.

AGE AND SEX.

The ages of the cases, where sugar was found, varied between four and a half and fifty-four years, and are quite evenly distributed between these limits. It is therefore concluded from such cases as here observed, that the age has no practical significance.

As regards the sex, very little of value can be drawn. Although 85 per cent. of the cases having sugar were males, yet it appears to be relative, much more, to the liability to injury (as among manual laborers) than to the sex alone.

DIET.

From the fact that the diet is oftentimes an important factor in the appearance and disappearance of sugar in the urine, it might be well to state, in a few words, that it had little or no attention in those cases where sugar was found. Following the injury, the patient had milk in sufficient quantities, until the general condition warranted a more generous and substantial diet of meat, vegetables, etc. It is therefore obvious that this question has practically no weight in the sugar cases considered.

CONCLUSIONS.

(1) That, after injury, sugar may appear in the urine as early as six hours, and disappear within twenty-four, the average time for its appearance, however, being from eight to twelve hours; for the disappearance of the same, from the fifth to the ninth day.

(2) That a small proportion of the cases may exhibit a permanent glycosuria from the date of injury to the head.

(3) That acetone and diacetic acid are rarely if ever found in such cases, excepting where the condition becomes a permanent glycosuria, and even then probably only after a number of months or years.

(4) That of the twenty sugar cases here recorded, eleven (55 per cent.) had received an injury to the right side of the head; five (25 per cent.) to the left side; three (15 per cent.) to the occiput, and two (10 per cent.) where there was no external evidences of violence.

(5) That it is impossible in the present state of the knowledge of the pathology of diabetes and glycosuria to draw any inferences from the autopsies which have been obtained. It was thought best, however, to report them in full.

(6) That there is little to be said in regard to the mortality. Of the twenty cases, eight died—six being the direct result of severe injuries, one from intercurrent disease, and the third probably from alcoholism. In the 212 cases, 16 were fatal, 50 per cent. of these having glycosuria.

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THE TREATMENT OF CHOREA, WITH SPECIAL REFERENCE TO THE USE OF QUININE.¹

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In January, 1893, as the result of a conversation with Dr. H. C. Wood of Philadelphia, I was led to try the effects of quinine in the treatment of chorea, during my service at the City Hospital. Quinine was given in eleven cases, but three of these failed to report regularly, so that they will not be considered.

In addition to the quinine the ordinary hygienic measures and regimen such as I ordinarily recommend in the treatment of chorea were employed. The children were ordered to be taken out of school, cold sponge baths were given daily, the diet was regulated and forced feeding was prescribed, the amount of out-of-door exercise was strictly limited, and as much rest as practicable was enjoined. No other medicinal treatment was given, not even cod liver oil or any malt preparations. Quinine was given in doses of from six to eighteen grains a day, the doses being rather smaller than those given by Dr. Wood, as at that time I did not know that he advised pushing quinine until cinchonism was obtained.

The results in the eight cases were as follows, details as to the clinical history being omitted:

CASE I. R. H., age twenty, single, a cigar-maker, came to the hospital on the 24th of February, 1893. She was a Jewess. Her mother had been under treatment at the hospital for rheumatism, and her younger sister had been to the out-patient department the previous year, suffering from a third attack of chorea. For three weeks she had had choreic movements of the left

arm and face; the movements being marked. There were no heart murmurs and she had never had rheumatism. She was given five grains of quinine three times a day.

On the 27th she reported that she had had severe headache, and had been unable to sleep. She had also been extremely emotional and hysterical, and the movements were more marked. The quinine was given only once a day.

On the 1st of March she was much better. She slept well and had no headache. The choreic movements could hardly be detected. She was given two and a half grains of quinine three times a day.

On the 3d no chorea could be detected, and she was much better. She was discharged with orders to report should there be any return of the trouble; but she remained well.

CASE II. Patrick M., ten years old, a school-boy of Irish parentage, came to the hospital on the 5th of May, 1893. He had had acute articular rheumatism all winter, and for four days he had had severe and general choreic movements. There was no cardiac trouble. He was given two grains of quinine four times a day.

On the 12th he was much better. The quinine was increased to four grains.

On the 22d the chorea had ceased, and all treatment was discontinued.

On the 26th he was discharged, well.

CASE III. Mary S., age thirteen, a school-girl of Irish parentage, came to the hospital on the 20th of March, 1893. She had had general chorea, worse on the right side, for two weeks, the movements being well marked. She had never had rheumatism and had no cardiac complications. She was given two grains of quinine three times a day.

On the 24th the movements were diminished. The quinine was increased to four grains.

She improved gradually, but on the 24th of April there was still some twitching. The quinine was increased to six grains.

She gained slowly and was discharged well on the 31st of May.

CASE IV. Addie L., age nineteen, single, a Jewess, came to the hospital on the 31st of March, 1893. There was a history of rheumatism in the family. She had had chorea and neurasthenia previously. For two weeks she had had general choreic movements, worse on the right side. She had never had rheumatism, and the heart was not affected. She was given two grains of quinine three times a day.

On the 3d of April she complained of more headache, but she slept better. The twitching was not changed.

On the 19th she was a trifle better, but she had been distinctly worse. The quinine was discontinued by my assistant, Dr. Burr, and she was given arsenic. She continued to improve, but discontinued treatment in May, before she was entirely well.

CASE V. Maud M., age nine, a school-girl, came to the hospital on the 17th of April, 1893. For ten days she had had marked choreic movements on the left side. She had never had rheumatism. There was some reduplication of the first sound of the heart at the apex, but no murmur. She was given two grains of quinine four times a day.

On the 21st the movements were worse and the quinine was increased to four grains.

¹ Read before the Boston Society for Medical Observation, December 3, 1894.

On the 1st of May she was still worse, the quinine was discontinued and arsenic ordered.

She improved steadily, and when last seen, on the 22d of May, just before I went off duty, she was nearly well.

CASE VI. James M., age twelve, a school-boy of Irish parentage, came to the hospital on the 15th of March, 1893. He had been irritable, and unable to write at school for a month, and for a week he had had marked chorea on the left side. There was no cardiac murmur and no rheumatism. He was given two grains of quinine three times a day.

On the 17th the choreic movements were worse, but he slept a little better. The quinine was given four times a day.

On the 20th the twitching had increased. The quinine was increased to four grains three times a day.

On the 27th he had improved a trifle. The quinine was increased to six grains.

On the 31st he was much worse, and the twitching had extended to the right hand. The quinine was discontinued, and arsenic and iron given. From this time he continued to improve, and on the 28th of April was well.

CASE VII. Ellen D., age thirteen, a school-girl of Irish parentage, came to the hospital on the 28th of April, 1893. She had had marked choreic movements on the left side for three days. She had never had rheumatism; the heart was somewhat tumultuous, but there were no murmurs. She was given two grains of quinine three times a day.

On the 19th of May, there being no improvement in her condition, the quinine was discontinued, and arsenic was given, under which she improved during the week she remained under observation.

CASE VIII. John D., age thirteen, a school-boy, came to the hospital on the 3d of May, 1893. He had had acute articular rheumatism during the winter. For four weeks he had had choreic movements on the right side. The heart was normal. He was given two grains of quinine three times a day.

On the 5th his condition was unchanged. The quinine was increased to four grains.

On the 8th there was still no change. The quinine was increased to six grains.

On the 12th he was worse. The quinine was discontinued, and arsenic given. Under this he improved slowly during the fortnight he remained under observation.

To sum up: in one case there was complete recovery in a week after treatment was begun, and in a second in three weeks, but, although this is rather a short time, it is not very remarkable for chorea to recover in that period. The third case recovered after being under treatment ten weeks. In five cases the quinine treatment proved ineffectual and arsenic was substituted, with distinct benefit in the majority of cases. With the exception of Case I, which recovered in a week, the results are neither remarkable nor satisfactory.

During this period Dr. Wood had published² the results of experiments on animals and had been putting his hypothesis into practice, reporting his results³ at a meeting of the Association of American Physicians in May, 1893.

² H. C. Wood: Choreic Movement, *Journal of Nervous and Mental Disease*, April, 1893.

³ H. C. Wood: Note on Use of Quinine in Chorea, *Transactions Association of American Physicians*, viii, 101, 1893.

In studying canine chorea Dr. Wood, in common with other observers, found that the movements continued after section of the spinal cord. He therefore concludes that the seat of the morbid process in chorea is in the cord. Although in chorea the motor function of the cord is somewhat impaired, he holds that the inhibitory motor function is still more impaired; that Setschenow's centres are too weak to arrest the voluntary movement as soon as its end is attained, and that in consequence the movement goes beyond the normal limits. Atropine paralyses the inhibitory function of the cord, and quinine stimulates it, and, in the first paper cited, he showed that the choreic movements in the dog were enormously increased by atropine, and completely checked by quinine.

In the second paper he gives the application of these theories. In six cases of canine chorea he gave quinine, with the result that in every case the movements were inhibited, and that in four cases the dogs recovered — canine chorea being usually a fatal disease. In two cases of chorea in children he gave quinine in doses of nine to twenty-four grains daily for seven and a half weeks, one case recovering, and one case being greatly improved. He reported eleven other cases communicated to him by others. In nine cases (in two of which arsenic had failed) the patients recovered in from three to fifteen days, after taking nine to twenty-five grains of quinine daily. In two cases quinine failed and arsenic was substituted; one of these cases did not improve at all, the other recovered.

These results are more satisfactory than my own, but they are hardly conclusive. I believe that in a certain number of cases of chorea very good results might be obtained by removing the child from the bad hygienic surroundings in which it lives, by giving a liberal and nourishing diet, instead of the tea, candy, and bread on which so many of them feed, by enforcing as absolute rest in bed as can be attained, and by judicious hydrotherapy, without the aid of drugs. Nevertheless, we cannot regard chorea as a self-limited disease, in spite of the recent theories as to its nature to which I shall presently refer, for in only too many cases the trouble is protracted and may even become chronic. I have never yet ventured to try a purely expectant treatment, and I fully believe that in many cases the attack is much relieved and shortened by the ordinary drugs in use, notably, of course, arsenic.

The ordinary methods of treatment will in many simple cases be followed by complete or nearly complete recovery in from four to ten weeks, and therefore the results in a part of these cases treated by quinine are no better than the results in other cases. I must admit that I have not seen recovery under other forms of treatment inside of a week, so that the cases collected by Dr. Wood are of more weight in supporting his theory than his own cases or mine.

I do not believe, however, that the use of quinine in chorea can be justified on the hypothesis of its action in stimulating the inhibitory motor functions of the spinal cord. That quinine may be of benefit as a tonic is of course evident, and it may have some influence upon the toxine that produces chorea. Chorea, however, cannot be regarded as a spinal disease. The pronounced cerebral symptoms, insomnia, irritability, headache, mental failure, and the distribution of the choreic movements, which are so often found to affect one side or even one limb predominantly, would of

themselves point to the cerebral origin of the disease, even without the evidence afforded by autopsies, which have shown the most marked changes in the cerebral cortex, although the basal ganglia and the cord itself have not been exempt. Choreic movements are not uncommon as a result of structural brain disease, but they are rarely if ever seen as a symptom of diseases of the cord. In canine chorea, on the other hand, which is not proven to be the same as human chorea, the changes are chiefly in the cord. It is possible that in some cases, such as those reported to the American Neurological Association in 1890 by Weir Mitchell, the morbid process may affect chiefly the cord, but such cases are rare.

It is furthermore possible that in the future we may differentiate several affections which are now called chorea. Huntington's chorea and the electric chorea of Dubini are now fully recognized as distinct diseases, having no connection with the ordinary chorea of childhood—Sydenham's chorea. Evidence is accumulating that in most cases of Sydenham's chorea we have to do with a disease of microbic origin, and the researches of Berkeley, Dana and Pianese have done much to confirm that belief. Other cases, including some of the rather rare cases which are alleged to be due to fright or to irritation, may be of hysterical origin. In chorea of microbic origin the toxine probably exerts its chief influence upon the brain cortex, especially in its motor region.

The hypothesis on which quinine is recommended for the treatment of chorea seems to me untenable, and the therapeutic results are based thus far on too few cases to warrant us in ascribing greater virtues to this drug than to arsenic. Not having the idea at the time of publishing the results of this very imperfect trial of the drug, the results of one season's trial did not seem to me of sufficient value to lead me to try it in my private practice or in my subsequent terms of service at the hospital, and I went back to my former custom of supplementing the rest and regimen with full doses of arsenic, associated if necessary with iron or other tonics, and, in case of great motor disturbance and restlessness, with sulfonal or other sedatives.

INTESTINAL INCISION AND DRAINAGE IN ACUTE PERITONITIS.¹

BY S. J. MIXTER, M.D.

WHATEVER the starting-point of the process, or however simple and comparatively safe its treatment by early operation might have been, the presence of a more or less general peritonitis renders the prognosis a very unfavorable one. In spite of removal of the band, suppurating tube, or sloughing appendix, together with irrigation and drainage by tubes or gauze, the abdominal distension increases, the paralyzed bowel refuses to do its work, and the patient generally dies.

On opening the abdomen of a patient with such symptoms, we find the intestines distended with gas, and containing also a considerable amount of liquid feces. They are red and rough, and the peritoneal cavity contains a large amount of cloudy or purulent serum and perhaps flakes of fibrin.

The mere fact of the great distention makes any search for the primary seat of inflammation difficult

and tedious, and often an almost complete evisceration is the only method by which we can make a satisfactory exploration.

It is impossible to handle the distended coils without using some force, and there is danger of tearing them or the mesentery, especially when returning them to the abdominal cavity.

An aspirator needle or small trocar may be used to draw off some of the gas, but there is always danger of leakage at the point of puncture. A free opening with the knife is much more satisfactory and thorough, and the openings are easily closed with the over-and-over stitch.

Given, then, great distention, I believe that it is safe to open the coils of intestine at as many points as may be necessary to thoroughly drain them. They should be drawn out of the wound, held over a basin, incised in one to four or five places, and thoroughly emptied. They should then be quickly washed off with hot water containing a little salt, sewed up and returned, and the operation completed.

It is astonishing what a large amount of foul-smelling liquid feces may be removed, two quarts being not an enormous amount.

So far we have considered only the mechanical reason for this procedure. There are also other reasons equally important. The bowel has a chance to contract and recover from its almost total muscular paralysis, and the danger of septic absorption from the fermenting feces is lessened. This latter is, I am sure, a great source of danger in these cases. Abbe, in his article on intestinal anastomosis, speaks of this absorption by the intestine as a frequent cause of death after operations for obstruction, and he recommends making an artificial anus, and closing it by a secondary suture of the gut. By means of free incision and evacuation, I have several times been able to succeed in these operations without the formation of an external opening.

When, however, the bowel seems to be thoroughly paralyzed, and there is reason to think that neither the stomach nor rectum will retain and absorb the necessary salts, stimulants or food, a temporary opening may be made in the cecum, especially if the external opening is in the right side, as in cases of appendicitis. This is best done by means of a curved tube with a button on the end, which is introduced through a small hole made in the most prominent part of the cecum, and tied in, so that leakage shall not occur around it, for the first twenty-four hours. This is packed about with gauze, and a rubber tube is carried from it out through the dressing. Through this tube we can draw off any gas or feces that may accumulate, and introduce our salts and stimulants with less trouble and much greater certainty than by the rectum.

It may be said against free incision of the bowel, that there is danger of subsequent leakage; but, after using this method in nearly twenty cases, I have never known it to occur. Many of the cases have recovered, and in nearly all that have died the bowel was examined after death and found to be tight.

Against drainage of the cecum, it must, of course, be said, that there is danger or probability of the formation of a permanent fecal fistula. I can only say that I have pursued this method in two cases, one of which recovered. In this case the opening has given little trouble, has been easily controlled by a pad, and

¹ Read before the Boston Society for Medical Observation, December 3, 1894.

now, some three months after the operation, is very small, and will, I think, close spontaneously; if it does not, the opening is in the wide part of the gut and directly under the scar, where it may be easily reached and closed.

In the second case, where the tube was tied into the cecum, the patient died in thirty-six hours after the operation, but with no distention. Dr. Cotton examined the abdominal cavity after death, through the wound, and reports as follows:

"Autopsy by wound (no cuts). Gauze removed. Parts in normal relation. Cecum projecting into wound; not strangulated; empty or nearly. Beyond the packing the bowels were barely dulled, and only here and there any vague suggestion of lymph. No flakes. Practically no fluid in abdomen. Lower hole of puncture tight. No adhesions. Upper hole imbedded in adherent bowel; both tight; both tight with considerable pressure applied through fluid contents. Appendix stump tight; no pus about it. Here and there, at juncture of mesentery and bowel, minute ecchymoses."

After the experience that I have had with this method, I feel sure that by it we can save certain patients that would otherwise die.

THE STOMACH TEST IN MURDER TRIALS.

BY GUSTAV LIEBMANN, M.D., BOSTON.

THE object of this test is to ascertain by the presence or absence of solid contents or by the intermediary stages of liquefaction of food found in the stomach how far the process of digestion had advanced, giving thus a clew as to the time at which death of the victim had taken place, provided the time of the last meal be known. In order to arrive at an exact, or at least approximately exact, conclusion, the first and imperative condition would be an uniformly established and acknowledged schedule of time, in which the different phases of digestion should be completed. If there be such a physiological law, from which there is practically no deviation, we should place full reliance upon the test; but if there be, in healthy people even, numerous exceptions or deviations, the test must of necessity be open to errors. Now I hold that this latter proposition is the true one. The food does not drop out of the stomach with the regularity of the shot that drops out of the cylinder in the new Connecticut hanging-machine. To be sure, in a good many cases it is disposed of in from four to five hours after eating, the time set down in the text-books as necessary for the completion of the digestive process. But, as a matter of fact, in almost quite as many other cases this term is exceeded by two to three hours; so that Leube, for instance, in order to determine the duration of digestion, never takes out the stomach contents before seven hours after the test-meal.

The different variations in the duration of the digestive process depend upon the following conditions:

(1) The length of time necessary to the transformation of solids into chyme in healthy individuals varies a great deal according to the digestibility of the different foods.

(2) The length of time necessary to expel the ingesta from the stomach into the duodenum in the healthy individual varies according to the quantities of food taken. Not only does it take a longer time

for larger quantities to be impelled on, but the motor activity of the stomach walls is diminished by the greater distention produced by the larger amount of food. Thus, pieces of meat are frequently found a day or longer after eating.

(3) The shorter or longer stay of food depends on the amount of acidity, which varies in different stomachs even within the border-lines of health.

(4) Much variation, even in health, is caused by individuality, by presence or absence of pepsin, hydrochloric acid, psychical factors, emotions (fright, fear, grief, or the opposite, as joy or exaltation).

We see, therefore, that owing to the many physiological variations which do not permit of any reliable deductions even in the healthy, the forensic value of this test must be considerably impaired. To be sure, if we had a perfectly safe and reliable standard of time, at the end of which digestion is completed and during the different phases of which certain changes of a physical and chemical nature must have been wrought with the accuracy of a clock, then indeed the test would be a reliable one. But, as we have shown, we meet with so many considerable variations (in some individuals the stomach is empty four or five hours after a test-meal; in others, only after eight or more hours), that a uniform standard time for the completion of digestion is out of the question. And, if this be so within the border-line of health, how much greater must these variations be in the dyspeptic; and yet, when the test is made, is there any attention paid to the possible diseased condition of the stomach? Not to my knowledge. And yet the chances are, that by reason of an atony of the stomach walls, of a chronic glandular gastritis or of a dilatation of the viscus the food has remained far too long in the stomach, and that the examiner will fix the occurrence of death, in accordance with the tardy progress of digestion, at an entirely too early a time.

On the other hand, there are stomachs, which in case their motive functions are unduly increased, expel their contents in an exceptionally short time—to the detriment of their possessors at that. And here the possibility arises, that the test might lead us astray in the opposite direction, in that the time of death would be fixed at a later time than warranted by the facts. The stomach is found empty; therefore the time of death is put down as having occurred at least five hours after the last meal, while in point of fact the emptying of the organ might have been complete three hours after that meal. To be sure, such cases are not the rule, but they are on record, and should be reckoned with.

From the foregoing it would therefore appear that this so-called stomach test, as applied at present to determine the time of death of the victim, is not alone inexact, but that there is even a great question whether it is approximately correct.

STERILIZATION OF DOCTORS. — It has been proposed by Gutmann that stations be erected in convenient localities in cities and large towns where physicians may go to be thoroughly disinfected immediately after they have visited a case of infectious disease, and before paying any further visits. The operation will take about fifteen minutes, and then the doctor may go about his business, proud in the consciousness of being clean and no longer a menace to the health of his fellows. — *Annals Hygiene*.

Clinical Department.

CALCULI OF THE KIDNEY, WITH HYDRO-NEPHROSIS.

BY W. H. PRESCOTT, M.D.

THE case which I wish to report is that of a woman upon whom I performed an autopsy February 15th. She was a patient at the New England Hospital for Women and Children, and I am indebted to the physicians of the hospital for the clinical history.

Mrs. C. P., age fifty-one, married, a German, was first seen by Dr. E. C. Keller in the spring of 1891, when she was suffering with an attack of severe abdominal pain, the symptoms being obscure. There was at this time a tumor on the right side, which disappeared with a great discharge of pus in the urine. She had no further trouble until her present illness.

She was admitted to the hospital January 31, 1893. On entrance, her appetite and digestion were poor; bowels irregular; insomnia; temperature 99°; pulse 112, weak and compressible; somewhat emaciated and

stools. Coffee-ground vomitus in afternoon. Died at 10.40 P. M.

The autopsy was made February 15th, thirty-six hours after death. Rigor mortis present. Lividity of dependent portions. Body well developed, but emaciated. Head and spine not opened. Spleen somewhat enlarged. On the under surface of the right lobe of the liver was an abscess extending about one and a half inches into its substance. The abscess cavity was filled with pus and shreddy masses. It was about the size of a small apple, and its walls were formed by the liver substance and the tissues between the kidney and liver, and was shut off from the general peritoneal cavity by adhesions. There was no peritonitis except in the region of the abscess. Bladder normal, and contained no calculi. Both ureters were somewhat dilated, the right one being blocked by a calculus the size of a thimble, about two inches from the pelvis of the kidney. The walls of both ureters were slightly thickened. Both kidneys were enlarged, lobular and fluctuating. The right was represented by a sac about the size of a new-born baby's head, the sac being filled with a sero-purulent fluid. Of kidney substance



cachectic; tongue red on tip and edges, dark pasty coating on dorsum. The amount of urine in twenty-four hours was 22 ounces, specific gravity 1.010, color pale, opaque, albumin in considerable quantity, pus corpuscles abundant.

February 1st. Physical examination showed a tumor in the right lumbar region, probably of the kidney; hemorrhoids; uterus larger than normal, with nodule in the right cul-de-sac.

February 2d. Consultation of attending surgeons. The mass outlined on the right side seemed to connect with the liver. It was sensitive, probably a pyo-nephrosis.

The patient has been losing *flesh* since November, 1892. Retains only milk. Throbbing headache and blurred vision. Occasionally abdominal pain, and tenderness on pressure, especially in the right lumbar region. Great thirst.

February 6th. Consultation with Dr. Arthur T. Cabot as to exploratory incision. The low specific gravity, absence of casts, and great thirst pointed to disease of both kidneys, and operation was contra-indicated.

February 13th. Patient became worse, weaker. Retains almost nothing. Less pus in urine. Watery

there was a piece about a quarter of an inch thick and one inch square in the upper part. There were four or five small calculi in this sac. The left kidney was about the same size as the right, and retained more of the kidney substance. The pelvis was much dilated, and almost entirely filled with a calculus (see cut) weighing fifty grammes and consisting of phosphates. There were numerous small calculi of the same composition, weighing altogether thirty grammes, in the numerous sacs of the kidney. All the other organs presented nothing abnormal.

The surprising thing about this case is the large amount of destruction of the kidney substance, with the short duration of the fatal illness. Of course, the first symptom was the sickness in the spring of 1891, nearly two years before death; but after a short period of illness she was apparently quite well until November, 1892, when the symptoms of her last sickness began. She was not sick enough, according to her story and that of her family, to wish a doctor until just before her entrance to the hospital, January 31st.

EXECUTION BY ELECTRICITY. — A bill for execution of death sentences by electricity has been introduced in the West Virginia Legislature.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY EDWARD REYNOLDS, M.D.

VALVULAR DISEASE AND PREGNANCY.

VINAY¹ has examined the hearts of 1,700 pregnant women, with the object of determining the prognosis of pregnancy in cardiopaths. Among these 1,700 cases he found 29 who were the subjects of cardiac disease, and of these 29 there were only four in whom the pregnancy exerted any deleterious influence upon the cardiac lesion.

He concludes that pregnancy should be forbidden only to those whose heart lesions are not well compensated. He regards albuminuria, dyspnea, hemoptysis, cardiac asthenia, and a social condition which would require the patient to perform hard work during pregnancy as the chief contraindications.

TUBAL PREGNANCY AND THE TREATMENT OF THE HEMORRHAGES INTO THE ABDOMINAL CAVITY RESULTING FROM THIS CONDITION.

Dührssen² suggests the advantage of preceding celiotomies for the acute anemia of ruptured tubal pregnancy by an infusion of normal salt solution. He meets the theoretical objection that this may increase the existing hemorrhage, by operating as soon as the patient's pulse improves, and by a report of successful cases.

MECHANISM OF THE CLOSING OF THE DUCTUS ARTERIOSUS.

Strassmann³ reports his exceedingly interesting studies of the mechanism by which the closure of the ductus arteriosus is effected. He has demonstrated from the fifth month in the human fetus a progressive development of the angle made by the anterior wall of the duct at its junction with the aorta, which at term forms a valve which is held open by the current in the duct, but must close before any regurgitant current. He has found similar conditions in fetal sheep, dogs and cats. The closure of the duct is a necessary consequence of the mechanical conditions which follow the first respiration.

During fetal life the full force of the right heart is expended in maintaining the blood current in the ductus arteriosus, and the valve remains open; but with the sudden expansion of the pulmonary arteries by the first respiration, the pressure in the duct becomes much less than that in the aorta; the valve immediately closes, and the closure is maintained by the immediate establishment of the permanent excess of pressure in the circulatory system of the left heart, which is characteristic of extra-uterine life.

The closure is prevented (1) if the first respiration is insufficient; (2) if premature respiration (that is, respiration before the air has access to the mouth) occasions sufficient pressure in the duct to overstretch it; (3) in some abnormal conditions of pressure in the large vessels; (4) in cases of incomplete development.

These conclusions are supported by post-mortem injections both through the aorta and through the duct.

HYDORRHEA GRAVIDARUM.

Chazan⁴ discusses the cause of this affection, and concludes that it may arise from several sources. In some cases the fluid may collect between the uterine wall and the membranes as a result of edema of the wall; in other cases it may be due to edema of the membranes; thirdly, he believes that it may be a serous discharge from a persistent allantoic sac; and, finally, he quotes a case in which after a diagnosis of hydrorrhea gravidarum had been made, an examination of the membranes after the birth of a healthy child, showed that the amnion was separated from the chorion, and that there was a hole the size of a quarter-dollar through the membranes at this point. He believes that in this case there was an intermittent drainage of the liquor amnii, and considers this as probably the cause of some cases of hydrorrhea gravidarum.

THE EFFECT OF VENTRAL FIXATION ON SUBSEQUENT PREGNANCIES.

Löhlein⁵ reports two cases of pregnancy in women who had been the subjects of previous ventral fixations. The first patient, a iii-para, had a fixation in July, 1892; menstruation ceased in April, 1893, and severe vomiting appeared in March. This was most troublesome in the third month, and was much worse than in her former pregnancies. In the sixth month bands could be felt extending from the abdominal scar to the wall of the uterus near the fundus. The delivery occurred at term, and during labor the bands were easily apparent, the abdominal scar being drawn up towards the fundus with each contraction of the uterus. In the following March the uterus was found to be in ante flexion, movable, and at a normal height in the pelvis. The author thought that there was a development of the band during pregnancy, and that it involuted with the uterus during the puerperium.

In the second case the uterus had been sutured to the abdominal walls at the end of a myomectomy in November, 1892. Five months later Löhlein was called to see her on account of uncontrollable vomiting, and found her to be three months pregnant. Labor was normal, at term. The fixation band was to be detected during labor, as in the preceding case, and the uterus was subsequently found to be in normal condition.

These cases are certainly interesting, as showing not only that a ventral fixation does not necessarily interfere with the course of a subsequent pregnancy, but also that the growth of the uterus may take place without destroying the band which results from the fixation. The author's conclusion that the severe vomiting in both of these cases may have been due to some other cause will hardly appeal to most minds.

THE PERMANENT RESULTS OF SYMPHYSEOTOMY.

Von Woerz⁶ reports ten symphyseotomies. One died of sepsis; one passed out of observation in good condition; eight were followed for a sufficient length of time to warrant a report of their permanent condition. Seven of them were capable of hard work without inconvenience; but of these one had suffered for some time from incontinence of urine, which was cured

¹ Arch. de Toc. et de Gyn., November, 1893.

² Deutsche med. Woch., 1894, Nos. 2 and 3.

³ Archiv. für Gyn., Bd. xlv, H. 3.

⁴ Centralblatt für Gynäkologie, 1894, No. 5.

⁵ Deutsche med. Woch., 1894, No. 11.

⁶ Centralblatt für Gynäkologie, 1894, Nos. 36 and 37.

by cold baths. One could not work on her hands and knees without pain in the sacro-iliac joints.

Braum⁶ reports eight symphyseotomies, with no death. Six are able to work without inconvenience; one suffers from incontinence of urine and sacro-iliac pain after lifting heavy weights; one has incontinence of urine after straining or lifting.

Among eighteen patients there was then one death, and one patient who passed from observation. Of the sixteen remaining patients, three cannot do heavy work without pain, but are otherwise well, and thirteen suffer no inconvenience.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL OBSERVATION.

J. C. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, December 3, 1894,
DR. S. W. LANGMAID in the chair.

DR. P. C. KNAPP read a paper on

THE TREATMENT OF CHOREA, WITH ESPECIAL REFERENCE TO THE USE OF QUININE.

DR. J. J. PUTNAM: There are several points which are very interesting in Dr. Knapp's paper. I am rather relieved that he takes the view he does with respect to quinine and to arsenic. In regard to the relation of the canine chorea to the ordinary chorea of children, it seems to me to be quite true, as Dr. Knapp has said, that we ought not to reason from one to the other. When we think how many affections there are which resemble chorea, and how long it has taken the neurologist to distinguish between them, it seems very doubtful if we ought to consider that the chorea of the dog is the same with the chorea of Sydenham. The mere fact that it is a spinal disease, whereas the ordinary chorea is almost certainly a cerebral disease, would be enough to make one doubt whether the same remedy would be likely to be useful for both. My own experience with quinine has not been great. I used it a few times, but seeing no benefit gave it up. I have believed very strongly in the arsenical treatment pushed to large doses, though it is true that cases do not get well which one would expect to get well, and it may be true for others that if we let them alone and treated them hygienically they would do well.

As to the origin of chorea, I should like to say that although it may be of microbic origin, the fact is yet to be proved. Dr. Dana's observations cannot be regarded as carrying great weight in that respect, although anatomically they are of much value. Pianese's reasoning was based mainly on observations with dogs, although he did find in the blood of certain choreic patients some organism which he thought to be characteristic, and with which he thought he produced movements comparable with chorea, by injecting them experimentally.

Dr. Knapp says the cases which occur suddenly from fright might be hysterical cases. I do not think I should agree with him there. It seems to me that if it is true that chorea is of microbic origin, it is also possible that it should be induced by fright. We know that the opportunity for microbes to develop

seems to be afforded by many agencies that do not have anything to do with the disease except in that way. I think chorea does occur from fright. I recall one case where a boy was startled while climbing a tree, and fell a considerable distance to the ground, and then and there began to have choreic movements, and when I saw him they were typical. It seems to me hardly reasonable to call such cases hysterical.

DR. PRINCE: I regret to say that I personally have had no experience in the treatment of chorea by quinine; but I have no doubt, speaking from general principles, that Dr. Knapp is correct in his conclusions. Reasoning *à priori* I should have very little faith in quinine. But in this connection I should like to say a few words on the treatment of chorea in general. I think all here will agree that there is scarcely any disease in which it is so difficult to determine the effect of treatment as it is in chorea. There are various reasons for this. In the first place, we are obliged very largely to rely upon hospital out-patients for our experiments; and here we are met by difficulties at the outset. In the first place, many hospital patients do not return to report final results. After they see they are better, they are apt not to return, and we do not learn the particular time when the patient has become well. In the second place, it is not always easy to say positively in a hospital out-patient clinic that a patient is well. We are obliged to rely on the statements of the mothers who are, as a rule, not particularly exact. I have always felt so uncertain regarding the exact period when the child was well, that I have sometimes felt discouraged in making up my mind as to the value of any particular treatment. In the third place, chorea varies much like other diseases in its course. Some cases run a very rapid course, get well in a few weeks, and others are prolonged for a very long time; so that it is very difficult, I think, to determine the effect of any treatment we wish to try. Now, there are two ways of testing a treatment. We may judge either by the apparent effect upon an individual case in shortening the disease, or we may have recourse to the statistical method. If we are to judge by the apparent effect upon individual cases as they come, it seems to me to be without doubt that arsenic, for example, does seem to have a beneficial effect. I would say that it is the rule that the parents report the next week after you have given arsenic that the child is better; and if we judge by that kind of evidence it seems to me arsenic must be regarded as beneficial. On the other hand, I am not so certain that that kind of evidence is of value. It is the general tendency of most people, as soon as they find that some one has taken the responsibility off their shoulders, to say that their children are doing well. Now it is frequently impossible in out-patient clinics for a physician in the short time he can give to a case to decide whether or not the choreic movements are increased or lessened. A child may twitch more from the excitement of the clinic or less from mental impression. The tendency of patients to say they are better is true of other diseases. I recall a rather pathetic case in my own experience. It is that of a man with paralysis agitans. Some years ago he came to the clinic for treatment, and I treated him with electricity. I had then more faith in the treatment by electricity of organic diseases of the spinal cord than now. I am afraid I had faith in it then for the same reason that I have faith in arsenic now—because it was the conventional mode of

treatment. I treated this man with electricity; and every week I asked him how he was, and every week he said he was getting better. I was quite satisfied he was not improving, but I had not the heart to tell him he was not better. It went on week after week and month after month, until finally it became necessary to tell him he was no better. He refused to believe me, and insisted that he was better. The next week he came back and shook his head sadly, and said: "Doctor, you are right; I am no better." That same thing is taking place to-day. I have another case of paralysis agitans that insists that she is better. She is not. The same thing is often observed in patients with locomotor ataxia, etc. I think it is a dangerous test, this relying upon the statement of the patient. But if that is true, the only other test we have is the statistical test. In chorea there are difficulties in obtaining statistics, and this difficulty is added to by the great variations in the course of the disease, in individual cases. Some cases get well in a very short time, some in a long time. Now, I want in that connection to refer to a very striking paper, which, although not on chorea, still is instructive as bearing on the conclusions to be drawn from the effect of treatment of any disease. I remember reading sometime ago a paper on the treatment of typhoid fever by the Brand method. The name of the author I do not at this time recall. It was a very able article. The writer, in order to find out what was the normal course of typhoid fever, and what was the natural mortality, tabulated the mortality in successive groups of cases of, I think, about 50 each, as they entered the hospital. The variations in the mortality of successive groups varied greatly, until, if I remember rightly, about 500 cases were recorded. It took about this number to obtain a standard mortality, and eliminate the element of chances. Now this is undoubtedly also true of other diseases. It takes a very large number of cases to eliminate the doctrine of chances, and I am quite certain that in trying to test our treatment of disease by the statistical method until we eliminate the effect of "chance" we cannot tell the effect of any drug. In that connection I will refer here as justifying this scepticism to a series of one hundred cases of chorea treated by sherry wine. These cases were reported in the *British Medical Journal*, in 1881, by Strange. The writer said he was in the habit of treating all his cases with sherry wine, three to six ounces a day; as a result chorea lasted from three to six weeks. Those are pretty good results. If with sherry wine a cure can be effected in three to six weeks, it seems to me that that is as good a treatment as we can have. It may be, of course, that sherry wine has some specific action in chorea, but one may fairly doubt it, as it does not seem plausible. Arsenic may have the same effect. I began sometime ago to try the expectant treatment of chorea, and gave a number of cases compound tincture gentian in a few drop doses. Unfortunately I did not carry the experiment far enough to arrive at results of value. Some of the cases so treated seemed to do about as well as the other cases; but they were too few in number to be of value. I do not wish to deny the action of arsenic. Until some comparative tests are made and the effect of the expectant treatment tried, I shall continue to use arsenic, but be sceptical regarding its specific effects.

Regarding the pathology of chorea I feel absolutely in the dark, and do not feel able to hold any opinion

whatsoever; but if I were obliged to make a guess as to what it is, I think I should guess that it is some form of auto-intoxication. I think it is the usual experience that it occurs among ill-nourished children. They are weak, debilitated, anemic and in poor general condition; and I cannot help suspecting that connected with that there is some poisonous principle in the blood which has this peculiar effect on the nervous system. But this is only a guess. It may be a poisoning from a germ-toxine.

It has been my lot to see very few cases of acute chorea in private practice. Such cases as I have seen have been chronic cases. I have not known whether to attribute this to the fact that most cases of chorea are treated by the general practitioner, or whether it has been simply my lot. I should like to ask the general practitioners here whether they see in private practice many cases of chorea, or whether it is a disease which is peculiar to the poor, as some authorities say. I think it is generally regarded as a disease peculiar to hospital practice.

DR. HAROLD WILLIAMS: I see a good many cases of chorea in my summer practice at Nantucket that are referred to me from different places. There the cases I have are all cases in private practice and most of them in the better classes of life. Dr. Prince speaks of anemia as being a cause of chorea. It has been my view that the chorea was more often the cause of the anemia; that the choreic child with its neurotic constitution and its difficulty in eating and swallowing, is usually poorly nourished because of the disease. I never have had any experience with treating cases with quinine, but Dr. Knapp's paper has been very interesting to me because he takes the same view apparently of chorea that I take. The cases that come to me are almost all of longer duration than Dr. Knapp has spoken of. I should say they are rather more than ten weeks and almost always have been treated by arsenic. It has been my habit to put them on hygienic treatment which I carry out somewhat further than Dr. Knapp does. I put the child to bed if I can, and have a nurse who is gentle to the child, who reads to it and amuses it. I think that is a very important thing, because it is a great question in my mind how great a part worry and fright play in the continuance of chorea; and whether it is the quiet or the change of food or what it may be, the cases almost always do very well. I have not statistics to speak from, but in seeing quite a good many of them, they almost always get well during the summer, and usually with two weeks in bed. It seems to me that rest is the most important part in the treatment of chorea.

DR. FAY: A year ago last summer, chancing to see, in the Carney Hospital, Dr. J. J. Minot treat a case by giving forty grains of quinine a day, with apparently very rapid recovery, encouraged me to try it on several cases in the out-patient department. I remember one case treated in the latter part of July with rapidly increasing doses, until on August 8th the child was taking twelve grains three times a day with cessation of the acute movements; but the recovery did not become perfect. Cinchonism was discovered after three days of these doses, and after omitting two days the remedy was renewed at ten grains three times a day, and this was sustained for several days. After that only a very light dose could be borne without cinchonism, and the child maintained a very good recovery. In several other cases a larger dose than three or four

grains could not be borne and rest and the usual tonics were resorted to.

DR. PUTNAM: It seems to me it is hardly fair in talking about arsenic to speak of it as if it was supposed to be a specific at all. There are other remedies which affect chorea. A child was given thirty grains of chloral by Gairdner, and slept soundly all night, waking in the morning comparatively well. I suppose very large doses of quinine which produce a profound impression on the nervous system would from time to time do good. I do not see that Dr. Prince does any more than to throw doubt on the other side, and after all, impressions are worth something, though doubts are also useful. I do not think the testimony of statistics is of much value; but one can really form a judgment of more value by examining critically the course of a single case than by statistics of a great many. If you see a patient sick for a long time and give him these powerful remedies, in certain ways, and see the child recover, it is fair to believe that the remedies were of value. The fact that fifty other children got well in a longer or shorter time than that one seems to me to have comparatively little to do with the question under consideration.

There is one class of cases which I think has not been referred to enough and that is the cases which one is in doubt whether to call chorea or not, where children have slight nervous twitching when supposed to be perfectly well, and I think if one could find with them that these slight movements could be inhibited by remedies it would be a very interesting matter. I think they are of importance as regards the theory of chorea, because if there is poison in one case, there ought to be in the other. We can hardly think of a microbic poison acting so long as we see it in these slight movements.

As to rest, I should agree with Dr. Williams and Dr. Knapp. With poor children it is difficult to carry it out. I think to force them to lie in bed is to give them the aggravation and excitement you want to take away. In all cases I have them lie down a half-hour at noon in blankets before dinner, and then have cold sponging.

A single word about the kind of children that have chorea. I have seen it now and then among rich people, although I should say among the delicate ones, but I think it is striking how it occurs in certain races. Negroes are poorly nourished, prone to syphilis and tuberculosis, but do not often have chorea; whereas Hebrews and Portuguese have it with great frequency. We see all these nationalities at the Massachusetts General Hospital and I should rate their liability as follows: Portuguese first, Irish next, Hebrews next, Americans next.

DR. PRINCE: If I may explain myself, I should agree entirely with Dr. Putnam if the conditions were always such as he describes. I can only say that with me they have not been such. If I could go into a private house and watch the movements of chorea from day to day, and should find that in individual cases after giving arsenic that the child began to improve at once, and if I should see that same chain of events happening in a number of children, I should think it fair to assume that arsenic was doing good. But I feel I cannot tell when children come into the room of a hospital clinic, except in extreme cases, whether they are improving or not, until so great improvement has taken place and so long a time has

elapsed that it is difficult to say whether it was time or the drugs that have been efficient.

DR. F. L. JACK: I had an idea that the cause of chorea was often reflex. I have in mind a case which I hardly know whether to speak of or not. It was one referred to me, not on account of the twitchings of the arm and face, but because of ear trouble. Upon examining the naso-pharynx a large mass of adenoids was found. I advised and performed an operation. The choreic movements were not considered at all. Two days after, the parents called my attention to the fact that the twitchings were noticeably less. In a week's time they had entirely disappeared, and I know the case ran on nine months without recurrence.

DR. LANGMAID: In regard to Dr. Jack's case, I should think it was not accident at all. It seems to me it was cause and effect, judging from other cases which have been reported. I wanted to ask Dr. Knapp if the fact that chorea in the dog generally followed distemper—as I think it does—is not possibly one reason why quinine has acted so favorably in those cases.

DR. KNAPP: I certainly can say nothing about that point, for my experience with chorea in the dog is too slight. Of course, there is a possibility as I suggested in my paper, that quinine may have some specific action, in case we assume either that the preceding distemper in the dog or the chorea itself be an infectious disease; as we know that quinine is given in other infectious diseases, relieving symptoms, reducing temperature. Of course, we see a certain number of cases of chorea in man that come on in connection with some acute infectious diseases, notably scarlet fever and acute rheumatism, but with regard to association of distemper in the dog with chorea I can say nothing.

My own experience has been, I think, the same as Dr. Prince's about chorea in the poorer classes. Certainly a very small proportion of the cases I see are in private practice, and they are apt to be the very chronic or the very severe acute cases of chorea. I have always had the belief that most of the ordinary mild cases of chorea in the better classes are treated by the family physician. Dr. Williams's suggestion as to rest is certainly a very excellent one. It naturally could not be carried out with hospital patients, and my own experience in private practice is that it is very difficult to keep a child who feels tolerably well in bed,—difficult, indeed, to get it to take more than a couple of hours' rest on a lounge or in bed during the day, even with some one to amuse it. I should like to keep every case of chorea in bed for a week or two at the first of it, but often the children are so restless that I let them get up, as the lesser evil.

DR. S. T. MIXTER read a paper on

INTESTINAL INCISION AND DRAINAGE IN CASES OF ACUTE PERITONITIS.¹

DR. J. G. MUMFORD: Any one who sees this manœuvre must be astonished at the extraordinary rapidity with which the patient is relieved by it. It is the same sort of thing as when we give salts or calomel and drain out the bowels, except that in the case of incision the drainage is immediate. The patient, already relieved of the painful distention, comes out of the ether in comfort. To my mind the only objection to the operation is that it takes up a great deal of time. If you open the bowel in three, four, five or more places and sew it up again I should suppose it would

¹ See page 206 of the Journal.

exhaust the patient's strength in very desperate cases. I suppose it is a choice of evils. The fecal fistula almost always heals in the course of a few weeks. It is very uncommon to have one persist.

Recent Literature.

First Aid in Illness and Injury. By JAMES E. PILCHER, M.D., Ph.D., Captain in the Medical Department of the United States Army. Revised edition, with 176 illustrations, 322 pages. New York: Charles Scribner's Sons. 1894.

Dr. Pilcher's idea has been to produce a book which shall be a manual for rapid reference in emergencies, not only for the soldier, but also for the civilian. He has tried to avoid all technicalities or procedures which require medical experience for their efficient employment. The subject is discussed in four parts.

Part I. The construction of the human machine. This is designed to furnish the reader with the knowledge of anatomy and physiology necessary to read intelligently the subsequent chapters.

Part II. The implements of repair. This includes asepsis, antiseptics, knots, bandages, dressings, and similar subjects.

Part III. Accidents and emergencies. This is devoted to a description of the most common emergencies and their appropriate treatment. The emergencies of the battle-field are discussed in two separate chapters.

Part IV. The care of the human machine. This briefly reviews sanitation, hygiene and dietetics.

To facilitate rapid reference the text is so arranged that the important facts are printed in large type. This enables the reader to separate at a glance the essential facts from accessory details or descriptions. The book is extensively illustrated, and has also a complete index. It is of convenient size for transportation. The chapter describing the ambulance-corps drill is an unusual feature, and is accurate. The book is well written, and contains much valuable information. Its author has collected many effective and practical methods of relieving the conditions which usually obtain in surgical emergencies.

Syllabus of Lectures on Human Embryology. An Introduction to the Study of Obstetrics and Gynecology. For medical students and practitioners. With a glossary of embryological terms. By WALTER PORTER MANTON, M.D., Professor of Clinical Gynecology and Lecturer on Obstetrics in the Detroit College of Medicine; Fellow of the Royal Microscopical Society, of the British Zoological Society, American Microscopical Society, etc. Illustrated with 70 outline drawings and Photo-engravings. 12mo, cloth, 126 pages, interleaved for adding notes and other illustrations. Philadelphia: The F. A. Davis Co.

This little work furnishes a brief synopsis of the facts of human embryology. The leading points are emphasized with clearness, so that the book may be conveniently used to refresh one's memory. It is in the main accurate, for we notice few errors; but the notes on the nervous system are far from presenting adequately even the main facts in our present knowledge of that part of the body. This is the only serious criticism against the book, which otherwise is excellent for its purpose.

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THE AMBULANT TREATMENT OF FRACTURES OF THE LOWER EXTREMITY.

THE adoption of the plaster bandage in the treatment of fractures of the lower extremity brought with it a marked shortening of the period of confinement to bed in these injuries. The patient treated by this method, instead of being confined to bed for a month or more, is able, under favorable circumstances, within three or four days to be up and about on crutches, a marked advantage to all patients, and especially to those who bear confinement badly. The results under this treatment, in skilled hands, have been shown to have been fully as good as those of the older methods of treatment, by splints, fracture-boxes, etc., and in many of our larger hospitals the plaster bandage has almost superseded all forms of splint, in the treatment of fractures of the leg, compound as well as simple.

An able and exhaustive editorial in the February number of the *Annals of Surgery* is devoted to the discussion of certain modifications of the plaster bandage, by which patients with broken legs are enabled to walk about, bearing their weight on both limbs, without support of crutch or cane, and without interfering with the union of the broken bones.

In 1891, Krause¹ published a paper on the treatment of fractures of the bones of the leg in walking patients.

Two years later, Korsch² published a paper in which he described the application of the ambulant treatment to compound fractures and fractures of the thigh. He applied his plaster bandages directly to the skin, without intervening bandage or padding.

Bruns, of Tübingen,³ described a method of treating fractures of the thigh by splints made of metal rods and leather straps, the whole leg being suspended, and the weight being brought on the tuber ischii and perineum.

Dollinger, of Budapesth, in 1893,⁴ described a re-

¹ Deutsche med. Woch., 1891, No. 13.

² Berl. klin. Woch., 1893, No. 2.

³ Beiträge zur klinische Chirurgie, x Band, 2 Heft, 1893.

⁴ Centralblatt für Chirurgie, No. 46, 1893.

movable splint for the ambulant treatment of fractures of the leg.

Bardeleben⁶ discussed 116 fractures of the leg patella and thigh, including osteotomies for genu valgum, and compound fractures, treated by the ambulant method.

The advantages of early locomotion, in addition to the great convenience and comfort of the patient, are the prevention of atrophy of the muscles and stiffness of the joints. Delirium tremens is said to be almost unknown in patients treated by this method. The treatment to be successful must be carefully carried out. The bandage should not be applied till the third or fourth day. If any swelling is present when it is applied, it must be removed in a few days, that is, after the subsidence of the swelling, and a new one applied to fit the now altered contour of the limb. In compound fractures, after the first few days have shown that no sepsis is taking place, the ambulant bandage may in the majority of cases be applied.

Korsch demonstrated before the congress at which Bardeleben's paper was read, seven cases, three of the thigh, and four of the leg, in which the ambulant treatment had been practised with good results. In fracture of the thigh passive extension was accomplished by the application of plaster directly to the skin of the malleoli, the dorsum of the foot, and the heel, counter-extension being provided by a Thomas splint of heavy wire, incorporated in the plaster bandage, which extends as high as the tuber ischii. Albers reported at the same congress seventy-eight cases, fifty-six fractures of the leg, five of the patella, sixteen of the thigh, and one of both leg and thigh treated by the ambulant method. Consolidation in malleolar fractures took place in three weeks; in fractures of the middle and lower thirds of the leg in five to six weeks. Fractures of the middle and upper thirds required from three to fourteen weeks. Fractures of the thigh treated early united in from four to five weeks. A compound fracture, converted into a subcutaneous fracture by suture, walked about after the eighth day, and was consolidated on the twenty-seventh. A patient was presented at the congress who ten days before had been run over, sustaining a compound fracture of the left leg and thigh. On the fourth day a "gehverband" was applied, and he walked with the aid of a crutch and cane. In three of Albers's cases of fractured thigh there was no shortening, and in only one case did the shortening amount to three centimetres.

Krause in the discussion at the same congress, claimed to have employed the ambulant treatment for seven years. With regard to the question whether consolidation takes place more rapidly under the ambulant treatment than by the older methods, he presents a table from Paul Bruns which shows in the main that except in fractures of the fibula, which consolidate much more rapidly under the ambulant treatment, there is little difference in the time of union of

fractures of the lower third of the leg; but in fractures of the upper third consolidation takes place much earlier. In all these fractures, however, the patients are able to go to work without splints much earlier under the ambulant treatment.

Krause is of the opinion that the ambulant treatment must be limited to fractures and osteotomies in the region of the malleoli, the leg, and the lower end of the femur. He does not employ the method in oblique fractures of the femur or fractures of the neck of the same.

In this country Warbasse has practised the ambulant treatment on six fractures of the leg in the service of Dr. L. S. Pilcher, at the Methodist Episcopal Hospital in Brooklyn. Warbasse does not apply the plaster bandage next the skin, but applies first a flannel bandage from the toes to just above the knee. Twelve or fifteen layers of cotton wadding are included in the flannel bandage beneath the sole of the foot, and the plaster bandage is reinforced by longitudinal turns beneath the sole, and made to fit snugly about the enlargement of the upper end of the tibia. By this method it will be seen that the foot is suspended so that no weight comes on the lower fragment, the weight of the body being borne on the diverging surfaces of the upper end of the tibia, exactly as it is in an artificial leg for an amputation at the point of election. The results in the six cases were as good as those treated in the simple plaster bandage, and some of the patients were able to leave the hospital within three or four days, walking on the injured limb, and returning of course, daily, for observation.

The advantages of the ambulant treatment to the patient, if equally good results can be attained, are obvious enough. On the part of the surgeon it requires much greater care and watchfulness than the older methods. As has been pointed out, the bandage must be changed whenever the subsidence of the swelling has allowed it to become even slightly loosened, for in an ambulant patient the free play of the muscles would be extremely likely both to cause shifting of the ends of the fragments and delayed union or deformity.

As an objection to the general adoption of the treatment in this country, it has been stated that German surgeons were satisfied with results which in this country would bring disrepute upon the surgeon responsible for them. The results attained by Warbasse, however, leave little to be desired. Theoretically, there seems to be no reason why certain uncomplicated fractures of the lower limb cannot be so protected and confined as to allow the patient to walk about during treatment. The treatment, however, can be safely adopted only by those especially skilled in the application of plaster bandage, and should not be attempted under circumstances where the case cannot be constantly and carefully watched. A more extended trial on a large scale, in competent hands, is necessary to establish its value, and the evidence now at hand may be considered to warrant such trial. In the treatment of cases in

⁶ Verhandlungen der deutsche Gesellsch. für Chir., 1894.

which confinement to bed is likely to produce delirium tremens the advantages are certainly great enough to justify the attempt.

Korsch's method of applying the plaster bandage next the skin, we think will hardly meet with favor in this country, the danger of pressure sores with their attendant disadvantages being too great. There seems to be no reason why a smooth flannel bandage applied next the skin should interfere with proper immobilization, while it would certainly be necessary to prevent abrasions in walking patients.

A METROPOLITAN WATER-SUPPLY.

A SPECIAL report upon a metropolitan water-supply, recently made to the Massachusetts Legislature by the State Board of Health, will attract much attention. It promises to provide a water of much better quality than Boston has thus far succeeded in getting, to a population of nearly two million people. It is possible to furnish this better water, because the country from which the supply is to come is the sparsely settled territory on the southern and eastern slopes of Wachusett mountain, with a poor soil, and possessing no temptations to a manufacturing population; moreover, it is comparatively free from swamps, the presence of which gives so decided a color to the waters of the Sudbury, Boston's present chief source of supply.

The plan now presented has the additional merit, that still other sources of very pure water, sufficient for any period of time for which provision should be made, can be conveniently and cheaply united to this new supply.

The important hearing before a committee of the City Council of Boston some ten years since, is probably still remembered by careful readers of the JOURNAL. Upon that occasion many of our prominent physicians and other citizens insisted upon the more thorough removal of the soil from basins intended for the storage of water used for domestic supply.

It will also be remembered, how great the improvement was, that followed the application of this treatment to two of the basins of the Sudbury system, which had at first not been so treated; acting upon the instruction of that lesson, the authorities of Boston have caused the more recent basins, constructed on the same water-shed, to receive a more elaborate preparation even.

Such experiences as these of the City of Boston, in connection with the results obtained at the experiment station of the State Board of Health at Lawrence, prove that the great basins of a water-supply cannot be too carefully prepared for their work. So decidedly of this opinion does the board appear to be, that they state that nearly \$4,000,000 of the \$19,000,000 estimated to be the total cost of the new supply are to be spent upon measures of preparation immediately designed for the purpose of getting a colorless and attractive water, equal to that found in Lake Winnipeg.

For more than a generation men have looked to this New Hampshire lake as the ideal water-supply for the greater Boston. This report seems to have, at last, restored this charming pleasure resort to the unhampered enjoyment of the people of the whole country. It is altogether probable that the State of New Hampshire would not surrender its control of the lake, to begin with; and it now appears that the water is to a certain degree polluted and likely in the future to become much more so, and therefore undesirable.

At first sight it is a surprise to find the board turning away so decidedly from the scheme to bring down to the metropolitan district the filtered waters of the Merrimack. It was understood that they have been satisfied with the results of the use of the filtered water at Lawrence, and some threatened legal complications might have been avoided by taking water at a point where citizens only of this State were to be affected. But we must confess that the conclusion arrived at to pay a little more and take a water above suspicion, is sound and will, we believe, meet with general approval. It has been both wittily and wisely said that what we demand of a drinking-water is not repentance but purity. There is another objection to be urged against a great filter plant employing a hundred or more attendants, which is not mentioned, although the board may have had it in mind, and it is this—the possibility of a strike among the workmen, and the consequent disturbance in the supply of the most important need of our lives.

From beginning to end the report is full of interest, and should be read by every physician within the proposed district.

NERVOUS DISEASES AND MODERN LIFE.

DR. CLIFFORD ALLBUTT, in the *Contemporary Review* for February, 1895, discusses the subject of "Nervous Diseases and Modern Life."

His lengthy article, whose prolixity is only relieved by its rhetorical brilliancy, is written from an optimistic standpoint, and opposes the prevalent view that nervous diseases are on the increase.

We may admit the arduousness of the struggle for existence without conceding that the civilized races are degenerating, and that in the evolution of our race the complex brain is becoming more and more unstable, and more prone to be upset by faulty surroundings and high-pressure life. In spite of the more direct and brutal elimination of the unfit among savages, we see obscurely in the gloom of the past or of the remoter parts of the earth that possession by devils, attacks of fury, hallucinations, frenzies and epidemic manias have been at least as common in savage peoples as in our own. On this point Dr. Tyler ("Primitive Culture") gives some striking facts.

Again, there are many diseases classed as nervous diseases which may not strictly belong to this class, or only belong to it in an anatomical sense. When disease of the skull invades the brain, the resulting

disorders are not to be regarded as primarily nervous; so, again, if the brain suffer from disease of the blood-vessels, we ought not to regard the consequent disorders as nervous in their nature. Again, certain specific affections of the nervous tissues may be secondary to intoxications, such as lead, alcohol, diphtheria, influenza, and so on; and in such cases we must acquit the nervous system of primary defect.

Dr. Allbutt believes that the widest observation will show that by virtue of its more and more complete adaptation to the varying degrees and kinds of social pressure — that is to say, of its very complexity — the nervous tissue, delicate as it is, exquisite as it is, shows a tenacity and persistence beyond most others. Old age rarely enters by the paths of the nerves or finds its first seat in the cerebral centres. If the circulation be maintained, and the excretions do not fail, the brain of old persons retains a marvellous efficiency.

Dr. Allbutt's paper brings out forcibly the relation of work to the nervous system. It is not systematic work that does harm so much as prevalent vices and sins against obvious hygiene. Distress, anxiety and worry are factors rather of alimentary and cardio-renal than of nervous disease. Many a nervous breakdown begins in a derangement of digestion; and in most instances of neuropathy ascribed to overwork, it is rather the conditions under which work is done than the work itself which has done the mischief. Many a woman works away mechanically, regardless of the hours of rest, taking little or taking improper food, poisoning her nerves with tea and her blood with impure air, and then becomes 'nervous and hysterical. On the other hand, the men or women who, having inherited a fairly stable nervous system, work their brains so as to get most out of them, who are temperate in meat and drink, and take care to breathe fresh air, will have little complaint to make of nervousness.

"Morbidity and vice apart," says the writer, "the nervous system bears ill usage as well as any other part of our bodies."

General paralysis is, no doubt, a disease of towns, and more and more, therefore, of modern life. That it has, however, no close dependence on brain work or the hurry and worry of business, is evident from its frequency among soldiers and sailors, who, although they frequent towns, belong rather to the country or the sea. The characters of this disease are such as, in the estimation of Dr. Allbutt, might warrant its classification apart from the primarily nervous, and perhaps among the infectious diseases.

It might be supposed that insanity is on the increase in certain arduous business pursuits, where the nervous wear and tear is exceptionally severe; but here, too, according to this writer, there are no official returns to justify any such inference. On the contrary, we find it just as prevalent in other callings in which nervous and mental strain is not an important factor. Classification of the insane by calling has thrown as

yet but little light on causation, except in so far as the negative results fortify the belief that insanity is rather a result of physical degeneration and of hereditary transmission than of overwork and anxiety. "The increase of insanity is greatest," says Dr. Ogle, "in the agricultural laborer who does not speculate in stocks, and who lives in Arcadian peace and simplicity."

Grim as are the stories of individual trials and sorrows which are told to the physician, madness is a rare consequence of these trials, if we set aside the cases of persons predisposed to the disease. On the other hand, Dr. Allbutt says, "insanity is common enough in quiet old maids, in careless lads and lasses, in humdrum and respectable citizens of all sorts, in rustic squires, in the country clergy, in retired students, in mothers of peaceful homes, and so forth. And of most of these, whatever their lives may have been, we shall find a record of previous insanity in the family tree."

As far as statistics give any light on the subject, it has been shown that the number of insane persons officially recorded is lower by ten per cent. than the number returned as insane at the last census. This is in spite of the fact that demented and insane persons, formerly kept at home or in work-houses, are being more and more massed in asylums, and thus brought under official cognizance.

The Asylums Committee of the Dorsetshire County Council in the last report announce an ebb in the tide of insanity, and to the same purport, according to Dr. Allbutt, is the Registrar-General's Report in the census of 1891.

Finally, Dr. Allbutt insists in glowing terms that there is not degeneration but marked improvement in the physique and nervous stamina of the race; the young men and young women of to-day are stronger and more robust than their predecessors. This he attributes principally to the better sanitation of the present day, and the more scientific regulation of all the habits of life. In the case of women, it is "the enfranchisement of their faculties in a liberal education," and their greater freedom to choose their callings. The general answer, he says, to those who prate of our over-educated and over-pressed boys and girls is "Fudge." "We do our best to hurt them by our clumsy and indiscriminate methods, and we do some harm here and there; but happily there is a fund of elasticity and *insouciance* in healthy youth which, blunder as we may, we cannot crush. I have met with a few cases of naturally healthy undergraduates exhausted by intense study extending over some years; but such cases are rare, and in even these I suspect that want of exercise, fresh air and change of scene were more to be blamed than study itself."

We have heard of such cases in England, and they are from time to time reported in this country; generally the whole story is not told. Neither study nor athletics, as a rule, kill or disable young people, but ignorance and foolishness.

MEDICAL NOTES.

CHOLERA IN CONSTANTINOPLE.—In the week following February 8th there were sixty-one cases of cholera in Constantinople, and twenty-nine deaths.

THE CONGRESS OF GERMAN SURGEONS.—The Twenty-fourth Congress of German Surgeons will be held at Berlin from the 17th to the 20th of April next. Professor Gussenbauer will preside.

A MONUMENT TO BILLROTH.—A monument to the memory of Professor Billroth will soon be erected in the court of honor of the University of Vienna. The Council of the Faculty has also decided to erect a monument to Skoda and Rokitsansky.

JOURNALISM IN JAPAN.—Japan, says a writer in *La Médecine Moderne*, has now over 400 daily journals and 300 reviews. The pioneer in journalism in Japan is said to have been the proprietor of a patent medicine who started a journal to advertise his drugs.

THE TREATMENT OF TUBERCULOUS MENINGITIS.—Dr. R. Hirschberg reports a single case which was successfully treated by trephining and drainage of the sub-arachnoid space. The effect of the operation was remarkable, the headache ceased, the pulse became more rapid, the commencing coma disappeared, as well as the vomiting.—*Bulletin Général de Thérapeutique*.

UNUSUAL POSITION OF A PRIMARY LESION.—Dr. Voll, of Würzburg, reports in the *Münchener med. Wochenschrift* for January 29th, a case of syphilis in a twenty-two-year-old woman, in which the primary lesion was situated on the back over the tenth rib about eight to ten centimetres from the middle line. The manner in which infection occurred in so curious a position, he leaves to conjecture.

A SERIOUS ATTACK OF HOMESICKNESS.—It is said to be extremely difficult for natives of Brittany to become acclimated outside their native province. An illustration of this fact was given recently in the 162d regiment of French Infantry in garrison at Commercey. This regiment received an addition of eight hundred young soldiers from Finisterre and Morbihan and within eight weeks two of them had hung themselves on account of homesickness.—*Le Progrès Médical*.

A NOVEL REASON FOR NOT INJECTING SUBJECTS FOR DISSECTION.—According to *La Médecine Moderne*, the sanitary authorities of Kieff have complained of the cadaveric odors which emanate from the dissecting rooms of the medical school in that city, and are a nuisance in the neighborhood. It seems that the medical faculty do not allow the subjects for dissection to be preserved by antiseptic injections, for the reason that this would prevent the students from acquiring practical experience in medico-legal autopsies!

ANTITOXIN OF DIPHTHERIA IN CLEVELAND.—Dr. A. P. Ohlmacher, director of the pathological and bacteriological laboratories of the medical department of the University of Wooster, Cleveland, O., claims to

have rendered a horse immune against diphtheria in one month and sixteen days, a remarkably short period. He also claims that this horse is the first one rendered immune to diphtheria in this country. As soon as he has standardized the serum, he proposes to begin to use it on patients, we hope with successful results.

A HOSPITAL INTERNE TREATED WITH ANTITOXIN.—M. Chabry, an interne at the Hôpital Trousseau, recently contracted a severe type of diphtheria while he was on duty in the diphtheria wards. As soon as the membrane appeared in the pharynx and the Löffler bacilli were found, he was given thirty cubic centimetres of the antitoxin from the Institut Pasteur. His condition, which was grave on the day of the injection, improved markedly on the day following. The serum injections were repeated, and he was soon out of danger. It is certainly sad to think of the number of hospital internes dead of diphtheria whose lives might have been saved by antitoxin.

A NEW NAME FOR THE CARTILAGE OF WRISBERG.—Prof. B. Fraenkel, of Berlin, has lately established the fact that the little cartilage in the ary-epiglottic fold, known as the cartilage of Wrisberg, was first described by Morgagni in the *Adversaria Anatomica*. It was rediscovered in 1770 by the German anatomist Perer Camper. Fraenkel therefore proposes that the proper name be dropped and that the cartilage be designated simply by the term cuneiform, as suggested by Cuvier.—*La Médecine Moderne*.

PHOTOGRAPHING THE UTERUS.—The *American Practitioner and News* is authority for the statement that a Swiss physician has described a method of dilating the uterus by means of tents, so that by the use of a mirror a perfect view may be obtained of the interior of the organ. Not content with this, however, he is enthusiastic enough to desire to obtain photographs of the uterine interior in various diseases of the organ. The future of woman is sad indeed if now her womb must not be only felt of, sounded, and measured, but photographed as well.

THE GERMAN MEDICAL CONGRESS.—The value of antitoxin serum in the treatment of diphtheria is one of the principal subjects set down for discussion at the German Medical Congress to be held at Munich from April 2d to 5th. The subject will be introduced by Professor Heubner of Berlin, and Prof. A. Baginsky of Berlin will read a paper on the subsidiary effects of the serum. The other subjects selected for special discussion are the therapeutics of iron, to be introduced by Professors Quincke, of Kiel, and Bunge, of Basel; and the pathology and treatment of typhlitis, to be introduced by Professors Sahli, of Bern, and Helferich, of Greifswald. An exhibition of apparatus, instruments, and preparations will be held during the Congress.

SYMPHYSEOTOMY IN ENGLAND.—At the annual meeting of the Obstetrical Society recently, Dr. Walter Griffith showed a patient upon whom he had performed symphyseotomy on October 19, 1894, at Queen Charlotte's Hospital. She was thirty-two years of age.

and a primipara. There was pelvic contraction, the true conjugate being three and one-quarter inches. The patient made an excellent recovery, and when exhibited was able to jump down from a chair. She was in very good health, and perfectly able to attend to her work. Dr. Griffith commended Tarnier's practice, in so far as the distinguished French obstetrician's method of performing symphyseotomy was concerned, but did not agree with the theory that the forceps and induction of premature labor ought to be discarded. — *British Medical Journal*.

AN EPIDEMIC PREDICTED. — Colonel Maurice calls attention, in the *United Service Magazine*, to the Chinese claim that there are 500,000 men massed around Pekin. This force has already been there for some time, and it is likely to remain for several months longer. It is an elementary maxim of military tactics that a large force of men should not be gathered until a short time before they are to be employed; otherwise an epidemic, resulting from enforced lack of sanitary arrangements, is almost inevitable. Therefore, the writer predicts that as soon as warm weather begins in the spring there will be a most frightful outbreak of pestilence in some form or other, probably in many forms, but beginning with malignant typhus in its most virulent shape. Colonel Maurice suggests that while there is yet time all foreigners in Pekin be withdrawn under adequate protection.

"ONE MAN ONE JOB." — The February number of the *Practitioner* gives the following story told by Sir George Johnson, president of the Royal College of Physicians, at a dinner of the Laryngological Society, in illustration of the extraordinary firmness with which this one-man-one-job principle is rooted in the public mind. "He (Sir George Johnson) was once sent for to see a lady who had consulted him several times for some affection of the throat. He found that she was suffering from Bright's disease. When the husband was informed of his wife's condition, he at once sent for another physician, taking it for granted that Sir George Johnson's knowledge did not extend to the kidneys. The poor lady died in a few days of her renal complaint, having very possibly fallen a victim to the absurd delusion that each man must have his own little 'allotment' in the human body, and must not trespass on any other."

A CASE OF MALPRACTICE. — Dr. Farnsworth, of Clinton, Ia., reports the following case in the *Medical and Surgical Reporter*: "The Spitz dog of a highly respectable family of this city had a difficulty with his throat. Respiration impeded; deglutition difficult. The carriage was ordered out and 'Tip' was taken to a leading surgeon. The latter diagnosed stenosis or tumor of the larynx in the neighborhood of the vocal cords, as Tip's bark had sailed away and was lost at C. An examination confirmed this diagnosis, and under chloroform an operation was performed. The dog died. At post-mortem examination it was found that some one had slipped over his head a rubber band such as druggists use to tie up packages. It had worked

through the hair and bedded itself in the skin. In any case it was the cause of the dog's death, and the bereaved are now querying where to fix the blame."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, February 27, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 59, scarlet fever 30, measles 23, typhoid fever 2.

A STEP TOWARDS EXTRA-MURAL TEACHING. — The Medical Faculty of Harvard University has voted to authorize approved physicians having the necessary facilities and desirous of teaching its medical students, to announce their courses yearly in the Medical School. Such announcements should be sent to the Committee on Applications to Teach, which consists of E. H. Bradford (Chairman), R. H. Fitz, W. T. Porter.

FOUR YEARS' COURSE AT THE YALE MEDICAL SCHOOL. — The faculty of the medical department of Yale University has decided to extend the course from three to four years, and a committee has been appointed to perfect plans for the new course.

Miscellany.

HEROIC TREATMENT.

In an article in the *Edinburgh Medical Journal*, on "An Episode in Medical History," Dr. G. W. Balfour gives an account of the extent to which the treatment by blood-letting was carried when at the height of its popularity. The case of Betsey Moffat, reported in the *Edinburgh Medical Journal* for September, 1865, is well worthy of record. Dr. Balfour's account is as follows: "Admitted to hospital with a sharp attack of pneumonia, she was freely bled from the arm, besides undergoing other lowering (so-called antiphlogistic) treatment; in a fortnight she was dismissed as cured. Ten days subsequently she was re-admitted with a recurrence of all her symptoms, and a pulse of 130; she was treated as formerly by repeated venesections, etc. After two days she lay insensible, with a feeble pulse of 104, and a rattle in her throat like one dying; even her physician, Professor Gregory, admitted that she could not be further bled; but after he had stimulated her with hartshorn and sack-whey, he was able before leaving the ward to apply a few leeches to her head, and he was subsequently able to take four ounces of blood from her arm. It is satisfactory to find it recorded that Betsey Moffat recovered. One scarce knows whether to admire most the boldness of the physician or the luck of the patient."

Dr. Balfour ascribes the popularity of blood-letting at that time to the confidence established by the physician, who when in doubt, has recourse to bold measures, and if successful, acquires the reputation for daring and courage in life-saving treatment. If death occurs after such treatment, the statement can certainly be made that the most radical treatment has failed to give relief, in spite of prompt and thorough resort to it.

Dr. Balfour gives the following anecdote to establish the principle that among rude and savage peoples any treatment that shows power is regarded with respect, and does no harm to the practitioner, whatever becomes of the patient:

"What devil is in this salt?" said an Afghan physician to the traveller Ferrier, showing him some cyanide of mercury; 'for of a hundred patients to whom I have given it only one has survived.' This active practice did the physician no harm among his barbarous compeers, with whom weakness is the only unpardonable sin."

That in our day this position of things is reversed is shown by the success of quacks who advertise the treatment of cancer, etc., by palliative measures, and gain a large practice at the expense of regular practitioners who have advised operation as the only method of treatment which can give hope of success. In many ways we seem to have degenerated since the days when heroic treatment ensured a physician's popularity. The "rude and savage peoples" who respect any treatment which shows power, would often stand a better chance of getting well, than many of the more highly civilized members of modern society.

Correspondence.

A DEFINITION OF INFLUENZA.

LAWRENCE, MASS., February 22, 1895.

MR. EDITOR:—A clerical acquaintance defines influenza (grippe) as "a 'cold' possessed of the Devil."

Very truly yours,

C. G. CARLETON, M.D.

QUESTIONS ABOUT DIPHTHERIA ANTITOXIN.

NASHUA, N. H., February 18, 1895.

MR. EDITOR:—For my own benefit—and I think it would interest the medical profession—I would be thankful to you if you would kindly answer the few following questions about diphtheria antitoxin in the JOURNAL.

(1) I have seen that in London an eminent physician reported to a medical society that Behring's antitoxin caused albuminuria and casts were found in the urine. Have those effects been noticed here, with Behring's or any other antitoxin?

(2) I have seen notices that antitoxin (German) would gain strength for a few days or weeks, but after some time it would lose its properties. Is this true?

(3) If this (in No. 2) is true, antitoxin must therefore be fresh to have its full curative and preventative effects?

(4) Would you kindly inform me how long antitoxin will keep?

(5) Has the antitoxin of the Pasteur Institute, N. Y. (Roux formula) been used extensively in the hospitals in Boston?

(6) Where can I get, in case of emergency, the antitoxin that is fresh?

(7) How long does it take for the foreign antitoxin to get to the consumer here after it is made?

Yours very truly,

C. B. HAMMOND, M.D., City Physician.

[Nephritis is a sequel of diphtheria in some cases where antitoxin has not been used. It has also been reported in some cases where antitoxin has been used. The possibility of its occurrence does not contraindicate the use of antitoxin. The German diphtheria antitoxin is supposed to retain its qualities about five months. Whether one maker's antitoxin will be fresher or will keep longer than

another's we cannot undertake to say, any more than we say what the age of any given specimen may be. Each dealer must guarantee the age and quality of his own article. — ED.]

GALACTOPATHY.

Boston, February 22, 1895.

MR. EDITOR:—Dr. W. B. Sampson writes from the Transvaal, South Africa, to call attention to the advantages, in zymotic diseases, of a wet pack; not, however, of water, but of warm milk. An epidemic of typhoid fever, due to the use of milk which had stood in buckets previously washed in water subsequently ascertained to be infected, suggested the idea that, if milk would so easily absorb germs from wood, it might do the same from the human body. Experiments in cases of erysipelas seemed to confirm the truth of this theory, and, accordingly, in an epidemic of small-pox, galactopathy was substituted for hydropathy to reduce fever, prevent pitting, and soothe the nervous system; perhaps, also, in some degree, to nourish the patient. Three blankets were laid upon a mattress, and covered by a single sheet saturated with one and a half pints of fresh, warm milk (not boiled). The patient was laid upon the sheet. This was then wound tightly around him, the ends brought over his shoulders, and his arms left bare. The blankets were then, one by one, packed over him, and he rested thus for an hour. This was done once in four hours. After the pack, a warm bath or sponging.

Dr. Sampson reports that in eighteen cases so treated by him, in the small-pox lazaretto at Kimberley, before the eruption appeared, the disease was aborted, and the patient convalescent in five days. In one case, where the eruption had just manifested itself, the milk-pack was used twice as often. The eruption disappeared entirely within twenty-four hours, and in four days the patient was able to leave his bed.

Subsequent experiments in cases of the various infective fevers gave good results. The milk-pack was found to lower temperature, stop delirium, procure comfort for the patient and promote sleep. It is, in its action, gentle, soothing and wonderfully recuperative. It causes no weakening, but increases the patient's flesh and strength. Tried side by side with hydropathic wet-sheet packing, the superiority of the milk-pack was manifest.

In scarlet-fever, measles, typhus, typhoid, and even malarial and puerperal fevers, remarkable results were obtained. One case of scarlet fever yielded in three days. Milk compresses to the throat in diphtheria gave the best results. If this remedy should really prove as efficacious as it is simple, therapeutics has made an advance.

Very truly yours,

E. WIGGLESWORTH, M.D.

METEOROLOGICAL RECORD,

For the week ending February 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter.	Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		Weath'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S..10	29.77	21	30	12	64	62	63	W.	N.W.	15	18	C.	C.	
M..11	29.93	28	37	19	68	53	60	W.	W.	9	7	C.	C.	
T..12	29.79	26	35	16	65	66	66	W.	N.W.	12	12	F.	C.	
W..13	29.63	27	32	22	70	68	69	N.	W.	14	10	T.	C.	
T..14	29.86	31	40	22	50	62	56	W.	W.	14	12	C.	C.	
F..15	30.18	31	39	23	50	47	48	W.	W.	10	9	C.	C.	
S...16	29.89	30	40	21	57	56	56	W.	S.W.	13	12	C.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 16, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York	1,956,000	958	341	7.50	24.40	.80	3.50	1.60
Chicago	1,600,000	—	—	—	—	—	—	—
Philadelphia	1,139,457	559	139	11.16	22.14	2.88	5.22	.54
Brooklyn	1,013,000	462	149	8.14	23.10	.44	4.18	.66
St. Louis	540,800	—	—	—	—	—	—	—
Boston	501,107	294	82	10.54	27.20	—	8.02	1.02
Baltimore	500,000	—	—	—	—	—	—	—
Washington	285,000	113	35	6.16	23.76	—	2.64	—
Cincinnati	325,000	115	39	10.44	20.01	2.61	2.61	—
Cleveland	325,000	106	51	9.40	13.16	2.82	—	4.70
Pittsburg	272,000	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	37	12	—	8.10	—	—	—
Charleston	65,165	32	7	—	6.26	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	40	14	5.00	—	—	—	—
Fall River	92,233	35	15	22.88	11.44	—	5.46	1.82
Lowell	90,613	55	15	5.46	10.92	1.82	—	—
Cambridge	79,607	23	8	17.40	17.40	—	8.70	4.35
Lynn	65,123	30	7	6.66	13.33	3.33	—	3.33
Springfield	50,284	20	3	—	50.00	—	—	—
Lawrence	49,900	23	11	4.35	26.10	—	—	—
New Bedford	47,741	21	9	9.52	28.56	—	9.52	—
Holyoke	43,348	—	—	—	—	—	—	—
Brookton	33,939	11	2	—	—	—	—	—
Salem	33,155	15	3	6.66	6.66	—	—	—
Haverhill	32,925	21	6	—	28.56	—	—	—
Malden	30,209	9	3	22.22	33.33	—	11.11	11.11
Chelsea	29,806	16	8	—	18.75	—	—	—
Fitchburg	29,383	11	5	—	9.09	—	—	—
Newton	28,837	13	2	7.69	15.38	—	7.69	—
Gloucester	27,293	—	—	—	—	—	—	—
Taunton	26,954	12	1	8.33	8.33	—	8.33	—
Waltham	22,058	6	1	—	33.33	—	—	—
Quincy	19,642	1	0	—	—	—	—	—
Pittsfield	18,802	5	0	—	20.00	—	—	—
Everett	16,585	11	5	9.09	—	—	—	9.09
Northampton	16,331	5	3	—	60.00	—	—	—
Newburyport	14,073	4	0	—	—	—	—	—
Amesbury	10,920	7	1	14.28	28.56	—	—	—

Deaths reported 3,269: under five years of age 1,098; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 296, acute lung diseases 723, consumption 372, diphtheria and croup 128, scarlet fever 43, typhoid fever 41, diarrheal diseases 39, whooping-cough 15, measles and erysipelas 11 each, cerebro-spinal meningitis 7, small-pox 1.

From diarrheal diseases New York 12, Philadelphia 8, Boston and Cincinnati 4 each, Fall River 3, Brooklyn, Washington and Lowell 2 each, Cleveland and Salem 1 each. From whooping-cough New York 5, Brooklyn 4, Philadelphia and Cincinnati 2 each, Washington and Worcester 1 each. From measles New York 4, Brooklyn 3, Providence 2, Boston and Somerville 1 each. From erysipelas Brooklyn 4, New York 3, Philadelphia 2, Providence 1. From cerebro-spinal meningitis New York 2, Philadelphia, Washington, Cleveland, Fall River and Marlborough 1 each. From small-pox Philadelphia 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 9th, the death-rate was 20.7. Deaths reported 4,210: acute diseases of the respiratory organs (London) 480, whooping-cough 78, diphtheria 67, measles 56, diarrheal diseases 39, scarlet fever 32, small-pox (London 3, Derby 1) 4.

The death-rates ranged from 13.5 in Derby to 30.9 in Liverpool; Birmingham 22.3, Bradford 15.0, Cardiff 22.4, Croydon 18.1, Hull 20.2, Leeds 17.5, Leicester 14.5, London 21.0, Manchester 24.8, Newcastle-on-Tyne 19.4, Nottingham 18.2, Portsmouth 19.7, Sheffield 17.6, Swansea 21.0, Wolverhampton 23.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 16, 1895, TO FEBRUARY 21, 1895.

CAPTAIN HENRY P. BIRMINGHAM, assistant surgeon, is relieved from duty at Fort Grant, Arizona Territory, and ordered to Fort Trumbull, Conn., for duty, relieving CAPTAIN FREEMAN V. WALKER, assistant surgeon.

CAPTAIN WALKER, on being thus relieved, will proceed to Fort Grant, Arizona, and report for duty at that post.

The extension of leave of absence granted FIRST-LIEUT. HENRY C. FISHER, assistant surgeon, is further extended one month.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 23, 1895.

CLEMENT BIDDLE, passed assistant surgeon, ordered to Naval Hospital, Chelsea, Mass.

L. W. ATLEE, passed assistant surgeon, ordered to Naval Hospital, New York, N. Y.

F. A. HESLER, passed assistant surgeon, ordered before Retiring Board.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 4th, at 8 o'clock.

Dr. J. J. Putnam will read a paper entitled: "Psychical Treatment of Neurasthenia."

Dr. H. L. Smith on "Cases Illustrating the Plastic Surgery of the Nose and Palate: Description of an Operation for Cleft Palate." Discussion by Drs. H. A. Baker and Geo. F. Grant, who will be present by invitation.

JAMES G. MUMFORD, M.D., Secretary.

THE WARREN CLUB. — A regular meeting of the Club will be held at 11 Marlborough Street, on Tuesday evening, March 5th, at 8 o'clock.

Dr. Malcolm Storer: "A Consideration of Axial Rotation with Especial Reference to the Torsion of Ovarian Tumors."

Dr. F. C. Cobb: "The Cavities Accessory to the Nasal Cavities."

Dr. C. L. Scudder: "Case of Middle Meningeal Hemorrhage from Contre-Coup; Trephining; Recovery."

W. E. PAUL, M.D., Secretary.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION. — The Surgical Section of the Suffolk District Medical Society will hold its regular monthly meeting at 19 Boylston Place, on Wednesday evening, March 6th, at 8 o'clock.

Dr. Roswell Park, of Buffalo, will present a paper upon "Acute Infectious Processes in Bone."

It is hoped that a large number may enjoy the privilege of listening to the discussion of a subject of so great importance. An opportunity for the presentation of pathological specimens will be given after the discussion of the paper.

C. L. SCUDDER, M.D., Secretary.

NORFOLK DISTRICT MEDICAL SOCIETY. — The Brookline Fellows of the Norfolk District Medical Society cordially invite the Society to a meeting for Scientific Improvement, to be held at the Town Hall, Brookline, on Tuesday, February 26, 1895, at 7.45 P. M.

"Massage in Sprains, Bruises and Dislocations," Douglas Graham, M.D.

"Treatment of Congenital Club-Foot," P. C. Proctor, M.D. Discussion to be opened by E. G. Brackett.

"A Suggestion Concerning the Preservation of the American Physique," J. W. Achorn, M.D.

Lunch at 9.45 P. M.

J. C. D. PIGEON, M.D., Secretary.

AMERICAN MEDICAL ASSOCIATION. — The Section on Neurology and Medical Jurisprudence have arranged the following symposiums for the annual meeting at Baltimore, Md., May 7, 1895.

"Epilepsy: Medically, Surgically and Therapeutically." "Hypnotism and Mental Therapeutics, and its Medico-Legal Relations." "Electricity: Some New Therapeutical Relations and Questions of Treatment."

Short practical papers on these topics are urgently solicited. Other papers on subjects belonging to this Section will be welcomed. Address

T. D. CROTHERS, M.D., Secretary, Hartford, Conn.

BOOKS AND PAMPHLETS RECEIVED.

Hospitals for the Insane; Their Scope and Design. By Edward F. Wells, M.D., Chicago. Reprint. 1895.

Experiments and Observations on the Summer Ventilation and Cooling of Hospitals. By Morrill Wyman. Reprint. 1895.

Festschrift zum Fuenf und Zwanzig Jaehrigen Jubilaeum des Vereins Deutscher Aerzte zu San Francisco, Californien. 1869-1894.

Sixteenth Annual Report of the State Board of Lunacy and Charity of Massachusetts, January, 1895. Boston: Printed by the State. 1895.

Ein Beitrag zur Kenntniss der Verbreitungsweise der Hautnerven beim Menschen. Von Victor Bychower aus Feodosia (Krim). Strassburg. 1888.

Neudörfer's Method of Amputating Extremities, with a Report of Two Thigh Amputations. By A. H. Meisenbach, M.D., of St. Louis, Mo. Reprint. 1894.

Original Articles.

THE SURGICAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.¹

BY JOHN HOMANS, M.D.,

Surgeon to the Massachusetts General Hospital, etc.

In what I have to say in regard to the treatment of fibroids, I shall not attempt to mention all the names of the very eminent operators who have written on the subject. I doubt if one man could read in a day the communications published during twenty-four hours on this subject. You can read them for yourselves in the *American Journal of Obstetrics* and in the various other journals and medical magazines published at home and abroad. My remarks will be drawn from my own experience, and, such as I have to make, would be confused and uninteresting if mixed up with references to others' writings, so I will not try to mention all those I would like to, because I think it would lessen your interest in the subject and make my paper too long. Let me say at the beginning that my remarks will have no reference to fibroids presenting themselves at the uterine or vaginal outlets. For such the proper treatment is removal per vaginam, and this has always been successfully done by me in all cases where the patient had not become septic; this last condition being common where a large fibroid of many pounds' weight has begun to protrude after labor, the condition not being recognized by the attending physician for some days, until sloughing fibroid, uterus, and the patient herself have become thoroughly septic. So much for fibroids extruding or being expelled from the uterus. What I have to say will be limited to the surgical treatment of fibroids after the abdominal cavity has been opened. The dealing with fibroids by abdominal ablation is becoming more common as we become more certainly successful in our methods of operating, and feel confident that we can remove a non-adherent fibroid tumor in a fairly healthy woman without much violence and with almost sure promise of success.

Fibroids do not always cease to grow at the menopause; many of them do, but in many cases they grow and give rise to hemorrhage and other serious symptoms. They also sometimes become cancerous. This condition I have seen twice. Wisdom is shown in choosing the cases requiring operation.

The reasons which lead me to remove a fibroid by abdominal section are: (1) If it actually causes much discomfort. (2) If it threatens death by hemorrhage (and it does sometimes not only threaten, but causes it as suddenly as a pulmonary hemorrhage does). (3) Because it may increase and become too burdensome to allow life to be worth living. (4) Because it may develop a cancerous character. (5) Because by its pressure on the abdominal organs it may destroy life. (6) Because it may become cystic and thoroughly adherent. Such a tumor I have never successfully removed. I do not mean fibroids with dilated lymph-spaces, but fibroids with cysts as clear and distinct as those in ovarian tumors. (7) Because it may be an ever-present anxiety. (8) Because it may cause edema of one or of both extremities and phlebitis, to be followed perhaps by the passage of an embolus into the circulation, causing death by renal or hepatic dis-

ease. (9) Because they sometimes are twisted with the uterus as a pedicle and must be removed at once to save life. I have seen this once. (10) Because a very sensitive single woman, in good health, and active, demands its removal on account of the disfigurement it causes. (11) Because the operation, to-day, in experienced hands, is almost uniformly successful. The mortality from all cases, promising and unpromising, probably varies between three and ten per cent. The reasons for not operating are: (1) When the tumor gives no trouble, uneasiness or disturbance and the patient does not desire its removal. (2) When it is not accompanied by hemorrhages. (3) Because no one can positively say that it may not remain stationary or even retrograde. Without being omniscient, we cannot tell the future course of a fibroid. I have watched some tumors twenty years and more, and then removed them because they have grown and become annoying, and I have watched others grow smaller; but I operate more frequently than I used to. I have seen about 650 fibroids, and I have operated on but 93. I should have done well to have operated upon a greater proportion of them.

Some years ago, in 1887, I think, my friend Dr. Keith, then of Edinburgh, now of London, wrote me that I must lay down my knife from fibroids and that they could be treated successfully, that is, made bearable, by electrolysis, *à la* Apostoli. To this treatment I gave a thorough trial for nearly three years, and then abandoned it as a routine method, as uncertain, unsatisfactory and tiresome in the extreme; but I still use it in certain cases of hemorrhage and pain in a patient otherwise strong and whose tumor is quiescent. I published all my electrolysis cases, results, and conclusions in the *Boston Medical and Surgical Journal* for March 12, 1891. The cure of fibroids by removal of the ovaries and tubes is uncertain. Perhaps the ligature of the ovarian artery by cutting off a portion of the blood-supply to the uterus has much to do with the success which sometimes attends this procedure. I have seen a fibroid the size of a cricket-ball entirely disappear at the end of four weeks after removal of the ovaries and tubes, and I have seen some continue to grow, and one to be extruded from the os uteri two years after removal of the ovaries and tubes, the tumor having become a large polypoid growth, and the woman had lost her ovaries unnecessarily two years before. I think we may dismiss this plan of treating fibroids by removal of the ovaries and tubes as uncertain and unreliable. As I have said before, it does not seem necessary to enumerate all the surgeons who have contributed to the literature of the treatment of fibroid tumors. In the United States Martin, Dudley, Gordon, Baer, Baldy, Byford, Kelley, Edebohls, Polk, Price, Krug and others have reported excellent work and intelligent practical measures. In Germany, besides Schroeder, Hager, Kaltenbach and many others have written on this subject. The method which I have gradually, and independently, come to use is nearly like the operation called the Schroeder-Hoffmeier method, but it removes more of the uterus and is more simple in the application of the sutures. So far as I am concerned, it is the outcome of my work and experience during the past thirteen years, and I am satisfied with it, though I hope to improve upon it.

There are four principal methods of removing the tumor and treating the pedicle. The intra-peritoneal,

¹ Read before the Boston Society for Medical Improvement, January 7, 1895.

first described by Schroeder; the extra-peritoneal, Koeberle and Pean; complete removal of all uterine tissue, first, I think, described by Eastman; and the method of vaginal fixation described by Byford. The method of treating these tumors by ligature of the uterine arteries from the vagina, recently proposed by Franklin H. Martin, must not be omitted, and bids fair to be useful. I have long ago given up the extra-peritoneal treatment by means of the wire and *écraseur*. It has always seemed to me unsurgical and clumsy. Indeed, in many cases it would be impossible to get the wire around the tumor until it had been enucleated, and by that time it would have been so nearly removed that one had better tie the uterine arteries than compress them by the wire, and cut off the tumor, sewing the peritoneum together over the stump.

Such a case I lately operated on in a woman fifty-eight years old. Her physician, Dr. A. D. Sinclair, had known of the presence of the tumor for eleven years, and she was sure it had increased in size rapidly during the past four months. The abdominal walls were thick with fat, and the tumor felt very elastic, more like an ovarian than like a uterine tumor. On opening the peritoneum the tumor was seen to be uterine, and could not be lifted out of the abdomen. It had grown from the posterior part of the neck and body of the uterus, and the intestines were incorporated with the peritoneum on its under surface and its upper end; that is, they lay in the peritoneum, which formed the capsule. There was no other way to get this tumor out but to make an incision through its peritoneal covering at its upper side and peel the peritoneum, with the intestines, back. In doing this the left ureter was laid bare for a large part of its length, and was carefully dissected from the tumor. If I had pinched up the tumor in the wire of an *écraseur*, I should either have enucleated it unintentionally or I should have included some part of the bowel or of the tortuous ureter in the noose. Or suppose that I had carefully enucleated the tumor before the application of the wire, I should only have had the neck left to be constricted; and how much more surgical, neat and dexterous to divide this, after ligature of the uterine arteries, and turn it out and cover the back of the stump with peritoneum, making the treatment of the stump extra-peritoneal, than to encircle it with a wire noose and transfix it with a long pin and straddle the abdominal wound with the pin, leaving the stump and the neck to slough away in two or three weeks, instead of having an abdominal wound with no break in its continuity. The convalescence is surprisingly rapid in many of these intra-peritoneal cases. In one case it was difficult to persuade a patient to remain more than two weeks after the operation. I am sure that the treatment by the wire *écraseur* will soon be wholly abandoned.

I prefer the intra-peritoneal treatment, so called, though it is really extra-peritoneal. The method which I follow in removing a fibroid tumor is the following: The patient is placed on a liquid and farinaceous diet for thirty-six hours before operation; the pubes are shaved; the abdominal walls are rendered aseptic by means of a hot bath, soap and water, ether and bichloride solution, and are covered with a bichloride-of-mercury dressing at least twelve hours before the expected time of operation, and this is changed immediately before the operation; the vagina is thoroughly douched with sublimate solution, after being mopped

over with soap and water to get rid of the grease. The bowels are opened and the rectum thoroughly emptied. Everything to be used in contact with the patient or the operator and his assistants is thoroughly sterilized, and the patient is wrapped in a sterilized flannel suit made out of a large, thick blanket, either in one piece or in two pieces like pajamas. This was suggested to me by my *first* assistant, Dr. Edward A. Pease, and is one of the causes of success. It prevents any lowering of the patient's temperature, and keeps her warm during the operation and afterwards. I regard this as one of the important procedures in these cases. The legs and arms of the wrap are sewed up at the ends, and the abdominal portions can be tied together with tapes, and loosened and separated for the purpose of making the incision in the anterior abdominal parieties. There is no place for the external air to get in, except while the abdomen is open. As I have said before, this flannel garment has been sterilized, and so have the sheets, towels, ligatures, instruments, etc., used in the operation. The patient is placed in the Trendelenberg position. Indeed, without this position the intra-peritoneal removal of fibroids in a satisfactory manner would be almost impossible. The incision is now made of the required length and the tumor is delivered at once, if free from adhesions, by means of the corkscrew, or by any method of traction which seems most easy. A piece of gauze spread over the tumor is found very convenient in preventing it from slipping away from the hands of the operator. A large piece of gauze is now put in the abdomen over the intestines, and the sides of the incision above the tumor are often fastened together by catch-forceps or by a temporary stitch to prevent the intestines from protruding and to keep them clean and warm. The tendency of the bowels to protrude varies in different patients. In most cases the intestines lie still and quiet. In others they seem to leap out of the abdominal cavity whenever they get a chance. If in the process of lifting the tumor out of the abdomen adhesions are discovered, it is best to secure them in some way or to pass an elastic ligature around the neck of the tumor or of the uterus to prevent hemorrhage. This last procedure is rarely necessary, and I have never done it for this purpose.

When the broad ligaments are seen, I usually tie the left one first, passing the ligature low down and close to the uterus by means of Cleveland's needle, being most careful not to perforate the bladder; then I tie another ligature about an inch further away from the first towards the ovary and beyond the tube, or beyond the ovary and the tube, and divide between them. The tube, if left intact on the uterine side, prevents infection from a source to which the patient would be exposed if the tubes were opened. I leave the broad ligaments as long as possible, so that my seam over the stump when the operation is finished will be a short one. I do not care whether the ovary is tied off or not, nor do I necessarily remove it, for it is well supplied with blood from the ovarian artery, and will not slough when its uterine connections are cut off, and in fact, may be well enough nourished by adhesions; besides, if it remains, perhaps the physiological symptoms, which are often annoying after removal of the ovaries and uterus, the so-called "heat flashes," etc., may not occur if the ovaries are left. For the ovaries are the reigning powers in the generative organs. The expression

should be, "The ovaries and their appendages," not "the uterus and its appendages." The uterus and vagina are simply channels for the nourishment and passage of the ovum and fetus, the product of the ovary, and serve to expel the infant into the world. The vagina may be wanting or the uterus may be wanting, but their absence does not imply that of the ovaries. If the latter, however, are wanting, the other organs, I believe, always are.

I now go through the same process on the right side, and then make a circular incision through the peritoneal covering of the uterus in front about two inches above the outline of the bladder wall, which can usually be plainly made out by sight without passing a sound into the bladder, and the same distance above the rectum behind, the two incisions meeting on either side where the broad ligaments are tied, exactly as one would make a circular incision for an amputation of the thigh. These peritoneal flaps I then turn back, by the aid of this little spade-shaped instrument, which is a copy of a periosteum retractor in our case of instruments for cerebral surgery at the Massachusetts General Hospital, or else I use a duckbill-shaped blunt dissector, or my fingers. By not getting beneath the peritoneum into the muscular tissues of the uterus the separation is easy and bloodless, but if at all deep it is difficult and hemorrhagic. The uterus above the internal os is now denuded of its peritoneum and is ready to be divided. I then feel for the pulsation of the uterine arteries; and if I find them easily (and they are quite superficial), I tie them by passing a ligature of silk around them with an aneurism needle, each one separately; but if I do not feel them easily, or if there is a hemorrhage going on, from my flaps having been made too thick, I encircle the uterus at the denuded point with a strong, small, solid cord of rubber, and having tied it securely, I cut the tumor and uterus away, and later secure the uterine arteries at my leisure.

I now trim away the uterine tissue by a slanting cut in front and behind, the apex being at about the level at which the uterine arteries have been tied. I cauterize very thoroughly the uterine cervical canal at once, as soon as it is opened, with Paquelin's cautery. I always pass the point through the mouth of the uterus well into the vagina and allow it to remain there several seconds. A cauterization must be so thorough that the opening remaining will be large enough to act as a drain for the sloughing which always follows a hot iron, otherwise the external os may get occluded by the swelling (which naturally follows any injury to living tissues); and infection from the sloughing mucous membrane, might work its way back and contaminate the stitches by which the abdominal end of the stump is closed, and perhaps also the space lying between the stump and the peritoneum. One of the advantages of the closing of the peritoneum is that even if this blind space does get infected and an abscess is formed, the peritoneal cavity is not infected, and only a localized collection of pus is formed which may open spontaneously or be opened from Douglas's cul-de-sac. This I have never been obliged to do, though nature opened such an abscess for me once. There was good drainage, however, and with hot vaginal douches the trouble soon ceased.

Next I sew the muscular walls of the neck together by a continuous suture of silk over the cervical canal, so as to shut out the neck from the abdominal cavity.

In sewing the sides of the stump together, it is important that the silk be put through healthy tissue and not allowed to pass through the tissue which has been cauterized, as this must slough away, and in this way the silk may get infected and cause an abscess or a discharge from the ligatures.

I then sew the peritoneal flaps together by a light continuous suture over the stump. I always use fine English braided silk, No. 4, for this suture I do not dare trust to the aseptic qualities of catgut. You will see that although this method is called *intra-peritoneal* it is really *extra-peritoneal*, even more so than the plan by which the neck is constricted by the wire and held outside the skin of the abdomen by a pin across the abdominal wound. I next turn my attention to the ovarian and round ligament stumps and tie the ovarian artery again separately. If the ovaries have been removed in whole or in part, I decide whether to remove them more completely or to leave them. There is now a sutured line running across the lower part of the pelvis, and, if there is no oozing, the abdomen is emptied of the sponges and pieces of gauze which have been put into it, the patient is lowered into a horizontal position, and the intestines descend to their normal place; the omentum is, if possible, spread over them and the abdominal wound is closed with silk-worm-gut without drainage.

The flannel suit is left upon the patient for twenty-four hours or more, according as seems best and most favorable. The convalescence is like that after simple ovariectomy. The patient is generally up and about on the fourteenth day, and goes home by the end of the third week. This rapidity of convalescence is a great contrast to that following the treatment of the pedicle by the clamp. In the latter case convalescence is slow. The wire comes away sometimes as late as the third or fourth week, and the slough beyond the wire a week or two later; the abdominal wound is left with a depression at its lower part, which gradually, in the course of a month, fills up with granulations and rises more or less to the level of the surrounding skin. Something of the depression remains permanently, and this spot where the stump has come away, frequently becomes the seat of hernia.

I do not believe that there is much difference in the mortality between the extra- and intra-peritoneal (so-called) methods, success depending more on asepsis than on method; but if there is any difference, it would seem to be in favor of the so-called intra-peritoneal treatment. The whole success of these operations depends upon perfect asepsis combined with experience in abdominal surgery, a kind of surgery which cannot be taught, but must be learned.

During the last eighteen months I have removed 26 fibroid tumors by this method in my private practice. There has not been a single case of septicemia. One patient died twelve hours after operation, of shock, loss of blood from separated adhesions and diffuse nephritis (Whitney), the method of the operation having nothing to do with the result. All of the others (25 in number) recovered.

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REMOVAL OF THE UTERINE APPENDAGES FOR NERVOUS DISEASES.¹

BY W. H. BAKER, M.D.

GREAT relief has come to the nervous diseases of women through the adaptation of asepsis in surgery by the gynecologist. This is the most apparent to those of us who had the trying experience of dealing with a class of cases vaguely described as ovaritis, pelvic abscess, or chronic cellulitis, and presenting physical conditions which were masked, indistinct, surrounded by the greatest uncertainty, and made apparently somewhat clearer at times by the greater prominence of an attack of localized peritonitis. Yet the primary cause of this same peritonitis remained surrounded by the greatest mystery.

That the theories advanced by Noegarath, in regard to the effect of gonorrheal poison on the tubes and ovaries, more than twenty years ago, should have been so slow in being impressed upon the minds of the profession and its tardy acceptance even then, is one of the gynecological wonders of the present age. Nor was it until the comparative safety in opening the abdomen was proved, that the acceptance of his theory was finally established. About the same time came the adoption of the idea of sepsis introduced from without, in the woman just delivered, as a cause of puerperal fever; and no one can forget the warfare in New York led to such a glorious victory by Dr. T. Gaillard Thomas.

With the frequency of abdominal sections for pelvic diseases the gynecologist was forced to admit the importance of tubal diseases as the cause of the recurrent peritonitis, which with its exudate had matted together the viscera in the pelvis resulting in the mass which had been considered chronic cellulitis. In other words, his touch, practised through the abdominal incision, separating adhesions and enucleating the mass, intensified by sight, both at the time of operation and in subsequent examination of the specimen removed, proved the fallacy of his previous theory and settled in his mind beyond a doubt the importance of the various diseases of the Fallopian tube, and their great significance in the subsequent rôle of pelvic inflammations.

The great help which the pathologist rendered in the clearing up of the vagaries of this subject came rather after the settlement of the facts in the mind of the clinical observer, and was given through his careful and thorough investigation of the parts removed and the frequent detection of structural changes in the tubes and ovaries which fully accounted for the observation of gynecologists and the sufferings of the patients. Nor is this surprising when we consider the infrequency with which death followed as a direct result of such tubal or ovarian disease, and that in such exceptional cases the matting together of the whole pelvic viscera, with possibly the abscess involved, and very likely the general peritonitis as well, all tended to mask the seemingly unimportant Fallopian tube. The condition of the patient in such cases was rather one of long invalidism and nervous derangement than of immediate danger to life. The means which nature provided in the plastic exudate, while protective in the matter of life, was too frequently the occasion of renewed suffering and nervous disease through its interference with the functional activity of the organs involved. That the working out of this problem of

pelvic inflammation was not only the legitimate field of the gynecologist, but was developed step by step, must be recognized by all. It was his educated touch which, brought into direct contact with the diseased organs (generally at that time unseen until brought through the abdominal incision), that accomplished so much in the elucidation of pre-existing erroneous ideas. That the progressive stages which led up to the infrequent resulting death and the observations of the pathologist, were found by the gynecologist in the frequency of his operations and observations are perhaps expressed in degree from the first effort of nature to protect its vital peritoneal membrane in the sealing of the fimbriated extremity of the Fallopian tube to some part of the pelvis or the ovary on the one hand, to the extensive matting together of the pelvic viscera with a pyosalpinx as to its nucleus in the other instance.

When we consider the disturbance of nervous equilibrium so often produced by even the slightest change in the functions of the reproductive organs in women, we are prepared to accord to these organs the great importance which they exercise over the nervous system of the female during the period of menstrual activity. In verification of the fact, we have but to refer to the often-observed cases of delayed menstruation and the effect produced either through the suffering involved or the nervous excitability produced.

There is no definite stage or limitation of extent of inflammatory disease of the tubes or ovaries that marks a point where nervous disease shall begin or yet denote the character or degree of such nervous manifestation; it is rather a matter of nervous tolerance to the existing pelvic change, which must necessarily vary with the individual. It will be generally observed, however, that in those women of greatest nervous development and of the highest intellectual attainments there exists the least nervous tolerance to diseases of the uterus or its appendages. More especially is this true in such women as have not shown a corresponding physical development; or, again, in such as through sickness have had the physical strength impaired and have thus brought a greater strain on the nervous system.

Dr. T. Addis Emmet has shown, more than any one, the importance of cicatricial tissue in the vagina or cervix uteri as occasioning great nervous disturbances, and proved beyond a doubt that the latter was a result of the former in the ready disappearance of the nervous phenomena following the operation for the removal of the scar; and it is my opinion that this same sort of tissue on the intra-pelvic peritoneum as a result of inflammatory exudate is a not inconsiderable factor in occasioning serious nervous symptoms. That such symptoms have been usually ascribed to the distorted and fixed state of the ovaries and tubes I am well aware, nor would I underrate the importance of such in the production of such phenomena, but I would add the importance of the presence of the fibrinous product itself with all its contractile tendency as a factor in itself, in the production of the nervous symptoms. When we see this self-same product deposited in the substance of the organ, whether it be the uterus, ovaries or tubes, and find in the later stages of the inflammatory process the cicatricial reaction having occurred, we then look for the greatest amount of bodily suffering as well as nervous symptoms; for in such a case we have the least degree of nervous tolerance to the diseased state on account of the greatly weakened

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state of the nervous system through the long endurance of pain induced by the structural change.

The brilliant results which have recently been achieved in other parts of the body through the instrumentality of the surgeon, directed by the neurologist after the most careful study and close observation, are highly gratifying; and we would not have the same careful observer, in the field of nervous disease fail to apply his energies or recognize the importance of these pelvic factors in the production of nervous disturbances, even though they may be less serious or immediately alarming than the lesions of the brain. Let it be remembered that the delicacy which surrounds the pelvic lesion in the mind of the patient leads her generally to suffer without complaint, nor does she always realize that the suffering she endures is not the natural result of menstruation or child-bearing. Thus she is led to bear the extra strain with all patience until she is completely exhausted nervously, and a train of symptoms present themselves that can no longer fail to be recognized in their relation to the pelvic organs, or perchance the grave symptoms of melancholia are inaugurated. Can anything be more important than saving the reason of our patient? Yet who can tell how long she can endure the nervous strain from the suffrance of pelvic lesion to which reference has been already made?

Two things have led to much disappointment in the removal of diseased ovaries and tubes for the relief of nervous disease, namely, the expectation of a *too speedy result* after the successful performance of the operation, and the *postponement of surgical interference* until an amount of nervous damage has been done which is beyond power of relief.

In the first instance we must remember that the process of the pelvic inflammation is usually a slow one, recurrent in its tendency and often increasing in degree and intensity; thus it is only after months or years of suffering that the nervous system becomes so far impaired as to become, it may be, the prominent feature in the case. It is thus far too much to expect an immediate return to health nervously, after the recovery from the operation. What is to be claimed for the operation is rather a relief from physical suffering, and from the recurrent attacks of pelvic inflammation, thus making it possible for the nervous gain, which in its turn must be accomplished by a persistent carrying out of such rules and treatment as would be used by the physicians in any case of purely nervous origin.

Under this head we sometimes see cases reported as failures, which, taken soon after the operation, have shown very little nervous gain, or it may be by the increased nervous strain of the operation itself, show a worse condition nervously than before the operation. Yet the self-same case, if judged, one, two or even three years after the operation—due care and appropriate treatment having been given to the nervous system—we find in the full enjoyment of health. It not infrequently happens also that the very same means of nervous relief has entirely failed when adopted before the operation.

In the second instance, the physician is loath to advise the removal of the uterine appendages for nervous relief until the nervous disease itself is far advanced; and it too frequently happens that the consent to the operation is not obtained from the neurologist or the psychologist until an amount of damage has been done

nervously or mentally which forestalls any hope of relief by *any* method of treatment.

I would not be understood by this, to advocate the too speedy resort to operation on the pelvic organs in nervous diseases of women, nor to support the wholesale ablation of the ovaries and tubes, which I fear has been practised in some sections of our country; but I would insist upon the resort to celiotomy, even if it were only as a means of perfecting our diagnosis in any doubtful case, in view of the frequency and importance of such sequelæ to pelvic inflammation, and I am sure from my clinical experience that the cause of such nervous disturbance will very often be found to exist in the results of a previously existing inflammatory process in the pelvic peritoneum. Of course, it is to be understood that in any such case the vaginal examination should give evidence of the existence of such pelvic disease before we should feel warranted in opening the abdomen.

Now let us turn to another view of our subject, namely, when some uterine or tubal disease exists which is the cause of various nervous manifestations, and for which the removal of the healthy ovaries is practised. This may be well illustrated by the existence of a small fibroid in the uterine wall. It is at once admitted that the presence of a fibroid does not usually occasion such phenomena; yet cases do sometimes occur where such a result is observed and where the location of the growth is such that its removal would only be practical by including the whole of the upper segment of the uterus in the operation. Now, if the uterus and fibroid together are not larger than the gravid uterus at the third month and the patient be thirty-five years of age or more, the removal of the uterine appendages, even though they be entirely healthy, will be found to be one of the surest means of restoration to health; and this with the minimum of risk to the patient.

We have undoubtedly noted the great degree of tolerance, both physical and nervous, in the majority of cases of moderately large fibroids, yet it is probably a fact that but few of us have noticed the exceptional cases of great nervous disturbance from the reflex irritation of a small fibroid of the uterus which is seemingly out of all proportion in its importance in the locality compared with that found by its presence in other parts of the body. This fact would be ascribed to its affecting an organ, the perfect performance of whose functions, influence in so great a degree the whole nervous equilibrium of the woman.

Again, in rare instances we find an undeveloped state of the Fallopian tube a cause of nervous disturbance. In such cases the symptoms are likely to be inaugurated at the time of puberty and to steadily increase until the patient becomes a nervous wreck.

Cases almost without limitation might be given in support of the foregoing, but this would be of little value except from a statistical standpoint. I desire, however, to give two or three illustrative cases.

RESULTS OF PELVIC PERITONITIS.

CASE I. Illustrative of the effect of adherent tubes and ovaries on the nervous system.

Miss A. B., a Swedish woman, twenty-nine years of age, entered the Free Hospital for Women June 2, 1890. She was unmarried and had complained of severe dysmenorrhea for six years. This pain had steadily increased, and for five years she had been suffering from headaches before and after the menses.

Menstruation began at sixteen, and did not become regular until eighteen; was never very abundant, seldom using more than three or four napkins. She had always been a hard-working woman. Could obtain no clear history of gonorrheal infection. Entered the hospital as she was incapacitated for work one week out of each month, and therefore could not keep her place at service as a domestic.

Diagnosis was made of left retrolateral version of the uterus, with adherent tube and ovary to left pelvic wall; constriction of canal of uterus at os internum. June 12th, Dr. Kaan dilated the constriction of the canal with Hanks and Ellinger's dilators.

For three years after this operation her position was such that I saw her about her work repeatedly, and was often consulted by her about her condition. She was relieved from a certain part of the menstrual pain by the dilatation, but the headaches continued, and she grew irritable, wanting in patience, and finally suspicious of the motives of those about her, — at times quite irresponsible for her actions. All these symptoms were greatly exaggerated on the approach of a menstrual period. Longer delay of surgical interference was deemed unwise, and she was readmitted to the Free Hospital for Women May 6, 1893. I performed celiotomy, and removed both ovaries and tubes, which were found so strongly attached to the pelvic wall that the adhesions could not be separated with the finger, but I was obliged to cut them with the scissors. The bands of adhesion were large, strong and dense, requiring much time in their separation. The uterus was finally sewed to the anterior abdominal wall and the incision closed. She made a good recovery from the operation, and was discharged from the hospital May 30, 1893. From a period soon after her discharge up to the present time she has been employed in the families of friends or patients of mine, so that I am quite familiar with her condition. The headaches have entirely disappeared. She now appreciates that the people she is with are her friends and not her enemies; is happy and cheerful instead of despondent; loses not a day from her work, which is of an arduous nature. In other words, the result of the operation, now eighteen months past, is highly gratifying.

INTERSTITIAL DISEASE OF THE FALLOPIAN TUBE.

CASE II. Illustrating the importance of the most careful search for disease of the ovaries or tubes in cases of long-existing nervous symptoms which have not yet yielded to the ordinary general treatment.

Miss M. J., an American lady, thirty-three years of age, consulted me April 19, 1889, on account of inability to resume her duties as a teacher in one of our public schools. She was highly educated and cultivated; her surroundings from childhood had been among the most intellectual people. She began to teach at a very early age, before she was seventeen, and had continued at that vocation ever since. She had broken-down nervously three years before consulting me, and had been in bed fourteen weeks at that time. Had the best of medical advice and care for her nervous gain. There was very little to point to any pelvic trouble, certainly nothing that might not easily have been explained by the nervous debility; such as a dragging feeling across lower abdomen on standing, or walking too far, relieved sometimes by lying down, and dysmenorrhea the first eight or ten hours of the flow. Her chief complaints were her inability to

apply either her mind or body to any effort; constant depression, and apprehension as to her condition of health, occipital headache; inability to walk alone on account of dizziness; constant feeling of fatigue, more marked in the morning; want of sufficient sleep at night, often being awakened by a backache referred to the spine. She consulted me on account of the ineffectual result of her treatment, which for three years had been directed to her physical and nervous gain, thinking that possibly there might be some pelvic cause for her trouble. On making a physical examination, I found an antelexion of the body of the uterus and endocervicitis present. The discharge from the endocervical membrane was highly irritating, causing abrasions of the epithelium about os uteri and to a slight extent about vulva and anus.

An antelexion pessary was adjusted and an astringent application made to the endocervical membrane. These agents relieved in a measure the difficulty of standing, made it more possible to take longer walks and did away with a previously troublesome feeling of frequent action of the bowels, not loose in character, but formed, though of small amount.

For the next year every attempt was made by the aid of nervous tonics, massage, galvanism and rest to regain the nervous tone, but without effect. For the period of a few weeks the pessary was removed to see if its presence was preventing her gain, but she lost ground, and the annoyance of the frequent dejections returned and she could not stand or walk.

In February, 1890, a careful examination by the aid of an anesthetic revealed a thickened, cordlike feeling of the Fallopian tube on the left side, and an exploratory celiotomy was advised, not only by myself but by Dr. George L. Walton, who kindly saw the case with me.

This operation was performed April 14, 1890. Both ovaries and tubes were found free; a small cyst, the size of a marble, of the left ovary ruptured in removing. Left tube thickened and cordlike throughout its entire length; right one the same on proximal half. Both tubes and ovaries removed. The recovery from operation was uncomplicated, and she left the hospital May 20th.

The nervous symptoms continued, as previously described, after the operation for a year without being much of any abated. The second year she was able to take a place as night nurse at one of our hospitals; after that she had so far regained her strength, nervous and physical, that she was admitted as nurse at one of the leading training-schools of this country, where she remained two years and graduated; since which time she has been constantly employed in active nursing and feels quite equal to her duties. In fact, she has no complaint to make and considers herself perfectly well.

INTERSTITIAL FIBROID OF THE UTERUS.

CASE III. Illustrative of a class of cases where the removal of the healthy ovaries and tubes is advisable for the relief of nervous symptoms occasioned by some uterine disease.

On May 24, 1876, I was called to see Miss L. H., who not recovering well from an attack of supposed threatened typhoid fever, but really of nervous exhaustion, and suffering considerably from backache, thought there was likely some pelvic explanation for her condition. She was an American, thirty-five years of age, her occupation a teacher in one of our higher

educational institutions of this city. She was a lady most refined and intellectual, possessing great capacity in her avocation. She had been unable to teach for five months prior to my visit, the prolonged strain of her duties having resulted in a complete giving out of her nervous strength. There had been no pelvic symptoms until within a very few months, even then not very distinctly marked, although on close inquiry, she admitted that for a year or two there had been slight dysmenorrhea the first day of menstruation. The menses were otherwise natural. Since being obliged to give up teaching, she had begun to suffer from occasional headache.

On making vaginal examination I found the uterus in the second degree of retroversion; otherwise the pelvic organs seemed normal. I replaced the uterus and adjusted a pessary; which I find from the record of the case, examined five months afterwards, held the organ in good position, and she was then able to take a good amount of physical exercise, but could not bear much nervous fatigue. She was advised not to resume her position as teacher for a year and to persist with her physical exercise.

In October, 1876 (the same year), she took a position as assistant nurse at the Free Hospital for Women, where she remained for about eight months and was enabled, to perform the duties developing upon her most satisfactorily.

In January, 1878, she having in the meantime gone abroad with patients, having entire charge of them, I considered her physical condition so good that I removed the pessary, and three months later found the uterus in good position. Still the headaches continued, and seemingly were becoming more regular either just before or after the menstrual period.

For the next four years there were no special symptoms referable to the pelvis, but the headaches increasing in frequency and severity ascribable to no definite cause, a vaginal examination was made under ether. This revealed a somewhat enlarged uterus, measuring three inches in depth of its canal, and thickened through antero-posteriorly on its left aspect. On account of the greater weight of the organ a pessary was re-adjusted, but had no effect in relieving the headaches.

In the fall of the next year, having dilated the uterine canal, under ether, I examined the uterus bimanually and found an interstitial fibroid growing in the left wall of the uterus, the organ being enlarged to about three times its natural size. The headaches were steadily increasing in severity, extending from occipital to frontal regions, and obliged the patient to give up entirely for a day when at their height, and required the greatest effort to keep about her work for one or two days more. She had never felt equal to resuming her duties as a teacher, but had continued those as nurse. When not suffering with a headache, she was able to accomplish a large amount of work, both physical and nervous. She consulted Dr. S. G. Webber and one or two other leading practitioners in regard to her headaches, but without avail. The suffering from the headaches increased correspondingly with the development of the fibroid.

In March, 1887, the fibroid had enlarged the whole uterus to a size corresponding to the gravid uterus at the third month. I again dilated the uterine canal, with the hope that the fibroid had become more submucous and that I might be able to enucleate it; but

it was found that it had not changed its position relatively to the uterus.

By this time the headaches had become so frequent and severe that it was telling in a marked degree on the nervous strength of the patient as well as upon her general health. For two years before this period she was obliged to use morphia subcutaneously at the times of such headaches as the only means of relief, and this enabled her to keep about her work except for one day of each attack. The headaches did not come with perfect regularity, although she seldom escaped a menstrual period without one either just before or just after the flow; she would be subject to one or two attacks also between times. Nothing seemed to have any effect but the morphia, which was always administered subcutaneously by a physician. The various currents of electricity, massage, heat and cold, various drugs (almost without number) were all tried in turn, but without effect.

The patient was at this time forty-six years of age, and might ordinarily soon expect the menopause, but inquiry elicited the fact that her family almost without exception went to fifty-two or over, before the cessation of menstruation. It was therefore decided to remove the uterine appendages as a means of causing the atrophy of the fibroid, in the hopes that by the resulting change the headaches would be beneficially affected. The operation was successfully performed in May, 1887. There was nothing of importance to characterize either the operation or the recovery from it; all the organs removed looked perfectly healthy. In questioning her a few days since in regard to the immediate results of the operation, she mentioned the fact of which I had forgotten to speak, that is, the sense of aching, fullness and bearing down in the rectum which had been quite troublesome for about two years immediately before the operation, and which was never felt after the removal of the uterine appendages.

In regard to the headaches, it was a full year from the time of the operation before any good result was noticed. After the expiration of this time, however, the severity of the headaches diminished correspondingly with the atrophy of the fibroid and the uterus. One and one-half years after the operation the fibroid had diminished one-half. Three years after the removal of the uterine appendages the most careful examination could not detect any enlargement of the uterus; in fact, it was less than normal in size, and was in good position. For two years after the operation she was occasionally obliged to resort to morphia, to enable her to keep about her work. For the past five years she has not used it. She tells me that she still has a headache once in two to four months, but is not now obliged to give up to it, and that in its severity it is similar to the premonitory symptoms which she formerly suffered, but that there it stops and passes away with a night's rest. She considers herself well; and from my knowledge of the physical and nervous strain she has endured for the past four years, I should certainly say she is in a better state of health than most of us. As a summary of the foregoing I would offer the following:

(1) Disease of the ovaries or Fallopian tubes is sometimes an unrecognized cause of nervous disease.

(2) The adhesions resulting from attacks of localized pelvic peritonitis is a not infrequent source of nervous disease, either from the presence of the pseudomembranes in themselves or from the interference

which they offer to the functional activity of the organs involved.

(3) The extent or form of the pelvic disease is no indication of the character or degree of the resulting nervous manifestation.

(4) A most thorough pelvic examination should be made with the aid of an anesthetic, in every *obscure* case of nervous disease in a woman, occurring during the age of menstrual activity.

(5) Some forms of uterine disease may occasion an amount of nervous disturbance, which may require the removal of the healthy Fallopian tubes and ovaries, as the simplest and safest means of cure.

A CLINICAL AND EXPERIMENTAL STUDY OF THE LEUCOCYTOSIS OF DIPHTHERIA.*

BY JOHN LOVETT MORSE, M.D.

A GREAT deal of work has been done during the last few years on the subject of leucocytosis, especially in acute diseases. Diphtheria, however, has been rather neglected. As it is an acute disease with marked constitutional symptoms due to the absorption of the toxic products of bacterial growth, a leucocytosis is to be expected. The observations hitherto reported have shown this to a marked degree.

Bouchut and Dubroisay¹ in 1877 made repeated examinations of the blood by Hayem's method, in 84 children sick with diphtheria, and obtained 4,305,000 as the mean of 93 counts of the red corpuscles; that is to say, a moderate diminution, which was the greater the severer the sickness and the higher the fever. The white cells were, in the average of 93 counts, increased to 26,824, making the ratio of white to red equal 1 to 160. Bouchut gives the following summary regarding the frequency of the occurrence of the various numbers. The white corpuscles amounted to:

0 to 5,000	. . . . .	in 1 case
5,000 to 10,000	. . . . .	in 11 cases
10,000 to 20,000	. . . . .	in 28 cases
20,000 to 30,000	. . . . .	in 19 cases
30,000 to 40,000	. . . . .	in 15 cases
40,000 to 50,000	. . . . .	in 7 cases
50,000 to 60,000	. . . . .	in 9 cases
60,000 to 100,000	. . . . .	once in every 10 cases

The very high grade of leucocytosis reported by these observers seems almost incredible, but is probably to be explained by the fact that they used Hayem's apparatus, which does not compare in accuracy with the Thoma-Zeiss. It is also possible that owing to the lack of bacteriological examinations, there may have been some errors in diagnosis.

In a later communication Bouchut² reports the results of 177 observations in severe "septicemic diphtheria." He found an "acute leucemic" condition of the blood, which increased with the severity of the disease and diminished again with an improvement. He did not find this marked leucocytosis in the lighter cases, however. Hence he considers the examination of the blood as regards the number of the white corpuscles as of importance for diagnosis. No differential count of the white corpuscles was made in these cases, of course.

The only other examination of the blood in diphtheria which I have been able to find reported in an extended search through the literature of leucocytosis, is

one by Reinert.³ He studied one case in a twenty-four-year-old girl, where a blood examination was made, on account of an ulcer of the stomach, before the attack of diphtheria. His results were as follows:

11, xii, 3 P. M. Red, 4,772,000.
 13, xii. Patient sickened with diphtheria with moderate fever.
 16, xii, 3.30 P. M. Red, 5,050,000; white, 5,763; white to red as 1 to 870.
 19, xii, 3.30 P. M. Second day after cessation of fever. Red, 4,398,000.
 19, xii, 4.30 P. M. Red, 4,732,000; white, 7,700; white to red as 1 to 610.

That is, a slight increase of the colored elements was observed during the fever period, "which may be easily explained by the diminished ingestion of food and drink." There was little or no increase in the leucocytes.

As the results hitherto obtained were rather surprising and lacked confirmation, there seemed to be room for further investigation. Moreover, many points had not been studied, as the character of the leucocytosis, its influence on prognosis, and its relation to the membrane, glands, and complications. Through the kindness of Drs. Buckingham and Folsom I have been enabled to examine the blood of 30 cases in the diphtheria ward of the Boston City Hospital. Owing to the lack of time, in but one case was more than a single examination made. The presence of the Klebs-Löffler bacillus had been previously demonstrated in all of them, and none of them were complicated by other diseases, acute or chronic. The effect of the symbiosis with other bacteria was not investigated.

The blood was in every case taken from the lobe of the ear and examined with a Thoma-Zeiss apparatus. It was diluted 1 to 200 with a three-per-cent salt solution colored with methylene-blue, and the corpuscles in one cubic millimetre counted. Cover-slips were in all cases made at the same time, hardened by heat or benzine, and stained with Ehrlich's "triple-stain." A differential count of from 300 to 500 white corpuscles was then made, the classification recommended by Ehrlich being used. As far as possible, the blood was taken at the same time of day and between three and four hours after food. The condensed results of my work are appended in the accompanying table, which is arranged according to the day of the disease.

It is evident from the above table that diphtheria is accompanied by a very marked hyperleucocytosis, larger even than that found in pneumonia. This has become well marked by the third day, and is probably present earlier. In a general way it increases as the disease progresses, is greatest at the height of the disease, diminishes during convalescence, and disappears with or soon after the membrane. It also in a general way corresponds with the amount of membrane, varying with it directly. There are notable exceptions to this rule, however, as in Case VII, where the throat was full of membrane and only 8,000 white corpuscles were found, and in Case V, where there were 42,000, but only a moderate amount of membrane. There seems to be no evident connection between the glandular enlargement and the increase in white corpuscles. It is noticeable, however, that the fatal "septic" cases with greatly enlarged glands all showed a very marked hyperleucocytosis. Some of the mild cases, nevertheless, with little or no enlargement of the glands, showed just as much. The condition of the lungs and kidneys apparently had no influence in determining the number of white cells. It thus becomes evident that the hyperleucocytosis is not due to any symptom

* A paper to which was awarded the First Lyman Prize for the year 1894. This paper will appear in the Medical and Surgical Reports of the Boston City Hospital, Sixth Series.

No.	Age.	Day of Disease.	Hours since Food.	Temperature.	Mucous Membrane.	Glands.	Lungs.	Albumin.	Condition.	Result.	Remarks.	Total.	White.	Ratio.	Small Lymphocytes.	Large Lymphocytes, Transition Forms.	Polynuclear Neutrophils.	Eosinophiles.
1	23	3	2	N.	Slight; mostly nasal	None	Normal	None	Good	Well		5,786,000	9,000	1 to 644	16%	4%	76%	5%
2	12	3	4	100°	Moderate	Small	Normal	None	Very good	Well		4,654,300	18,000	1 to 260	8	5	85	2
3	9	3	4	N.	None; nasal	Small	Normal	None	Very good	Well		4,610,000	14,000	1 to 331	10	3	79	8
4	29	3	4½	99°	Moderate	Small	Normal	None	Very good	Well	Height of disease	5,664,000	16,000	1 to 348	16	4	79	1
5	27	3	1	100.5°	Moderate	None	Normal	None	Good	Well	Height of disease	5,618,000	42,000	1 to 134	15	6	78	1
6	27	5	2	99°	Very little	None	Normal	None	Good	Well	Convalescing	5,562,000	17,000	1 to 308	17	6	76	1
7	13	5	4½	100.4°	Much	Large	Normal	1%	Good	Well		5,696,000	8,000	1 to 699	25	5	69	1
8	4½	5	3½	N.	Moderate	Moderate	Normal	Slight trace	Fair	Well		5,500,000	20,000	1 to 260	11	6	80	3
9	8	5	Eating	99°	Moderate	Small	Normal	None	Good	Well		5,044,000	28,000	1 to 180	11	4	83	2
10	15	5	4	100.4°	Much	Large	Bronchitis	None	Fair	Died in 4 days	Became septic	5,752,000	28,000	1 to 205	11	4	85	0
11	30	6	4	100.4°	Little	Slight	Normal	None	Good	Well	Convalescing. Anemic	3,412,000	20,000	1 to 165	9	4	84	3
12	3	6	Not eating	99°	Very much	Very large	Broncho-pneumonia	Trace	Moribund	Died in 5 hrs.	Septic. Throat and nose "rotten"	5,728,000	40,000	1 to 143	10	6	82	2
13	12	6	4½	99.8°	Little	Small	Normal	None	Good	Well	Cardiac souffle	5,196,000	24,000	1 to 216	17	4	75	4
14	33	6	1	N.	Much	Considerable	Slight bronchitis	None	Fair	Well	Obstruction	5,224,000	48,000	1 to 109	4	2	94	0
15	6½	6	Vomiting 2½	99°	Much	Very large	Normal	None	Moribund	Died in 4 hrs.	Septic. Hemorrhagic	5,300,000	20,000	1 to 265	8	2	90	0
16	4	6	2½	N.	Much	Small	Normal	None	Fair	Well	Slight obstruction	5,164,000	32,000	1 to 161	10	9	81	0
17	9	6	1½	101.2°	Much	Very large	Bronchitis	Slight trace	Bad	Died in 22 hrs.	Septic	4,910,000	42,000	1 to 117	8	3	88	1
18	52	7	4	102.4°	Much	Small	Bronchitis	None	Good	Well		4,656,000	20,000	1 to 233	8	4	88	0
19	2	7	4	97°	Slight	Small	Slight bronchitis	None	Good	Well		5,704,000	12,000	1 to 475	30	7	59	4
20	8	7	3	N.	Moderate	Moderate	Normal	Slight trace	Good	Well	Convalescing	5,412,000	20,000	1 to 270	9	7	80	4
21	27	8	4½	N.	Much	Slight	Normal	½ to ¾	Fair	Well		6,860,000	40,000	1 to 171	9	3	84	4
22	22	8	2½	N.	Much	Small	Normal	½ to 1%	Good	Well		6,068,000	20,000	1 to 303	12	4	83	1
23	9	8	½	99°	Moderate	Small	Normal	None	Good	Well		4,484,000	24,000	1 to 187	16	5	74	5
24	30	9	5	99.4°	Very little	None	Normal	None	Good	Well		5,138,000	12,000	1 to 428	16	7	75	2
25	7	10	4½	N.	None for 2 dys.	Very small	Normal	None	Good	Well	Convalescing. Still K. L.	4,108,000	8,000	1 to 513	19	4	75	2
26	7½	10	3	100°	Little	Moderate	Normal	None	Good	Well	Convalescing	4,770,000	10,000	1 to 477	16	6	77	1
27	24	11	4	N.	Slight	Slight	Normal	None	Good	Well	Convalescing	5,012,000	12,000	1 to 417	23	6	68	3
28	25	13	3	N.	Little	Small	Normal	None	Good	Well	Convalescing	5,625,005	15,000	1 to 375	30	8	59	3
29	24	14	4	N.	Little	None	Normal	None	Good	Well	Convalescing. Memb. kept up by H ₂ O ₂	5,240,000	16,000	1 to 327	10	3	86	2
30	23	21	4	N.	None for 2 dys.	Small	Normal	None	Good	Well	Convalescing. Still K. L.	4,608,000	8,000	1 to 516	32	6	58	4

or combination of symptoms, but is the result of some general influence which is present in every case. This influence can be no other than that of the toxins absorbed. Whether the individual variation is due to the amount of absorption, to some difference in the virulence of the toxin absorbed, or to some difference in the resistant powers of the person attacked, must, in the present state of our knowledge, be left unanswered. In the great majority of cases the increase was in the polynuclear neutrophiles, that is, the typical leucocytosis. In several, however, the proportions closely approached the normal. In a few, chiefly convalescent cases, there seemed to be a lymphocytosis; this, too, in cases without much external glandular enlargement.

The number of the erythrocytes was, with one or two exceptions, always somewhat above normal. The only patient in which they were diminished was a woman, evidently subject to a chronic anemia. I am unable to give any explanation of this increase.

This study establishes the fact pretty clearly, I think, that the examination of the blood in diphtheria as to leucocytosis is of no value in prognosis. For, although fatal cases have a pretty marked one, yet it is almost always present, and often very pronounced, even in the mildest cases.

Having thus established the existence of a leucocytosis in diphtheria, I will now take up briefly the various views with regard to the origin of leucocytosis in general, and later detail the results of some experiments in animals which I have made in this connection. I will take up the theory which seems to me most probable last, that of Goldscheider, comparing his views with the others in turn and quoting largely from him.

Von Limbeck⁴ considers that leucocytosis stands in the closest connection with the formation of exudate, and considers it as entirely secondary to the exudation. He found that when the toxic products of micro-organisms were introduced into animals a reaction followed which corresponded to the size of the dose; that neither blood nor other tissues reacted to small amounts; and that after larger, a local reaction and proportionate hyperleucocytosis occurred. A much more significant reaction of the tissues and a greater hyperleucocytosis followed when living micrococci were introduced. He concludes that the hyperleucocytosis arises from the development or presence of bacterial products in the organism, which have a further action on the white cells and bring them into the circulation. He does not explain what this action is, and expresses no opinion as to whether those cells are new-formed or merely driven out of the blood-forming organs. He nevertheless calls attention to chemotactic action as probably playing a rôle in the process.

His theory must be considered as of little value, however, as he did not recognize the hypoleucocytosis which has been found by other observers. His failure to find this was undoubtedly because he made no examination under forty-eight hours. Moreover, other investigators, notably Goldscheider and Jacob, have produced a marked hyperleucocytosis by the subcutaneous injection of organic extracts without producing any swelling or exudate. These experiments evidently destroy the foundations of von Limbeck's theory.

Römer⁶ as the result of his own and Buchner's⁷ work concludes that the destructive products of dead bacteria or other cell-life, when introduced into the circulation, exert a direct formative action on the white

cells, causing a new formation of leucocytes, exclusively in the venous blood. This increase arises through amitosis. He also claims that the cells found increased may in part be already present in the blood-making organs and be brought into the circulation by chemotactic action. Rieder⁸ and Löwit completely contradict his experiments and arguments while Goldscheider and Jacob find no difference in the blood of the veins and arteries and show conclusively that after a short time there cannot be. Their experiments show that there is no such thing as hyperleucocytosis in the veins alone, which could only occur as the result of a direct new formation of white cells in the circulating blood. Both Löwit and Goldscheider and Jacob deny that this takes place. They both find immediately after the hypoleucocytosis almost exclusively mononuclear cells. Gradually, however, during the course of the hyperleucocytosis, a decided preponderance of polynuclear arises. Goldscheider and Jacob also lay much stress on the fact that most of these cells are eosinophile, and hence consider that they are not entirely formed from the new mononuclear but are partly old cells which were lying in the bone-marrow ready for extrusion and have been brought into the circulation in increased numbers as the result of the chemical irritation of the injected material.

Löwit considers hyperleucocytosis to be entirely independent of chemotaxis, and believes that it is due solely to a previous impoverishment of the blood in leucocytes. He also believes that a hyperleucocytosis occurs every time after a part of the leucocytes have perished, because an increased influx of young leucocytes out of the blood-forming organs is thereby brought on, that is, hyperleucocytosis follows leucolysis, which may result from the presence of certain substances, as bacteriological products, in the blood. He found that in all cases immediately after the injection there was a decided diminution in the leucocytes, but that then a gradual increase took place, which developed as much more intensely as the previous diminution was great. Thus, according to Löwit, hypoleucocytosis and hyperleucocytosis are two processes which are inseparably connected, the second occurring as the result of the first and being impossible without it. Goldscheider and Jacob were able, however, by the use of repeated small injections, to produce a primary hyperleucocytosis. They also showed, by autopsies, on animals killed during the stage of hypoleucocytosis that the leucocytes were accumulated in the capillaries of the lungs and not destroyed. Löwit denies chemotaxis any part in the production of leucocytosis but recognizes, however, that he cannot explain how leucolysis causes such a marked discharge of young cells from the blood-forming organs. It is difficult to see on what grounds he can deny the influence of chemotactic action upon this process.

Schultz¹⁰ believes that in all conditions which are considered as hypoleucocytosis and hyperleucocytosis the white cells are neither diminished nor increased, but are merely distributed differently in the vessels. According to his experiments with protein and other injections there is neither a destruction of leucocytes — Löwit's leucolysis — nor an absolute increase of the leucocytes from the blood-forming organs afterward. That is, he believes that the hypoleucocytosis is merely due to the accumulation of the white cells in the central vessels with a corresponding diminution of those

in the peripheral, the hyperleucocytosis being due to the reversal of these conditions, the cells simply being differently distributed. Goldscheider and Jacob, however, found that the cells which accumulated in the capillaries of the lungs remained there, even increasing in number during the early stage of the hyperleucocytosis, thus showing that there is no shifting of the cells but an absolute increase. This increase is sufficient to counterbalance the first loss of cells from the general circulation and still far exceed the number normally there.

Goldscheider and Jacob⁶ have performed a very large number of very careful injection experiments on rabbits, using extracts of various organs and bacterial products. Many of their results have been already noted. They made counts immediately after injection and then at frequent intervals. After injections into veins they found in one case a marked hypoleucocytosis in twenty-five seconds. On the average the hypoleucocytosis reached its minimum in five or ten minutes; then the number began to increase, the maximum hyperleucocytosis usually being reached in five hours, but often only after twelve to eighteen hours; the normal was again reached in twenty-four to forty-eight hours. After subcutaneous injections the results were the same, but slower in making their appearance, the minimum appearing in three or four hours, the earliest maximum in fourteen to eighteen hours. Autopsies on animals killed during hypoleucocytosis showed the capillaries of the lungs to be full of leucocytes; there were as many, or more, in them during the hyperleucocytosis. They also succeeded by giving repeated small injections, in producing a primary hyperleucocytosis. In other cases, by using very large doses, they caused death while the hypoleucocytosis still persisted.

Müller,¹¹ Everard, DeMoor and Massart,¹² and Canthack¹³ have obtained similar results as regards hypoleucocytosis and hyperleucocytosis. Everard sums up his work as follows: The injection of bacterial cultures, living or dead, results first in a diminution of the circulating leucocytes, especially of those with multiple nuclei and granular protoplasm. When the animal survives the infection, the stage of hypoleucocytosis is followed by one during which the polynuclear granular cells are very abundant; then the blood resumes its normal characteristics. The hyperleucocytosis is not typical in cases which succumb to the infection, or may be entirely wanting in those which die quickly. Sometimes, when the infection is prolonged, it is replaced by a series of oscillations. Canthack made hourly examination of the blood after the injection of filtered cultures of vibrio Metchnikovi. He found, at first, during the rapid rise of temperature a marked diminution of the leucocytes which persisted until the pyrexia passed its climax. Four to six hours after the number was enormously increased, reached its height at the ninth hour, but persisted, though to a less degree, for forty-eight or seventy-two hours, or even longer.

As the result of their experiments, Goldscheider and Jacob conclude that the phenomena of leucocytosis are due to chemotactic action. The first action is a repellent one on the leucocytes, and they are arrested and held in the lung capillaries, where they remain. The second is irritative—attractive—on the blood-forming organs, and the white cells already formed there are set free and an increased number of new

ones formed and also set free. Some of these also are arrested in the lungs as the result of continued repellent action. There is no instant leucolysis, and the process is something more than a mere changing of leucocytes, without increase, from the inner vessels to the outer, and *vice versa*. They explain the hyperleucocytosis without hypoleucocytosis which occurs after small doses by the fact that the small quantity, being distributed throughout the whole circulating fluid is not sufficiently concentrated to exert an energetic enough repellent action on the leucocytes to cause much retention in the capillaries. If, however, such small doses are repeated at certain intervals, the positive, or attractive, influence gradually increases, finally becoming far superior to the negative influence which is exerted by these small doses. Thus the equilibrium between the two processes is finally destroyed in favor of the first, the result being a decided hyperleucocytosis. They explain death during the hypoleucocytosis by the continuation of the repellent action, the irritative action being so strong as to paralyze the blood-forming organs.

Several difficulties confront us when we attempt to compare the leucocytosis in man with that observed in animals. We naturally cannot subject a sick man to so frequent blood-examinations as an animal; and as the disease often extends over days and weeks, important changes may easily escape observation. Moreover, we almost never get a blood-examination in the early stage of a disease. However, the vast number of blood-examinations which have been made clinically during the past few years, have given us a general idea of the leucocytosis in most diseases. A hyperleucocytosis has been demonstrated in most acute infectious diseases, especially febrile.

A constant diminution has been found only in typhoid, malaria and puerperal sepsis. There is said to be a decided hypoleucocytosis in the acute infectious diseases where the patients die within a few days. This is certainly the case in pneumonia. I have not observed it in diphtheria, the only case which had a normal number of white cells recovering.

It is possible that there may be a primary hypoleucocytosis in man, but, as already noted, the patient is almost never seen early enough to demonstrate this, if it exists.

It has been shown above, however, that it is possible experimentally to produce a primary hyperleucocytosis. Now the conditions in man are essentially the same as those in the experiments made regarding this point. For the ordinary method of infection is not by the sudden entrance of a large amount of toxic substances into the circulation, but by the continuous absorption of small quantities. Hence we expect a hyperleucocytosis without a previous hypoleucocytosis. If the infection be extremely sudden and severe and rapidly fatal, we have a condition analogous to that in animals killed by a very large dose during hypoleucocytosis. That is to say, the toxic material is sufficiently concentrated to paralyze the blood-forming organs. This would explain the fatal cases of pneumonia with no increase of white cells. Thus it is evident that the chemotactic theory explains satisfactorily the leucocytosis found in man as well as in animals.

A series of experiments was made on animals to determine primarily whether the hyperleucocytosis observed clinically in diphtheria was due to the Klebs-

Löffler bacillus and its toxines or to associated bacteria. As far as I know, these are the first injection experiments ever made on animals with this bacillus or its products. At the same time a careful study of the leucocytosis was made, and the work of previous investigators in this line gone over. Autopsies were made in all cases and the organs examined.

Rabbits were used, as their ears naturally fit them for intravenous injections and the blood is easily obtained. The normal number of white corpuscles averages a little higher than in man. As there is a considerable variation in individual animals a count was made in every case before beginning an experiment. Rabbits offer the further advantage that they present no digestion leucocytosis.¹⁰ The blood was always taken from the ear and diluted (1 to 200) with a three-per-cent. salt solution colored with methylene blue. The Thoma-Zeiss instrument was used, and the corpuscles in at least fifteen cubic millimetres counted. The differential counts were of 500 white cells hardened with alcohol and ether and stained with Ehrlich's "triple-stain." The toxines used were from a filtered bouillon culture which had been twenty-three days in the thermostat, and was preserved by the addition of one-half per cent. of carbolic acid.

I wish here to acknowledge my indebtedness to Dr. J. H. Wright of the Harvard Medical School for the use of the toxine solution, and to thank both him and Drs. Councilman and Mallory for valuable advice and assistance in my work.

(To be continued.)

Clinical Department.

OBSERVATIONS UPON CASES HAVING THE SO-CALLED "TÂCHES BLEUÂTRES" IN THE BOSTON CITY HOSPITAL.¹

BY VINCENT V. BOWDITCH, M.D.,
Assistant Visiting Physician.

SYNONYMS: tâches bleues, tâches ombrées, tâches ardoisées, tâches phthiriques, maculæ ceruleæ, macules cyaniques, pelioma typhosum.

ALTHOUGH reference to the literature upon this subject seems to indicate that the presence of these *tâches bleuâtres* is of little diagnostic significance in any case, yet their precise origin seems still to be a matter of some doubt, and hence a collection of the various theories upon the subject is of interest.

At one time these bluish spots, varying in diameter from the size of a pin-head to that of a fifty-cent piece, not disappearing upon pressure, and most frequently found upon the abdomen and flanks, during the course of typhoid fever, were supposed to be due to that disease. Slight allusion is made to them in Flint's "Practice of Medicine," under the head of Typhoid Fever, but no suggestion is made as to their causation. Trousseau had noticed them also in typhoid fever. Other observers found that the spots were not confined to typhoid, but noticed them in various other diseases: yellow fever, pleurisy, pneumonia, gonorrhea, and also in non-febrile diseases.

In 1868 Moursou, a pupil of Falot, and physician in the French navy, first advanced the idea that these spots were not the result of any one disease, but were

due to the presence of pediculi pubis. Later, in quite an elaborate and careful paper, he gave his proofs of this theory, and as a result of his observations, makes the following statements:

Over 250 cases had been observed in every variety of climate and in diverse diseases, mild and grave. Delicacy of the skin, a blond complexion, and a phlegmatic temperament, he noticed, were the most usual accompaniments of the spots. He asserts that every time he found these spots the pediculi pubis or their ova were also present. He noticed, moreover, in healthy men who had had the parasitic infection for at least twenty days, that the majority of them had the *tâches bleues*.

Moursou's observations were so carefully made that one is certainly impressed by the probable truth of his theory, which has been substantiated by subsequent observers, namely, O. Simon, Gibies, Gebbin, notably by Duquet and Mallet. The former injected under the skin a paste made with the bruised pediculi and water, and spots similar to the *tâches bleuâtres* made their appearance. Mallet believes that the color is caused by the secretion contained in the thorax of the pediculus opposite the anterior pair of legs where there are two pairs of salivary glands, the contents of which are conveyed under the epidermis through the "haustellum" or sucking apparatus of the insect.

Most of the modern text-books in speaking of the *tâches bleues* seem to accept the theory of Moursou, notably Ziemssen, Strümpell, and Osler, although Osler evidently feels some doubt as to whether the mere presence of the pediculi is the cause of the spots, or whether there is not some accompanying condition of the patient which favors their appearance. He says: "If really caused by these parasites, it is difficult to understand why they should be present only with fevers," which implies that he has not met with them in non-febrile cases. An objection to the theory of Moursou was brought forward by some from the fact that the *tâches bleues* are sometimes found upon people of undoubted cleanliness of body, and of the highest moral character; an objection which would not in itself seem to be valid, because of the undoubted fact that such people have often by accidental means become infested by these insects, the presence of which can have been easily overlooked by the examiner.

In an article entitled "Blue Spots in Typhoid Fever," in the *New York Medical Journal* of October 20, 1894, Dr. A. V. M. Anderson, of Melbourne, Australia, is quoted. In the *Australian Medical Journal* of August 20, 1894, he writes that the "rash" is one of the least commonly seen in typhoid fever, and probably escapes observation on account of indistinctness. He found them in eight out of 915 cases. In five they were present upon entrance, the duration varying from five to fifteen days; in others they appeared on the fifteenth, twenty-first, and forty-second days, and disappeared usually in a week or ten days.

Dr. Anderson could find no evidence of the pediculi pubis, and had not noticed them on patients with other diseases. They were detected over the course of the subcutaneous veins, and would seem to indicate, according to Dr. Anderson, that they are due to an altered condition of the blood, which shows itself in the tendency to epistaxis in so many cases of typhoid. He regards them as of little clinical significance.

Still another theory is advanced by Professor Revilliod, of Geneva, for the purport of which I am in-

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

debted to Dr. C. G. Cumston, who informs me that in a clinical lecture upon the subject, Revilliod stated that he believed the spots to be due to the excrement of the pediculus pubis, which he believes to be an insect of very cleanly habits, and that during the night he leaves his usual seat at the root of the hair, and deposits his feces in adjacent portions of the body. I have been unable, unfortunately, to obtain Revilliod's proofs either for this action on the part of the insect, or for his theory of the excrementitious nature of the spots; but it serves to show the diversity of opinion which still exists upon the subject.

Another theory which has been advanced is, that this insect has a special liking for the bodies of patients suffering certain diseases; but although they certainly seem to have been noticed more frequently in typhoid fever than elsewhere, as yet no substantial proof has been given that this fact is anything more than mere coincidence.

During my service in the last two years I have come across nine cases in which the *tâches bleuâtres* were present, and in every case the presence of pediculi pubis was proven. Three of these cases were typhoids, which recovered, and the others were one each of phthisis, jaundice from gastro-duodenitis, acute bronchitis, intermittent fever, hysteria, and the one which showed the most numerous spots being a fatal case of cerebral meningitis following an otitis media. Of these cases seven were males and two were females.

In Dr. George B. Shattuck's service this year up to the present, eight cases are recorded in which the blue spots were noticed, but unfortunately no record is made as to whether the pediculi were also present or not. In two which I examined I was unable to find the insect by most careful search, but in one of these cases I only made the examination on the day of discharge of the patient, who had been ill several weeks with typhoid; and in the other the patient had been transferred from the surgical ward as a possible typhoid case, having entered with suspected appendicitis, so that sufficient time had elapsed for the removal of possible pediculi before I saw the patients. The other cases, six in number, were all typhoids, which also recovered.

Judging by the frequency with which pediculi were found to be present in my cases, I can but feel that they would have been found in at least the majority of the other cases had special attention been directed to this point earlier.

Although from such a small number of cases nothing can be proven absolutely, yet they at least show that the spots can appear in quite a variety of diseases, and are not confined to either severe or mild forms of disease.

From this comparatively slight experience I am led to accept the view of Moursou as the correct one.

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Medical Progress.

RECENT PROGRESS IN LEGAL MEDICINE.

BY F. W. DRAPER, M.D.

CADAVERIC RIGIDITY.

Tissot has formulated some new views concerning post-mortem rigidity which differ from the theories previously promulgated by physiologists.¹ Most authorities have accepted the explanation of this phenomenon offered by Brücke and Kühne, that it is due to a chemical change, the coagulation of myosine; while others, following Ingsten and Brown-Séquard, regard it as a final contraction of the muscles and thus a physiological fact. Tissot's conclusions are as follows: (1) The rigid muscles can very often be electrically excited for a variable period after the advent of rigidity and even when it is completely developed. This persistence of excitability is almost constant in cases in which rigor mortis has supervened with rapidity. (2) The rigid muscles which have lost their electrical excitability often preserve their mechanical contractility for a considerable time. (3) The rigid muscles which have lost both their electrical and their mechanical excitability can still be excited to contraction by chemical stimuli. Contrary to the statements of several physiologists, the excitability of muscles to chemical reagents (chloroform, ammonia, ether, etc.) persists much longer than the mechanical contractility and is always the last to be lost. (4) Whilst the electrical excitability progressively diminishes, the excitability of muscles under certain reagents increases and reaches its maximum when that under electricity has disappeared and at the moment when the muscle becomes rigid. With some reagents, however, the reverse occurs and the diminution of the excitability is progressive. (5) Tetanized and fatigued muscles present an exaggerated sensibility to chemical reagents in the same manner as rigid muscles. This reaction has also been observed in muscles whose vessels have been ligatured for some time, and in muscles which have been submitted to the action of air, heat, drying effects, etc. (6) Contraction produced in rigid muscles by the action of some excitant, even if it be only a limited exposure to the vapors of chloroform or ammonia, is accompanied by the production of a "current of action" in the muscular fibres; it is also accompanied by the disengagement of heat, as in the contraction of living muscle. (7) Rigid muscles, when exposed to the air, give off carbonic acid and absorb

¹ *Lancet*, May 26, 1894, p. 1320.

oxygen. (8) In his experiments, Tissot was able only twice to cause the onset of rigidity in the gastrocnemius of a frog by a single strong electric shock, just before the moment when the muscle would have lost its electric excitability.

THE COURSE AND EFFECTS OF BULLETS.

Victor Horsley recently presented an instructive paper before the Royal Institution, on the effects of modern small projectiles.² He said: "Some people seem to think that a small bullet at a very high speed will pierce the tissues of the body without doing much general damage. This, however, is erroneous. The bullet carries forward with it particles of the substance through which it is passing and thus practically becomes a larger projectile. If a bullet be fired through a book, it cuts out disks of increasing diameter as it traverses the pages. Hence, too, it is plain that the greater the sectional area, the greater the damage. As to the heating of the bullet, it has certainly been much exaggerated; and its effects in this direction, if indeed it has any, may be safely neglected. The physical constitution of a body has a most important bearing upon the behavior of a bullet entering it. Why does a bullet of a certain size and travelling at a certain rate, simply perforate some substances, such as wood or iron, while in others, such as clay, brain, etc., it exercises a bursting and disruptive action? The answer is quite simple: the destructive effects vary directly as the viscosity of the body. This was established by some remarkable researches on the effects of bullets on soft tissues made by Hugnier, after he had observed the results of the wounds inflicted in the fighting in Paris, in 1848. He suggested, from observations made on certain dead organs, such as lung, that the reason of the great lateral disturbance was that the tissues contained water in large quantity; and that the energy of the moving projectile, being imparted to the particles of water, caused the dispersion of these in a hydrodynamic fashion. This suggestion was shown to be correct by Kocher in 1874-76. If a shot be fired through two tin canisters of equal size, the one full of dry lint and the other of wet, in will simply perforate the former, but will cause the latter to burst explosively. In the same way, shots fired into dough have more or less disruptive effects according to the percentage of water in the dough; and, in general, the more fluid the substance, the greater the destruction. Now, in life the brain is a more or less fluid body; hence, a shot fired into the skull must have a disruptive effect and tend to burst it."

ABORTION INDUCED INSTRUMENTALLY BY THE WOMAN HERSELF.

Goenner³ reports a case of a woman, thirty-seven years old, who had given birth to four children at term, and induced an abortion, without assistance, three times. Believing herself to be pregnant, she inserted an elastic catheter into the vagina. The operation caused considerable pain, and on withdrawing the catheter some hemorrhage occurred. It was discovered that a part of the instrument remained behind. An attack of peritonitis followed, and abortion occurred five days after the use of the catheter. Six days later, during defecation, the patient was seized with severe

pain in the lower part of the abdomen and in the ileocecal region. No trace of the retained piece of catheter could be found by palpation and operative procedures were considered, when the missing fragment was passed in a fecal discharge. The vagina did not present any punctured wound. The patient eventually recovered.

RIGOR MORTIS IN A FETUS.

At a meeting of the Edinburgh Obstetrical Society, December 12, 1894,⁴ Dr. Ballantyne presented notes on a case of cadaveric rigidity in the fetus. The mother had not felt any movement for two days previous to labor, which was premature at six and a half months. The fetus at birth had the left arm sharply bent at the elbow, and on attempting to straighten it there was marked resistance and the biceps became very prominent. A similar condition was present in the right leg, which was bent at the knee. Two hours later, resistance could still be felt, but all signs of rigidity had disappeared the next morning. The reporter of the case reviewed the literature on the subject and had collected records of twenty-five cases extending over a period of forty years.

TENACITY OF VITALITY IN HUMAN SPERMATOZOA.

Various authorities state that zoosperms may continue to move in the fluids of the seminal tract after death and for an indefinite time; the periods stated vary from twenty-four to eighty-four hours. Outside the body the movements of the spermatozoa have been observed for seventy-two hours by Hofmann, and Montegazza has seen them active four days after their discharge, the temperature being favorable. A case is on record in Beale's *Archives* in which active spermatozoa were found in the mucus taken from the vagina of a little girl fourteen days after she had been violated. And Mr. Piersoll⁵ has recently published observations showing that zoosperms kept at a temperature of 8.5° C. will continue to show movements for nine days.

BULLET-WOUND OF THE BRAIN, WITH SURVIVAL FOR TWELVE DAYS.

Cases of perforating gun-shot wounds of the brain in which the missile was extracted during the life of the patient, from the side of the head opposite to the wound of entrance, are certainly rare; and such cases terminating in recovery are still more rare. Dr. Tefft of Springfield, Missouri, reports an instance of unusual interest, which, though not ending in full recovery, has some extraordinary features. A healthy boy, twelve years old, was shot at short range with a twenty-two calibre revolver. The ball penetrated the frontal bone, seven-eighths of an inch above the upper margin of the left orbit and one inch from the middle line. A Nélaton probe dropped by its own weight through the brain a distance of seven inches as the boy lay on his back, the progress of the instrument being checked by the inner table of the occipital bone. Under antiseptic precautions, a disk of bone was removed with the trephine from the occipital bone over the point believed to cover the posterior end of the cerebral lesion. The operator was rewarded by finding the bullet at a point an inch and a half below the exit wound in the brain, and imbedded in the sub-

² Medical Record, June 9, 1894, p. 731.

³ Centralblatt f. Gynäkologie, 1894, No. 3.; American Journal of Medical Sciences, May, 1894, p. 598.

⁴ Lancet, December 29, 1894, p. 1541.

⁵ Medical Record, May 19, 1894, p. 645.

⁶ Loc. cit., April 21, 1894, p. 495.

stance of the brain at a depth of from half an inch to three-quarters. Before the operation the boy was unconscious and had bled freely. After the removal of the slug, whose weight was twenty-three grains, the patient regained consciousness, was intelligent, ate, drank, talked, recognized his friends, and took an interest in his surroundings. The special senses were not affected. There was no paralysis. On the eighth day the boy was restless; his temperature rose; his pulse increased; his pupils dilated; he became apathetic. Coma developed, and he died on the twelfth day after his injury. A partial post-mortem examination of the wounded part failed to reveal any suppuration—the track of the bullet was still open. The immediate cause of his death was not determined.

THE PHYSICAL SIGNS OF VIRGINITY.

An editorial writer in the *British Medical Journal*⁷ so clearly states the need of conservative judgment in discussing this topic, that his words will bear repeating as a caution against dogmatism. After introducing his subject with the declaration that "the doctrine has come down to us from venerable antiquity that the hymen is the sign of virginity; its laceration the proof of defloration; its presence or absence the test of the virtue of an unmarried woman," the writer concludes his paper with these words: "It is clearly of the greatest importance that medical witnesses should exercise much caution in giving evidence in cases where the chastity of a woman is called in doubt. The presence or absence of a hymen is a mere matter of fact; but whether the law cares to admit it or not, juries certainly accept the evidence of experts as expressing not only a fact but an opinion upon it. Although, then, it remains true that in a small number, comparatively a very small number of cases, the signs of virginity may persist after carnal intercourse, and although it may be impossible by any one sign or fixed criterion to say that a woman is a *virgo intacta*, still it is often possible for a medical man, taking all the circumstances into consideration, to form an opinion which may be very useful to a jury in arriving at a verdict upon a case. It is not merely a question of a hymen, but of its completeness, its position, its thinness and its apparent lacerability under the asserted conditions; and, also, it is to a certain extent a question of these conditions themselves. A persistence of hymen which would be no disproof of rape by an old or feeble man, might, in the mature judgment of an experienced surgeon, be quite incompatible with sexual intercourse with consent. It might, however, be far better were medical witnesses to be appointed either by the judge or by consent of both parties, so as to do away with even the appearance of conflict between them [the experts]. This, however, we fear is at present but a counsel of perfection."

LIFE INSURANCE OF CHILDREN.—The Memphis Board of Health has sent a communication to the Tennessee State Board of Health, calling for such action as will lead to legislation prohibiting the insurance of the lives of infants and children within the State, on the ground that the practice leads to criminal negligence of children, and is to that extent prejudicial to public health. — *North American Practitioner*.

⁷ January 5, 1895, p. 27.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, December 10, 1894,
DR. C. F. FOLSOM in the chair.

DR. W. H. BAKER read a paper on

THE REMOVAL OF THE UTERINE APPENDAGES FOR NERVOUS DISEASE.¹

DR. J. HOMANS: From the title of the paper that was sent to me I did not expect quite such a paper as Dr. Baker has given us. I thought that his paper was to be on the effect on the nervous system of removal of ovaries and tubes. I took up my cases this afternoon to look through and got quite interested in reading a number of them, and I hope you will be also if you are not too much bored.

My first case I did about twelve years ago for what was called hystero-epilepsy, menstrual insanity. A doctor who was a relative of the patient wrote me about the patient and we concluded to operate.

I would like to say that my experience has not been like Dr. Baker's. I have had one or two very brilliant cases, but I never remove healthy ovaries and tubes for nervous disorder without the sanction and the support of Dr. Cowles or some equally high authority in nervous diseases. I will simply say that I operated on this young lady March 22, 1883. I found after I had operated that she had been in the habit of taking much more morphia than I had supposed. At any rate the ovaries and tubes were removed and we found the uterus very small. There was improvement in this woman for over a year so that the outlook seemed quite hopeful, but as soon as she got able to do something, being rather brilliant of mind, she began to write for magazines, and got money and purchased morphia, and went back to the morphia habit. She died in 1890 of consumption, seven years after this operation. I was present at the autopsy. The limbs were scarred all over with marks of the subcutaneous syringe. I could not see that the operation had been of any benefit.

The second case I operated on was at the request of the late Dr. Goldsmith. The case was reported by him in the *American Journal of Insanity*, and was really a brilliant case and complete cure, as far as the girl could be cured. I will read a little about her life:

The doctor gives a long account of the biography of the patient, as to the causation of the insanity, and thinks an accessory cause was eroticism. He asked me to remove the ovaries, which I did at the Danvers Asylum. She recovered rapidly. Was never unwell afterwards and her pain in her right side was less. She came home at the end of two months, and was entirely free from any attacks of insanity afterwards. She came to me about a year later with her mother, and I raised a little money with which she got a pony and peddled berries, etc. She was very gentle when I saw her on several occasions. She went on with peddling, and a few years afterwards died suddenly (of apoplexy?). That, I think, is a brilliant case, and it seems as if the removal of the ovaries and tubes was the turning-point.

¹ See page 224 of the Journal.

The third case was an insane lady. I operated at the request of her doctor, and I do not think it made any difference one way or the other. She was just as crazy afterwards as before, and died of phthisis a year afterwards at the Worcester Asylum.

The fourth case was a married woman of thirty-six. Pain and tenderness in the left iliac region ever since she can remember. In 1884 went to the Adams Nervine Asylum. She could do nothing at all when I saw her. She was almost bedridden, and had terrible pains, troubles and sufferings. In consultation with Dr. Chamberlain of Lawrence, I removed the ovaries and tubes in August, 1885. She continued menstruating with more pain than before, and in 1890 was still menstruating, her condition being no better and no worse.

The fifth case was very much like the first, a morphine-taker, single, twenty-eight. I operated in November, 1885. Dr. Tenney had the care of this woman. She was very hysterical, peculiar girl. I operated at Dr. Tenney's request, and with the idea that all her sufferings were very much increased at the menstrual period, and that her life was becoming a wreck; but I found that she was taking morphine to excess. Dr. Tenney reported that she was very much better afterwards, but I could not see that she was any better. She went to the Adams Nervine Asylum. In 1887 she was reported free from the morphine habit. I do not think the operation was of any benefit, and I did not have much faith in the doctor's statement that she was free from the morphine habit.

The sixth case was a single woman, thirty-six, a teacher, also a morphine-taker. She had insane impulses at times and great pain when unwell. I operated at the request of her brother, who was superintendent of an asylum. He promised me that after the operation she should have no morphine; but he and her sister gave her a little morphine, and gradually gave her more. She recovered entirely from the operation. I could not see that she was better or worse. She went to the South End, and was treated by a doctor with cocaine instead of morphine. Whatever she was treated with she died suddenly apparently of an overdose of some drug. Dr. Whitney made an autopsy, and found no cause for death unless it was toxic. She had also been at the Adams Nervine Asylum.

The seventh case was a single woman, twenty-eight. Ovaries and tubes removed for the same causes. Pain in the left groin, in the spine and in the back of the head. Thought to be worse at the menstrual periods. She was no better after it.

The eighth case was another good case, a morphine case, the wife of a physician. Her left ovary was rather enlarged and lower than it ought to be. The left ovary and tube were removed. She gave up the use of morphine, gained in a year twenty-six pounds, looked bright and cheerful, and takes no morphine now. She has had her monthly turns once in three weeks instead of once in four weeks. The pain was probably relieved by the removal of the ovary and tube, and she gave up the morphine because she no longer needed it.

The ninth case was a single woman, twenty-eight. Ovaries removed on account of pain. Done in 1887. No better, no worse.

The tenth case was a married woman, no children. Better for a time, but I cannot see that she was permanently improved.

On March 5, 1892, I operated on a woman, thirty-two, single. Two years of continued pain and suffering, pain and tenderness of the left side. Uterus symmetrically enlarged, four times its natural size. The right Fallopian tube red and enlarged and two acute flexures in it. Right ovary and tube removed. That woman was very much improved.

Another was a pretty good one, and she also had been in the Adams Nervine Asylum before I operated, and I think she has been there again. She was the wife of a physician. She had erotic dreams. One of her hopes was that removal of the ovaries would take away that feeling. I operated in 1885, and found a fibroid tumor, some ascitic fluid, and the cavity of the pelvis filled to the brim by the fibroid which extended to the umbilicus. Both ovaries and tubes were removed. The fibroid disappeared in four weeks and could not be felt. She went away feeling remarkably well. She continued very much better for a number of years; went home and played whist and had parties, and was pleasant with her husband, but did not get rid of these erotic feelings. As time has gone on she has gradually become pretty feeble; and yet, on the whole, I think when we consider that the fibroid disappeared and she has had several years of comparatively good health, I think the operation was a success, but it did not absolutely cure her.

Another case was a young lady on whom I operated in 1891 for the first time. I removed the ovaries and tubes on account of menstrual agony, dysuria and pain at her earnest instigation; and it has not done any good to her pain. The menstruation continued, too, but I think the use of the catheter was not nearly so frequent. She went on with the pain, emaciation, debility, etc.; and two years later I removed the uterus by the vagina. She has not the menstruation and the bladder symptoms are relieved, but the pain is just the same; so bad has it been, that last spring at her importunity I said I thought it would be an intelligent proceeding to open the abdomen and ascertain if there were any adhesions. I opened the abdomen, but found everything just as clean and healthy as could be. It was very interesting because I had removed the uterus from below. There was just a little pucker from the bottom of the pouch of the peritoneum where the uterus had been, but no scar. The wound was sewed up, and she was up in a short time; and her pain was just the same as before. I sent her to the mind-cure, and they did not seem to do any good. She has never contracted the morphia habit. Certainly the removal of the ovaries and tubes has not done any good in this case.

That concludes my experience in this subject. I thought Dr. Baker's paper was to be more on the cure of nervous disease by the removal of the ovaries and tubes. My belief in the efficacy of removal of healthy ovaries and tubes for the relief of nervous disease is very slight. I think it may once in twenty times perhaps, do some good; but I should never do it without the advice of some alienist in whom I had confidence.

DR. R. T. EDES: If I had known how conservative were the views taken by these gentlemen I do not know that I should feel like saying anything. But I am confident I have met some surgeons who were not so careful to wait for the proof of some positive disease or some connection between the ovarian disease and the nervous disease. I remember a

few years ago some young man, I think of a small town in West Virginia, did something like one hundred more or less normal ovariectomies in the course of about a year. I am very much pleased to hear how conservative the profession here are. I should have remarked a short time ago that my field of observation was of a character not to show me anything like the proportion of favorable cases; but since hearing Dr. Homans's remarks my list comes nearer to his than I had thought it would. I have known of quite a number of these cases he has spoken of. I should coincide with him in his views in regard to a great many of them. I might speak in detail of one or two I have known something about. A case came under my observation some years ago, a lady physician, who had had her ovaries removed for what I have little doubt were hysterical symptoms, but which she thought were due to strychnine or something of that kind. Since then she has grown steadily worse, violently insane, and is now hopelessly insane at St. Elizabeth's. Before she was taken sick I got her to see a patient of mine who had a good deal of menorrhagia and a good deal of pain at the menstrual period, and she introduced a female physician from Philadelphia, and they were anxious to perform ovariectomy on this lady. I gave a qualified assent. She did not have it done at that time, and I got her to see Dr. Homans; and he, without absolutely declining an operation, spoke so doubtfully about it that she concluded not to have it done, and there were reasons why she could not have it done at that time. She did not have it done at all and got well. This family physician who had advised the removal of her ovaries had since had her own removed and was staying at my house when the second lady, then in comparatively good health, came to call upon her.

I took pains to get the history of some twenty cases, and several are those Dr. Homans has spoken of. I got at, as far as I could, the condition of the ovaries removed. I do not know how accurate it is. Sometimes they are spoken of as healthy, sometimes slightly cystic; others, cystic and indurated. Out of the twenty there is one person spoken of as a well woman. Dr. Webber told me the other day of a patient who had been under his care at the Adams Asylum. The case was evidently of hysterical character; quite a young woman. She had had her ovaries removed by Dr. Haven, and she was well. There are two cases, apparently, out of twenty-one.

The case Dr. Homans spoke of as menstruating with pain long after, and where he was doubtful as to her having got rid of the morphine habit, I did not at first recognize, because the doctor who gave me the account of it did not give me the name of Dr. Homans. Dr. Homans is right as to her not having improved very much.

Another case which Dr. Homans referred to I have noted as a death by cocaine. Another case, a patient, with hallucinations of many kinds, is still at the asylum, although she is going away to-morrow. I supposed when she came she had had large ovarian tumors which were removed simply on surgical grounds, but it seems the case was of this same class. I should say from the description of the case that the operation had given considerable relief.

A number of cases have applied for admission who have had the ovaries removed, and have been declined

because we have got to look upon those cases as so hopeless; not that the operation necessarily makes them worse, although it has seemed to me that sometimes it has served to fix the condition. The truth probably is that the operation is not usually done except in cases already very severe and obstinate. Certainly our experience is that they are not a very encouraging class of cases.

There is one case on the list operated on by Dr. Baker a number of years ago. She was with us as a chronic invalid and I have heard from her as being in much the same condition. She menstruated with a great deal of pain and difficulty, but the pain was not quite so great as before the operation.

I should say that the removal of the ovaries was chiefly a surgical question, that the ovaries and tubes when diseased are properly subject to a surgical operation, but that the removal of the healthy ovaries was something which should be undertaken certainly very, very rarely. If cases like the second Dr. Homans spoke of were frequent, I should feel differently; but I do not think they are frequent.

I may add one word as to the absolute safety of the operation. One of our patients who suffered severely from hysteria and dysmenorrhea went, after suitable consultation, to a hospital where I suppose the surgery to be as good as is done anywhere in the world. She died of this operation in a week, apparently of nervous shock, there being no signs whatever of sepsis.

DR. F. H. DAVENPORT: I think it is a fact that the general consensus of opinion in regard to the removal of healthy ovaries and tubes for nervous symptoms is that it should be exceedingly rarely done. I think even those who are most ready to remove such organs for slight disease are very slow to do it where there is no evidence of any disease; and it seems to me the question comes to us most frequently in those cases where we find evidence of slight disease of the tubes or ovaries and where the nervous symptoms predominate to a very marked degree. The question here is, How far can we attribute the nervous symptoms to the slight disease we find present? And that is where I think the neurologist can help in those doubtful cases before operation, and an opinion should be obtained of some expert in nervous diseases so that both sides of the question may be fairly looked into. My own feeling about these cases is that, in the first place, all other methods of treatment which hold out a fair prospect of success should be tried—rest and local treatment and electricity, and various other agents which are employed; and if these fail and the symptoms are either confined entirely to the menstrual period or markedly aggravated at that time, that such conditions form a reasonable ground for supposing that, if artificial menopause is produced, good will result. It certainly is a fact that such nervous phenomena as we observe in connection with these cases are very rare after the menopause. They may in certain cases persist if present before, but as far as I know they rarely originate after the change of life. It would therefore seem reasonable to suppose that if the change of life is produced artificially, a certain amount of gain would result to the nervous system. I suppose that in some of these cases where operations are done for very slight pelvic disease, the mental effect *per se* of the operation is an important factor, and it is possible that in such cases a simple incision of the abdominal wall

without opening the peritoneal cavity would produce as good results as the complete operation; but it seems to me that conscientious surgeons would hardly practice a method so open to objection as that. In this era of abdominal surgery where exploratory operation is really so little dangerous and the technique is easily carried out so that the sequelæ that often used to follow can be avoided, it seems to me as if it were not such a serious matter in these doubtful cases to operate. Of course, the freedom from danger in operations of this character does act as a stimulus to doing the operation unnecessarily, at the same time it is not as formidable a procedure as it used to be; and it seems wise in these cases to give the patient the benefit of the doubt, and operate and remove the appendages if they seem diseased. I have had no experience with the removal of healthy tubes and ovaries, and I should feel very loth to do it; but in cases where there is some pelvic disease recognized by the abdominal examination and especially under ether, even though such disease may be slight, I think the operation might very reasonably be advised mainly on the ground of the nervous symptoms.

DR. P. C. KNAPP: My experience with patients who have had the ovaries and tubes removed as a cure for their nervous symptoms has been very slight, although I have seen, of course, a good many cases where the tubes and ovaries are removed on account of local disease. I never yet have advised such removal on account of nervous disease. I never yet have seen good results from it. I have seen the patient's condition rendered worse. Of course, there can be no question that when there is distinct disease of the ovaries and tubes leading to pain or other distressing symptoms which wear upon the patient's health, an operation should be done, that measures should be taken for the relief of the condition. I confess myself very doubtful about the cases of disease of the uterus or ovaries or any other organ of the body giving rise to nervous disease, which does not at the same time give rise to certain symptoms pointing to the organ itself. We may have, as we all know, referred pain, but the condition of a distinctly reflex neurosis from disease of an organ elsewhere in the body, giving rise to no distinct symptoms pointing to that organ, seems to me to be rather hypothetical. We have been through various epidemics of that we might say: one, which was advocated a number of years ago, was the treatment of spastic paraplegia in boys by circumcision, which I think has fallen into "innocuous desuetude." When it comes to the removal of healthy ovaries and tubes for the relief of nervous symptoms, I have still graver doubts. The recent investigations in hypnotism, the recent studies as to the influence of suggestion seem to me to explain the very few favorable results that have thus far been reported. Where you have advised a woman to undergo a surgical operation, which to her mind is a very profound and serious thing, where you have done a serious surgical operation, you have exercised as great and powerful suggestion as you well can. Dr. Davenport speaks of the operation in itself as not very serious. It may not be as a surgical procedure, but it is serious to unsex a young woman. I think it is evidence of a very distinct progress in medicine, this revolt against the indiscriminate spaying which threatened to cut down the western population. It has always seemed to me a little strange that although there is another organ similar to the ovary, with a

similar or greater nervous supply, frequently the subject of disease, we have not yet had — although the fashion may come some time — castration of the male advocated as a treatment of nervous disease. It is very natural that we should seek every cause for hysteria and for general nervous weakness but the true one. People are very glad to find some foreign cause rather than to admit the inherited or natural weakness of the brain. Beside the ovarian pains of hysteria, we have as persistent pains elsewhere, and excision has never been recommended for any of those pains. The evidence, it seems to me, in regard to the treatment of hysteria and these extreme nervous conditions by removal of the healthy uterus and tubes is altogether insufficient to support the operation, and, as I have said, my experience in the few cases where I have seen it done has not led me to favor it.

DR. M. PRINCE: I understood that Dr. Baker's paper was to be on the removal of healthy ovaries and tubes, and not of diseased ones; and therefore it is with an apology to Dr. Baker that I say the few words I shall say, because they will have no bearing at all upon his paper. Regarding the removal of diseased tubes I do not desire to express any opinion at this time. I have a very strong and decided opinion on the question of removal of healthy ovaries and tubes. I do not doubt that there occur occasionally exceptional cases, cases which have taxed our ingenuity and our patience, cases in which we have tried everything and are willing to do almost anything, and I can conceive that in such a case I might be tempted or it might be justifiable to remove healthy ovaries thinking it might somehow or other remove the symptoms; but I believe, as Dr. Homans has said, and as Dr. Edes and Dr. Knapp have said, that such cases are very few, are exceptional, and even though the operation should be advisable I do not believe it is because there is the slightest connection between the healthy ovary and these nervous symptoms; nor does a successful issue show that the healthy ovary has anything whatsoever to do with the production of those symptoms. The same story has been repeated over and over again in connection with epilepsy. For epilepsy we have had every kind of operation suggested; for instance, to only mention a few, tying of the carotid, tying of the vertebral, castration, removal of the ovaries, trephining the skull simply, and so on, and yet all these operations have fallen into "innocuous desuetude," notwithstanding that some of these operations have had most brilliant results, as brilliant as any reported to-night, and yet we all know that epilepsy is not in any way connected with those parts which were the seat of operation. I dare say we may get successful results in the relief of nervous symptoms by the removal of the ovaries, but it is also true that those same results could probably be obtained in any particular case by any other operation. I believe with Dr. Knapp that when those results do occur they can be explained in a certain number of cases by suggestion, and in other cases, if not by suggestion, by some profound physical effect on the nervous system which could probably be produced by any operation such as the amputation of a toe; and if it comes down to the question of the removal of a toe or removal of the ovaries, I think it might be decided in favor of the ovary and to remove the toe. One reason why I speak somewhat strongly is because the operation itself is founded upon a wrong pathology of nervous disease. The latest researches that have been made, es-

pecially the researches made in France, have shown that our knowledge of hysteria in particular must be completely revised. We have learned much regarding this disease. That the origin of hysteria is not in a healthy uterus or ovary, of course, has long been known, notwithstanding the temporary popularity of the removal of these organs. But, more than this, it is evident that we must look for the origin of hysteria in the brain or mind itself and not in irritation from distant parts; in many cases, at least, in certain fixed ideas, or in fixed morbid nervous processes which do not rise perhaps as high as ideas. Certainly the origin of many of these symptoms is not in the uterus, but in the mind itself.

The last case which Dr. Homans reported, that of a woman complaining of pain, was to me a typical case of what might be called subjective as opposed to objective pain. I believe the pain in that case arose in the patient's brain, from an association of processes there. This ovarian pain is one of the most common symptoms in nervous prostration, and has nothing to do with the ovary. I believe it arises from its connection with central processes and not peripheral processes, and when it is cured by operation it is by the profound effect on the system by suggestion and not by the operation *per se*.

DR. BAKER: I feel very glad to be so strongly assured by the remarks of the several gentlemen that the healthy ovaries and tubes of our women in this locality are so carefully guarded. I am sure that it is as it should be. There is no danger in this locality of our being so strongly criticized as some other places have been in regard to the wholesale manner in which the ovaries have been lost.

Before reading my paper I made an apology for the title. I am very glad indeed that the title proved a little misleading, in that it called out such a remarkably interesting series of cases as those presented by Dr. Homans, and also the remarks of some of the gentlemen present. I also thank you, Mr. Chairman, and the Society that an indulgence was granted in that the lines of the discussion were not drawn too rigidly and that the subject under discussion was broadened to take in the question of the removal of the healthy ovaries and tubes as well as those considered by the subject of the paper itself. I desire to thank the Society for the interest shown in the paper.

Recent Literature.

Blood-Serum Therapy and Antitoxins. By GEORGE L. KRIEGER, M.D., Surgeon to the Chicago Hospital, etc. Chicago: E. H. Colegrove & Co. 1895.

The purpose of this little book is to present, in a readable form, the present state of our knowledge of the subjects which constitute its title, and an account of the experimental work upon which this knowledge is based. This has been fairly well done, although some recent important work receives no mention. A book of this kind has only a transient value in these days of rapid advance in our ideas concerning infection and immunity, so that when it reaches the readers' hands it may be already behind the times. A few reproductions of micro-photographs of bacteria are included.

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THE ABORTIVE TREATMENT OF ACUTE BRONCHITIS.

WE are indebted to a French therapist for the knowledge of how to abort an attack of acute bronchitis. Dujardin-Beaumetz in the last number of his *Bulletin de Thérapeutique* formulates this treatment in these terms: "Massive doses" of tincture of aconite twice a day. Be sure your subject is a vigorous adult, then give him twenty-drop doses night and morning of the strong tincture of the root!

We are advised to continue "this medication" for eight days! This is the "abortive" treatment of acute bronchitis!

Just on what principles these large doses of this powerful narcotic are supposed to act in breaking up a bronchitis, the distinguished writer does not inform us. We have been taught to regard aconite in such doses as an energetic spinal, cardiac and vaso-motor depressant. Good authorities, as Brunton, Stillé, H. C. Wood, Ringer, recommend small doses often repeated. Even Dujardin-Beaumetz admits that the large amounts may do harm, and that susceptible persons have died from the effects of such massive doses as he recommends. Therefore we must first be sure that our patient has no unusual susceptibility to the drug.

But seriously, it may be asked on what principle aconite given in any dose does good in a cold or in a bronchitis? And perhaps it would be difficult for even the enthusiastic prescriber of the drug to give a perfectly satisfactory answer. He would probably say that he gives aconite from empirical considerations. It might be alleged, too, that aconite slows the pulse, lowers the temperature, quiets the nervous system and so benefits the patient. Dr. Fleming's conclusion, from a consideration of the action of this drug on the circulation, is that it is a medicine of great value in all cases where there is inordinate activity of the circulation; it lowers the arterial tension, and so diminishes the flow of blood to the part. Many think that this is

not absolutely demonstrated. Ringer says that aconite causes capillary congestion. Cold does the same. Aconite cures because it depresses the vaso-motor system, and hence lowers the excitement of febrile reaction. But in order to accomplish this the dose should be small and frequently repeated, so as not to allow any secondary wave of reaction. Large doses produce too powerful a shock to the nervous system, and the ensuing reaction is intense; any therapeutic gain is bought at the expense of too much prostration.

These considerations, whether entirely well founded or not, have influenced great numbers in the profession. Aconite is still given largely in bronchial complaints but in small doses.

It is still regarded by many, for empirical reasons, as almost specific in acute inflammatory throat troubles. It would not, however, be difficult to show that the number of practitioners who put much confidence in this old remedy, and prescribe it habitually in throat and broncho-pulmonary affections is a constantly *diminishing* quantity. It does not figure largely among the standard medicines in the principal hospitals, while ipecacuanha still holds its own, at least in infantile therapeutics.

Doubtless the present views, becoming generally prevalent, relative to the microbian origin of even the common bronchial catarrhs (see JOURNAL, 1893, No. 21, p. 522) are doing much to influence the choice of remedies in these affections. It seems now most probable that the first step in the series of morbid changes resulting in bronchitis consists in a disorder of the vaso-motor innervation which causes congestions and places the organism in a state of lessened resistance; and just in those localities where microbes are normally present we see inflammations set in of microbe-origin which are truly infectious, though non-specific.

If this view be correct, remedies are to be sought which shall improve rather than lower vaso-motor innervation on which the inflammatory changes so much depend. Alcoholic stimulants, quinine and strychnia are prescribed with some reference to this end. Alcohol and quinine at the same time promote the peripheral capillary circulation, sustain the heart, and so oppose congestions in foci of least resistance. A hot diaphoretic drink at the onset of the cold, and rest in bed may do much to abort a bronchitis. The benefit accruing from rest and general warmth is too obvious to require comment.

CRAIG COLONY FOR EPILEPTICS.

THE Annual Report of the Board of Managers again draws our attention to this institution, the second one of its kind to be established in the United States, and also to the subject of State aid for this class of unfortunates. Ohio was the first State to take definite measures towards the establishment of a separate State institution for epileptics, and in 1890 passed a bill authorizing the appointment of a committee to select a site and to contract for the erection of buildings for

this purpose. This institution was placed at Gallipolis, and is now known as the Ohio Hospital for Epileptics.

An act "providing for the appointment of a commission to locate an institution for epileptics in the State of New York" was passed in 1892. This commission selected an estate of a little more than 1,850 acres near Mt. Morris, in Livingston County; and in 1894 the legislature appropriated \$140,000 for the purchase of this property, for its protection and care, and for the renovation of the buildings already existing, so as to render them suitable for the reception of patients. This property has now been purchased; and the buildings, with some alterations and repairs, will accommodate at least 300 epileptics. The institution was named "The Craig Colony for Epileptics."

The managers desire to admit inmates to the institution in the spring, and ask for the sum of \$25,000 for the maintenance of 100 patients. The estate requires that indigent persons shall be received into this colony, and paid for by the State at not more than \$250 per annum for each patient, and persons so paid for shall be known as State patients. The board proposes to build this year five buildings—an administration building, two observation cottages, and two hospital cottages. On admission to the colony each patient is at first to be sent to an observation cottage, so that he can be watched for a time until his exact condition has been ascertained, and he can be properly classified and assigned to the building most suited to his requirements. The importance of the proper classification of epileptics is thus almost for the first time practically acknowledged in this country; and in this a great advance has been made, both for the study of the disease and for the care and cure of the patients.

The demand for the establishment of State institutions for the care of epileptics in the more densely populated States is very great. In the State of New York the number of epileptics is estimated at 12,000, of which about 400 are in the insane asylums and about 600 in the county poorhouses. In Massachusetts last year there were rather more than 300 adult epileptics in the asylums and almshouses.

We cannot better express the claim of this class to public care and sympathy than by a short quotation from the report: "The State now makes provision in separate institutions for the insane, the blind, the deaf and dumb, and others suffering from chronic maladies. All these unfortunates are proper subjects for State care, but not more so than the epileptics, for whom nothing has been done. At present the epileptic, if he is in indigent circumstances, is sent to the poorhouse, where his condition rapidly becomes worse. If possessed of means, he remains among his relatives and friends, a constant source of worry and trouble to them, and constantly undergoing mental and moral deterioration. Whether rich or poor, he is shunned and feared by all who do not consider themselves responsible for his welfare; and he is in many respects more an object of sympathy than either the blind or the deaf and dumb."

RESULTS OF ANTITOXIN TREATMENT.

In a book which has recently appeared under the title "Diphtheria, Croup, Serumtherapie," Escherich, of Graz, gives his experience with diphtheria antitoxin. Out of 87 cases of diphtheria he had employed the antitoxin in 51, that is, in all the severe cases; of these, five, or 9.5 per cent., died. This percentage is diminished to 3.8, if three cases which were moribund when first seen are not counted. The total mortality from diphtheria at the time the serum was employed was 9.2 per cent. Leaving out the three cases alluded to above, this became 4.5 per cent., thus giving 95.5 per cent. of cures, a percentage which he had not been able to approach during a long service at the Children's Hospital.

Escherich divides his cases into three classes: (1) localized diphtheria; (2) progressive laryngeal diphtheria; (3) septic diphtheria. Of these the second form was most favorably influenced by the serum treatment. The most important effect of the antitoxin, according to Escherich, lies in the influence on the local process, in the rapid separation, and prevention of spreading of the membrane. Less evident is its effect on the toxic symptoms.

The serum treatment must be begun as early as possible. Escherich makes the statement that the mortality of cases of uncomplicated diphtheria, brought under treatment within the first three days of the disease, and treated carefully and intelligently by antitoxin, can be reduced to zero. As to unpleasant after-effects, he noted in three cases an eruption appearing twelve to fourteen days after the injections, complicated in one case by fever and pain in the joints.

MEDICAL NOTES.

PROF. E. L. RICHARDS ON FOOTBALL. — Prof. E. L. Richards, of Yale, contributes to the March number of the *Yale Medical Journal*, an article on football, which should be widely read, especially by those who inveigh so fiercely against the game.

SMALL-POX AT HOT SPRINGS, ARK. — An epidemic of small-pox has broken out at Hot Springs, Ark. Forty-two cases are reported to have occurred. A house-to-house vaccination is being made, and other precautionary measures taken. The authorities report that they expect to have the epidemic under control within a short period.

TREATMENT OF DIPHTHERIA WITH ANTITOXIN. — Dreyfus (*Lyon Médical*, 1895, No. 5, page 146) relates that from October 15, 1894, to January 21, 1895, 78 cases of diphtheria were treated with the antitoxin at the Charité Hospital of Lyons. Among this number there were 15 deaths, a mortality of 19.29 per cent. Five of the deaths were due to conditions of which the diphtheria was a complication, one to typhoid fever, one to pneumonia, one to diarrhea, and two to broncho-pneumonia. In pre-

vious years the mortality of diphtheria has been 50 per cent.

SPONTANEOUS FRACTURE OF RIBS. — In the *British Medical Journal* for January 12th, a case was reported of spontaneous fracture of the eighth and ninth ribs in an anemic woman just previous to the onset of labor. John Freeland, government medical officer at Antigua, West Indies, reports two other cases in a letter to the same journal. One occurred during a severe paroxysm of coughing, and the other during a severe labor pain. The last case occurred in an unusually muscular woman, the eighth and ninth ribs on the right giving way with an audible report, being broken undoubtedly by the action of the powerful abdominal muscles.

TUBERCULOSIS OF THE PLACENTA. — Lehmann (*Berlin. Klin. Woch.*, 1894), reports from the Obstetrical and Gynecological Clinic of the Charité Hospital in Berlin, a case of importance with regard to the transmission of tuberculosis from mother to child. On examination of the placenta from a mother suffering from chronic tuberculosis of the lungs and larynx, he found a large tubercular focus in the chorion. In a villus which projected into this tubercular mass he found a few tubercle bacilli. The child of this tubercular mother died on the tenth day, and at the autopsy no evidence of tuberculosis was found. In a case previously reported a large tubercular focus was found in the decidua.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, March 1, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 44, scarlet fever 47, measles 55, typhoid fever 2.

INCREASED SALARY FOR CHAIRMAN OF BOSTON BOARD OF HEALTH. — The salary of the Chairman of the Boston Board of Health is to be increased from \$3,000 to \$4,500. This is an act of simple justice and at the same time of real economy. An incompetent commissioner of health is dear at any salary; on the other hand, for the services of an experienced sanitarian who must at the same time be an independent, impartial, intelligent judicial and executive official, the larger salary is really small. For many years Boston has enjoyed the advantages of such combined service from Dr. S. H. Durgin. We doubt whether there is another department administering the city's affairs, in regard to which as little adverse criticism has arisen as in regard to the Board of Health during the last twenty odd years; and yet there is no department in which mistakes might more easily be made, and none in which mistakes would be likely to entail more serious consequences to the community. We are glad the city government is disposed to show appreciation of Dr. Durgin's past services to the city and to retain the benefit of his experience for the solution of future problems.

The wise administration of the sanitary affairs of a big, modern city is no small problem.

THE BOSTON DISTRICT NURSING ASSOCIATION. — The annual meeting of the Boston Instructive District Nursing Association was held at the home of Mrs. William Appleton, 76 Beacon Street, on February 27th. Twelve nurses have been maintained by the association, each having a district under her charge. These have attended the various dispensary physicians on their rounds, and have had charge of the outdoor relief department of the Children's Hospital. Addresses were made at the meeting by Dr. Charles L. Scudder, Dr. John W. Bartol and Rev. John S. Lindsay, D.D., who thanked the association for the valuable service its nurses were performing in educating the sick poor to an understanding of better methods of life. The following-named officers were elected: Miss Phoebe G. Adam, President; Mrs. C. P. Donald, Secretary; Mrs. Otis Norcross, Jr., Treasurer.

BOVINE TUBERCULOSIS. — The Joint Committee on Agriculture and Public Health of the Massachusetts Legislature, which has in charge the matter of the suppression of bovine tuberculosis, is reported to have agreed that the cattle commission is to be granted \$150,000 for the completion of its work, instead of the \$212,000 asked; that the farmers are to receive as compensation for tuberculous cattle the full value of a healthy animal; that the State shall pay all quarantine expenses after seven days, and also pay for all carcasses condemned as tuberculous at the slaughter-house. As the cattle are ordered to quarantine by local inspectors not responsible to the State commission, and as owing to the smallness of the appropriation the force of the commission will have to be reduced, so that it will be impossible to make all tests within the seven days of quarantine at the farmers' expense, it is feared that if this bill becomes a law, it will result in very heavy expense to the State. With regard to paying for tuberculous carcasses at the slaughter-houses, what reason is there that the State should pay for them, any more than pay for other food unfit for use? And what has the payment by the State for meat condemned as tuberculous to do with ridding the State of tuberculosis among live cattle? Surely this bill, if passed, will be framed to give the farmers and cattle-owners something for nothing, — in fact, pay them for allowing the favor to be done them of purifying their herds. It would be a profitable business for farmers to import tuberculous cattle purchased at their real value outside the State and sell them to the State for ten times their real value!

NEW YORK.

INFLUENZA IN NEW YORK. — During the week ending February 23d, 42 deaths from influenza were reported in New York, and in the week ending March 2d, 32.

DR. JENKINS APPOINTED SPECIAL PATHOLOGIST. — At a meeting of the Board of Coroners held March 2d, Dr. Wm. T. Jenkins, recently Health Officer of

the Port, was appointed special pathologist to the board, without salary. His duties will be to assist in making autopsies when requested, and it is stated that Dr. Jenkins had offered his services gratis.

A GIFT TO THE MONTEFIORE HOME. — The Montefiore Home for Chronic Invalids has received a gift of \$25,000 each from Messrs. Jacob H. Schiff and L. G. Bloomingdale for the founding of a country branch for the reception of patients suffering from the early stages of pulmonary tuberculosis.

ROOF GARDENS FOR THE POOR. — At a recent meeting of the Board of Aldermen a special committee, consisting of the standing Committees on Police, Health and Docks, was appointed for the purpose of investigating the subject of roof gardens for the poor on the river docks. They were requested to recommend to the board at an early date what number of such gardens should be erected and to introduce such resolutions, ordinances, etc., as will carry the project into effect.

TRANSFER OF DEPENDENT INSANE FROM COUNTY TO STATE CARE. — A bill, which seems likely to be passed, has been introduced in the Legislature at Albany having for its object the transfer of the dependent insane of New York County. This measure, which, it is understood, emanates from the State Charities Aid Association, provides that the New York City asylums for the insane, located on Ward's Island in East River and at Central Islip, Long Island, shall be transferred to the care and custody of the Manhattan State Hospital, to be established by the act. The whole of Ward's Island, with its buildings and the equipment of the existing asylums, is to be leased to the State at a rental which is to be the equivalent of interest at the rate of 3 per cent. upon the sum of \$2,500,000. The Central Islip property is also to be leased to the State at a rental which shall be the equivalent of the interest of 3 per cent. upon \$400,000. It is provided that either of the leases may at any time be surrendered by the State, or may be terminated by the city, by five years' written notice to the comptroller of the State.

THE MANHATTAN STATE HOSPITAL. — The Manhattan State Hospital is to be governed by a board of seven managers, appointed by the Governor and confirmed by the State Senate, and their powers and duties shall be the same as those of the managers of the other State Hospitals. The Commissioners of Charities and Correction of New York City are to surrender the lands and buildings of the existing asylums, with their furniture, fixtures, stock and supplies then on hand, to the newly-created State hospital on the 1st of October, 1895. An appropriation of \$25,000 is made for the lease or purchase of a dock and for the purchase of a steam ferry-boat. The medical officers of the present asylums are continued in office during the pleasure of the board of managers of the new State hospital, subject to the civil-service rules applicable to the other State hospitals.

FATAL TROLLEY ACCIDENTS IN BROOKLYN.—The continued serious loss of life by the trolley cars of Brooklyn has of late given rise to much indignation on the part of the public, and in the presentment of the February Grand Jury of that city, made on March 2d, considerable attention is given to the matter. "Investigation," it says, "has shown the imperative necessity of some prompt legislative action for the regulation of the speed of trolleys, with penalties severe enough to be absolutely deterrent to the management that leads to these shocking and harrowing accidents, and we earnestly request our representatives in Albany to do all in their power to secure the passage of laws that will give safety to our streets." As the accidents have almost all occurred in the older and more thickly populated parts of the city, the jury suggests that eight miles an hour should be the highest rate of speed permitted there, while in the newer and more sparsely settled the limit might be placed at ten or twelve miles.

ADDITIONAL PUBLIC SCHOOL ACCOMMODATION.—The Legislature recently passed a bill appropriating \$5,000,000 for additional public school accommodation. This liberal provision will be ample not only to secure adequate accommodations for all the children who have been crowded out from the schools, but also to put all the school buildings now in use (with the exception of a few which will no doubt be abandoned on account of their radically defective character), in satisfactory sanitary condition. It is stated that since the opening of the schools in September last it has been found necessary to refuse admission to 12,316 pupils on account of the insufficient accommodation. Of the amount appropriated it is proposed to expend \$3,000,000 in the erection of new buildings, and the remainder in enlarging and improving present buildings.

THE PUBLIC LIBRARY OF NEW YORK CITY.—An event of unusual importance during the past week has been the practical consolidation into one organization of the great Astor, Lenox and Tilden libraries. This will put at the disposal of the city a magnificent library, comprising at present more than 450,000 bound volumes and an immense number of rare and valuable pamphlets, and including property and endowments amounting to over \$8,000,000. In general it may be said that the amounts which will go to make up the aggregate of the \$8,000,000 to be administered by the board of managers of the consolidated library are composed of property and endowments as follows: about \$2,000,000 from the Astor Library, about \$4,000,000 from the Lenox Library, and \$2,000,000 from the Tilden Trust. In addition to the last sum, the valuable private library of the late Samuel J. Tilden will be included. All these properties, under the scheme of consolidation, are to be thrown together in a common fund, passing absolutely out of the hands of the present directors of the separate institutions, and subject in future to the control of a consolidated board consisting of twenty-one members. The site of the new library has not yet been decided upon.

Miscellany.

DOUBT THROWN UPON THE "MISSING LINK."

In a letter to *Science*, under date of February 14th, Harrison Allen ventures to doubt the validity of the "Pithecanthropus," the skeletal fragments of which were found in the early pleistocene strata of Java by Dr. Dubois, as was noted in the *JOURNAL* of February 21st. The skull of the "ape man" was acknowledged by Dr. Brinton, the reviewer of Dr. Dubois' memoir, to be like that of the famous Neanderthal man and the femora were described as "singularly human." Now on the evidence of the single molar tooth which has been preserved, and which, Allen thinks, conforms closely to the human type, he concludes that the "ape man" was in all probability a man, and not an ape in any sense of the word. Allen is supported in this opinion by a communication which appeared in *Nature*, January 29th, presumably from Richard Lydeker, who comes to the same conclusion on the evidence furnished by the skull, the femora and the tooth. This latest "missing link" must probably join its discredited predecessors, and the "ape man," if found at all, must be dug up from strata earlier than those of the early pleistocene of Java.

BALDNESS AND INDIGESTION.

THE cause of baldness is a question which has a personal interest for many people in these days when the "new man" finds it almost as difficult to keep his hair as the "new woman" does to find a husband. The theory of the bald-headed man generally is that his exceptionally active brain has used up the blood-supply which should have nourished his scalp; but those whose crop of hair still stands untouched by the scythe of time unkindly hint that this explanation is of a piece with Falstaff's excuse that he had lost his voice by "singing of anthems." Then there is the theory of the hat, which we are told makes for sanitary unrighteousness in two ways—allowing no ventilation, and by its hard rim cutting off part of the blood-supply from the scalp. Again, there is seborrhea, which prepares the way for fungi that blight the hair. It would have been wonderful if that pathological scapegoat, indigestion, had not had this particular misdeed laid to its charge. We are not surprised, therefore, to read in an American contemporary that dyspepsia is the great cause of baldness. This is how the mischief is done: "Nature," we are assured, "is very careful to guard and protect and supply the vital organs with the proper amount of nutriment; but when she cannot command a sufficient quantity of blood-supply for all the organs, naturally she cuts off the supply of parts the least vital, like the hair and nails"—just as one of our "splendid paupers" discontinues his subscription to a hospital in view of the death duties. The hair, in fact, dies that the nobler parts may live up to a proper standard of physiological efficiency. The best way to escape baldness is therefore to be careful in our diet and above all to avoid irregularity in meals—a counsel of perfection which the busy man too often finds it impossible to follow. We are not prepared to deny that indigestion may have something to do with baldness, but the part it plays is probably altogether secondary. We

know of no evidence that baldheaded men are more dyspeptic than their neighbors, and women, who suffer much — chiefly through their own fault — from digestive troubles, are very seldom bald. The increasing prevalence of baldness might, with at least as much plausibility, be ascribed to the general betterment in our social condition that is taking place. The late Prince Consort (who himself lost his hair early) held that baldness is a sign of breeding; heredity, therefore, rather than indigestion would account for its frequency in the upper ranks of society. On the other hand, hairiness and anarchism often go together, as if the bomb-throwing brotherhood had determined to throw off even the mild tyranny of the barber with other forms of government. — *British Medical Journal*.

A CASE OF SEXTUPLETS.

VASSALI, in the *Gazetta Med. Ital. Lombardia*, gives an account of the birth of six children at one birth, which is said by von Herf¹ to be the first well-authenticated case on record. For some reason it has failed to attract general attention. The patient, a ii-para, thirty-six years of age, during the early months of her pregnancy, grew anemic, weak and complained of chilly feelings. Motion was not felt. In the fourth month of pregnancy the abdomen had grown as large as in ordinary pregnancy at full term, so that the woman daily expected confinement.

On the 115th day of pregnancy, while straining at stool, the membranes ruptured and a foot prolapsed, no pain having been felt before this incident. A fetus was delivered by a midwife. Vassali, who was called in the mean time, found the patient with an enormously-distended abdomen, within which were to be felt numerous small parts. No fetal heart was heard, nor were movements felt. As the cervix was but slightly dilated and no pains were to be felt, it was decided to wait.

On the next morning pains began with chills and flowing, the temperature rose to 38.7° C. with vomiting; and it was decided to terminate the pregnancy, as miscarriage was now inevitable. Accordingly the membranes were ruptured, a foot brought down and a second fetus delivered. A third bag of membranes presented, a third fetus was delivered; and so on till the fifth. This process lasted two hours, when fresh bleeding led Vassali to hasten the termination of what he thought was the third stage of labor, he naturally supposing that no further fetuses were to be expected. Traction on the umbilical cords was unsuccessful, and an attempt to remove the placenta by the hand in the uterus started so sharp a hemorrhage that Vassali, who was by this time completely exhausted, sent for assistance, not deeming it wise to attempt the removal of the placental mass.

He therefore kept his hand in the uterine cavity for four hours, until assistance arrived in the persons of three physicians from Lugano. Dr. Sulari with considerable difficulty removed the placenta, together with a sixth amniotic sac and fetus.

Convalescence was practically normal.

In the following year the woman gave birth to healthy twins, which were living at the time of this communication.

All the fetuses were born alive, and moved vigorously, the sexual organs were differentiated, four being males and two females. The large single placenta, bearing the six amniotic sacs, was unfortunately so lacerated that further investigation of it was useless. The specimen is preserved in the museum of the Obstetrical School at Milan.

Correspondence.

HUMAN EMBRYOS DESIRED.

HARVARD MEDICAL SCHOOL,
BOSTON, March 2, 1895.

MR. EDITOR: — May I take advantage of your kindness to appeal through your valuable columns, for assistance from practitioners in securing embryological material. I am desirous of greatly extending my researches on Human Embryology, and shall be very grateful for any material, and especially for normal embryos of three months or less. Of young human embryos the number which have hitherto been studied is still extremely small, and every specimen which can be secured for proper examination must be considered of great scientific value. I hope, therefore, that there will be very numerous responses to my appeal, especially since only by having very numerous embryos at command has it, in my experience, been found possible to obtain a few which are perfectly available for histological purposes. The difficulty is not that those who have furnished me with material were not sufficiently skilful in the methods of preservation, but on the contrary the difficulty comes from the rarity of the discharge of normal embryos while still fresh.

In regard to the treatment of embryonic material, it is, of course, best to receive it at the laboratory of the school whenever it can reach there really fresh in condition, for the resources here at command render a very careful preservation always feasible. When there is likely to be any delay, it is desirable to follow one of two methods: (1) If the membranes are intact, place the specimen *without opening the membranes* in a liberal quantity of strong alcohol, that is, full strength of 95 to 96 per cent. (2) If the embryo is exposed, the membranes being broken, place it in 60 per cent. alcohol.

Though young embryos are the ones most earnestly desired, older embryos are also valuable.


It need hardly be added that I shall be more than glad to pay any expenses incurred in preserving or forwarding embryos to me. I have the honor to remain

Yours respectfully,

CHARLES S. MINOT, S.D.

METEOROLOGICAL RECORD.

For the week ending February 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-		Relative		Direction		Velocity		We' th'r.		Rainfall in inches.	
	meter.	eter.	eter.	humidity.	humidity.	of wind.	of wind.	of wind.	of wind.	of wind.	of wind.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S...17	29.78	33	43	23	59	40	50	W.	W.	12	6	C.	O.
M...18	29.90	36	43	28	67	70	68	N.	S.	4	12	C.	O.
T...19	29.82	36	46	26	91	59	75	S.W.	S.W.	10	12	O.	C.
W...20	29.76	33	38	28	57	48	52	W.	W.	10	10	C.	C.
T...21	29.55	34	42	26	66	78	72	S.	S.W.	13	11	O.	C.
F...22	29.77	24	28	19	56	54	35	W.	W.	20	16	C.	C.
S...23	30.15	20	28	11	51	58	54	W.	N.W.	13	12	F.	C.
	29.82	38	43	23	61		61						.01

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

¹ Fortschritte der Medicin, October 4, 1894.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 23, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Typhoid fever.
New York	1,956,000	889	317	11.44	21.67	.88	5.39	.44
Chicago	1,600,000	—	—	—	—	—	—	—
Philadelphia	1,139,457	—	—	—	—	—	—	—
Brooklyn	1,043,000	400	120	9.00	23.50	1.00	5.50	.50
St. Louis	540,800	—	—	—	—	—	—	—
Boston	601,107	264	87	10.28	33.44	—	6.46	.38
Baltimore	500,000	—	—	—	—	—	—	—
Washington	285,000	139	34	8.64	15.84	1.44	2.88	1.44
Cincinnati	325,000	165	38	5.49	22.78	1.83	.61	3.05
Cleveland	325,000	—	—	—	—	—	—	—
Pittsburg	272,000	95	32	11.55	19.95	—	4.20	6.30
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	33	9	9.09	21.21	—	—	3.03
Charleston	65,165	40	10	2.50	7.50	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	36	8	5.56	22.44	—	2.78	—
Fall River	92,233	28	9	17.85	14.28	14.28	—	—
Lowell	90,613	48	17	6.24	22.88	2.08	—	—
Cambridge	79,607	35	3	8.58	25.74	—	8.58	—
Lynn	65,123	32	—	—	31.43	—	—	—
Springfield	50,284	28	9	7.14	50.00	—	3.57	—
Lawrence	49,900	48	17	6.24	22.88	2.08	2.08	—
New Bedford	47,741	25	9	8.00	24.00	—	—	4.00
Holyoke	43,348	—	—	—	—	—	—	—
Brookton	33,939	12	1	—	33.33	—	—	—
Salem	33,155	14	3	—	14.28	—	—	—
Haverhill	32,925	13	1	15.38	7.69	—	7.69	—
Malden	30,209	9	0	11.11	22.22	—	11.11	—
Chelsea	29,806	18	2	—	27.77	—	—	—
Fitchburg	29,383	7	3	—	14.28	—	—	—
Newton	28,837	16	4	—	56.25	—	—	—
Gloucester	27,293	—	—	—	—	—	—	—
Taunton	26,954	8	2	—	—	—	—	—
Waltham	22,058	9	2	—	22.22	—	—	—
Quincy	19,642	5	1	—	—	—	—	—
Pittsfield	18,802	5	1	—	20.00	—	—	—
Everett	16,585	5	4	—	—	—	—	—
Northampton	16,331	8	2	—	12.50	—	—	—
Newburyport	14,073	6	2	—	16.66	—	—	—
Amesbury	10,920	4	1	—	—	—	—	—

Deaths reported 2,556: under five years of age 778; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 330, acute lung diseases 602, consumption 295, diphtheria and croup 106, diarrheal diseases 26, typhoid fever 24, scarlet fever 23, whooping-cough 17, cerebro-spinal meningitis 13, measles 12, erysipelas 8, small-pox 1.

From scarlet fever New York 15, Boston 4, Brooklyn, Washington, Nashville and Somerville 2 each, Pittsburg, Charleston, Fall River, New Bedford, Haverhill and Woburn 1 each. From whooping-cough New York 10, Brooklyn 4, Boston, Providence and Worcester 1 each. From cerebro-spinal meningitis New York 4, Boston, Washington and Somerville 2 each, Lowell, Springfield and Lawrence 1 each. From measles New York 9, Lowell, Springfield and Lawrence 1 each. From erysipelas New York 5, Boston 2, Brooklyn 1. From small-pox Brooklyn 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 16th, the death-rate was 26.7. Deaths reported 5,430: acute diseases of the respiratory organs (London) 840, whooping-cough 93, measles 64, diphtheria 53, scarlet fever 36, fever 35, diarrhea 33, small-pox (London and Birmingham 1 each) 2.

The death-rates ranged from 14.5 in Croydon to 39.6 in Liverpool; Birmingham 25.7, Bradford 24.0, Cardiff 24.5, Huddersfield 20.4, Leeds 27.7, Leicester 21.3, London 29.3, Newcastle-on-Tyne 21.9, Nottingham 23.0, Portsmouth 20.9, Salford 26.8, Sunderland 20.4, West Ham 21.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 23, 1895, TO MARCH 1, 1895.

Leave of absence for six months, on account of sickness, is granted FIRST-LIEUT. FRANK T. MERIWETHER, assistant surgeon, U. S. A.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 2, 1895.

A. A. HOEHLING, medical director, detached from Naval Hospital, Chelsea, Mass., and granted three months' sick leave.

AMMEN FARENHOLT, assistant surgeon, detached from the Norfolk Navy Yard and ordered to the U. S. S. "Baltimore."

C. P. KINDLEBERGER, assistant surgeon, detached from U. S. Receiving-ship "Vermont" and to the Norfolk Navy Yard.

ARTHUR W. DUNBAR, assistant surgeon, detached from the Naval Laboratory and Department of Instruction and to the U. S. Receiving-ship "Vermont."

J. B. PARKER, medical inspector, detached from duty in connection with the investigation of the Ford Theatre disaster and to the hospital and yard, Portsmouth, N. H.

D. McMURTRIE, medical inspector, in addition to present duties to duty in connection with the investigation of the Ford Theatre disaster.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE THIRTEEN DAYS ENDING FEBRUARY 28, 1895.

CARTER, H. R., surgeon. To assume temporary command of Cape Charles Quarantine during absence of Passed Assistant Surgeon T. B. PERRY. February 27, 1895.

KALLOCH, P. C., passed assistant surgeon. Directed to rejoin station, Cincinnati, O. February 21, 1895.

PERRY, T. B., passed assistant surgeon. To proceed to Brunswick, Ga., Quarantine, for temporary duty. February 27, 1895.

HOUGHTON, E. R., passed assistant surgeon. Granted leave of absence for two days. February 18, 1895. Leave of absence extended five days. February 22, 1895.

BLUE, RUPERT, assistant surgeon. To proceed to San Francisco, Cal., for duty. February 23, 1895.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, March 21st, at 8 o'clock, by Asst. Prof. W. T. Porter. Subject, "The Physiology of the Cortex of the Brain." Physicians are cordially invited.

SOCIETY NOTICES.

AMERICAN MEDICAL PUBLISHERS' ASSOCIATION. — The annual meeting will be held in Baltimore, on May 6th, convening in the parlors of the Eutaw House, at 9.30 A. M.

CHARLES WOOD FASSETT, Secretary.

RECENT DEATHS.

FRANK L. DUBOIS, medical inspector, United States Navy, died of apoplexy, February 24th, at Portsmouth, N. H. He had been thirty-three years in the service.

DR. GEORGE OCTAVE DUJARDIN-BEAUMETZ died in Paris, February 16th, aged sixty-one years. He was made a commander in the Legion of Honor in 1894. He was editor-in-chief of the *Bulletin de Thérapie* and the author of many suggestive works on subjects in clinical medicine, therapeutics and hygiene. He was visiting physician at the Cochin Hospital for many years.

JOHN WHITAKER HULKE, President of the Royal College of Surgeons of England and senior surgeon to the Middlesex Hospital, died in London, on February 19th, from broncho-pneumonia, following influenza. He was sixty-five years of age. He was eminent not only as a general and ophthalmic surgeon, but as a geologist and paleontologist. He was president of the Clinical Society of London, at a meeting of which he presided on the evening of February 8th. He was to have delivered the Hunterian oration on "John Hunter the Biologist," on February 14th, but was prevented by the illness which resulted in his death on the 19th.

BOOKS AND PAMPHLETS RECEIVED.

Vaginal Extirpation of the Uterus and Adnexa in Pelvic Suppuration and Septic Puerperal Metritis and Peritonitis. By H. J. Boldt, M.D., New York. Reprint. 1895.

Medico-Chirurgical Transactions published by the Royal Medical and Chirurgical Society of London. Vol. LXXVII. (Second series. Vol. LIX.) London: Longmans, Green & Co. 1894.

Surgical Pathology and Therapeutics. By John Collins Warren, M.D., Professor of Surgery in Harvard University; Surgeon to the Massachusetts General Hospital. Illustrated. Philadelphia: W. B. Saunders. 1895.

Original Articles.

SUDDEN DEATH BY THE RUPTURE OF THORACIC ANEURISMS PREVIOUSLY UNRECOGNIZED.¹

BY F. W. DRAPER, M.D.,

Medico-Legal Pathologist, Boston City Hospital.

THE autopsy-room of a hospital is specifically dedicated to the study of morbid anatomy. Its air is heavy with the effluvia of disease, decay and death. Its ministering spirits, with erudite touch and penetrating vision, search out the secrets of nature. Infection, inflammation and degeneration render here their final account. The pathologist supplies the closing chapter in the natural history of diseases whose earlier incidents are written in the clinical records relating to the living patient. The first and the last observations upon the human subject, in connection with his fatal illness, sometimes fail to connect harmoniously, and the ward bed and the marble slab sometimes present details which do not blend. Nevertheless, the aid which clinical medicine derives from the anatomical amphitheatre of the hospital is too obvious to need elucidation. The aphorism of Dr. Holmes that, while pathological anatomy teaches a great deal, "it is, after all, like inspecting what is left of the fireworks on the morning of the fifth of July," is less true to-day than when he wrote it. Histology and bacteriology now lend their effective aid to the grosser methods of observation, and pathology co-operates heartily with clinical medicine in the advancement of medical science.

But the autopsy-room of the City Hospital of Boston has not exhausted its usefulness, great as that service is, by discovering and recording the anatomical appearances which the hospital patients bring to the dead-house after a period of observation in the wards. Through the courtesy of the trustees, and with the indulgent and cordial assent of the pathological department, autopsies are made here upon the bodies of such victims of crime or such subjects of sudden and suspicious deaths in the southerly portion of Suffolk County as require an official medical examination. It thus happens that many interesting medico-legal problems are presented here for solution. The privileges bestowed upon the medical examiner by the hospital place him under continued obligation. It is in recognition of this debt and of the very great help in the medical examiner's work which it implies that he accepts the invitation to contribute to these pages.

In fulfilment of this design, I have selected from notes of autopsies performed by me at the hospital a series of cases of thoracic aneurism. These cases are all instances of sudden death. Their subjects have this in common, that the disease of the aorta which ended life so suddenly had not been suspected or recognized or been made the occasion of medical observation or treatment. In this respect they illustrate a rule about which all writers are agreed, that a large number of aneurisms declare no sign of their existence, and that they are revealed by the post-mortem examination only. They show how imperceptible and with how little injury to health may be the growth of even a large aneurismal tumor. Finally, they are examples of the usefulness of autopsies in

determining accurately the causes of tragically sudden death, and in taking the obscurity out of cases which are too often dismissed with a convenient expression like "heart disease" or the more objectionable but equally convenient phrase, "heart failure."

CASE I. Josephine S., aged thirty-seven, a hard-working charwoman, entirely free from disabling disease though a moderate user of alcoholic drinks, was found dead, lying in a natural attitude on the outside of her bed, with her outer clothing removed. She was last seen alive twenty-three hours previously. Her body when discovered was cold, and rigor mortis was fully developed. Her acquaintances supposed her to be a healthy woman.

Autopsy.—The body was spare but not emaciated. The countenance presented no suggestion of a painful death. The surface was pale.

When the sternum was lifted the left pleural cavity was found filled to its fullest capacity with yellow serum and dark-red, firm blood-clot, the whole mass measuring two quarts. This blood had escaped from a rupture in the inferior wall of an aneurism of the aortic arch. The aneurismal tumor projected posteriorly opposite the fourth, fifth and sixth dorsal vertebræ, and had eroded the vertebral bodies and intervertebral cartilages in this region to the depth of a quarter of an inch at the deepest, leaving the general surface roughened and irregular. The aneurismal sac was ovoid in shape, and measured four inches long, three inches wide, and one inch and a half thick. Within it were masses of firm coagulum, with dry, shreddy layers of fibrin.

The rupture was at the lowest part of the sac. The opening was valvular, from above downward. Externally it appeared as a rent in the aneurismal wall just below the root of the left lung, the lesion being irregularly crescentic, with the concavity downward, and with an opening at its uppermost part admitting a large probe.

The heart was normal. The left lung was compressed, dry and pale; the right lung was of normal volume, and moderately reddened. The other organs showed nothing noteworthy.

CASE II. John J., aged forty-three, intemperate and shiftless, had not been heard to complain of any ailment until the morning of the day of his death. At this time he procured from a druggist a "plaster for his chest." About three hours later he was seen on the street, looking so distressed that an acquaintance remarked upon his appearance, and J. replied, "I am sick." Presently he went into a store and sat down; he quickly became stiffened in a convulsion, was rigid and unconscious, breathed stertorously, gasped a few times and died, the whole transaction occupying but a few minutes.

Autopsy.—The surface of the body was very pale; there were scarcely any lividities of the skin. The mucous surfaces were blanched. Cadaveric rigidity was pronounced.

The heart was healthy and empty. The lungs were normal, though rather anemic.

In the abdominal cavity were sixty-six fluid-ounces of mingled fluid blood and blood-clot. The source and course of this hemorrhage were found to be as follows: At the junction of the transverse and descending portions of the aortic arch there was a projecting aneurism, with thin walls, the tumor being the size of an English walnut. This outgrowing sac had ruptured at its outer

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

part, and the escaping blood had dissected its way inside the sheath of the aorta, leaving a blood-stained track in the posterior mediastinum. It had then torn through the diaphragm between the aorta and the esophagus. It had then turned to the right, across the cardiac end of the stomach posteriorly, and here, tearing away the peritoneum of the stomach over a surface two inches by three inches, it had broken through and discharged into the general peritoneal cavity.

All the organs of the abdomen were structurally healthy. The brain was pale and wet.

CASE III. Winifred M., aged sixty-five, a homeless wanderer, depending on street alms and the poor hospitality of her acquaintances to keep her from starvation, was not known to be the subject of any disease, although she had been heard once to make an allusion to her "heart" as the seat of some indefinite disorder. On the day before her death she was on the street from morning till night, and returned to her temporary lodging in her usual health. Her bed was prepared for her on the floor, and she went to sleep at ten o'clock. In the night she shifted her bed from the corner of the room to the middle; and here at 7 A. M., she was found dead without any indication of distress in her attitude or countenance.

Autopsy. — The body was emaciated. The surface was pale, with some cadaveric lividities upon the dependent parts.

When the sternum was removed, the pericardium was observed to be distended, bulging outward, and freely exposed; it contained ten fluid-ounces of blood, fluid and clotted. The heart was moderately and symmetrically enlarged; its muscle was readily crushed by finger pressure. The aortic valves were moderately thickened at their free border, but were competent. The mitral valve was normal.

The aorta, beginning at a point near its origin, was dilated; the enlargement was rather greater on the upper or convex border, was fusiform in shape, without sacculation, and in size and contour resembled a lemon. The wall of the dilated artery was thinned to an appreciable degree; and the intima, not only of the arch, but of the entire thoracic portion as well, showed large patches of atheroma, some of them with calcareous plates.

Immediately to the right of the innominate artery, on the upper curve of the transverse part of the arch, there was a rent in the intima of the aortic wall, transverse in direction, and one inch long; the edges of the rupture were irregularly indented, but the general direction was linear and straight. The situation of this internal rent was above the line of the pericardial attachment. But the blood, instead of forcing its way directly out at this point, had dissected a passage backwards and downwards, along beneath the outer coat of the artery, and had found its entrance into the pericardial enclosure, through a longitudinal rent an inch and a half long, and two inches below its rent of exit through the inner coat of the aorta. The tissues between the two ruptures were infiltrated with blood.

Both pleural cavities were obliterated by old pleuritic adhesions. Both lungs were engorged. There was no blood in the bronchi.

There was no sign of disease about the abdominal or pelvic organs. The brain was normal in appearance.

CASE IV. Joseph F., aged seventy-five, was alive and well at 6.30 A. M., when his room-mate left him

at home. He had been out of doors through the previous day, and was not known to have any ailment. At 1 P. M. he was found dead on the floor of his bedroom. He was in a kneeling posture, with his forehead resting on the floor in front of him. His trousers were down about his thighs.

Autopsy. — The body was spare. Rigor mortis was fully developed. The face was livid.

The pericardium was distended and bulging, showing a dull purple color through its wall. It contained twelve and a half fluid-ounces of blood, fluid and clotted, the clot being soft and of a dark color.

The heart was normal in appearance; its valves were all competent and in healthy condition.

The aorta was dilated; its intima was thickened and roughened from the semilunar valves to the iliac bifurcation, the result of atheromatous degeneration.

Just above the anterior coronary orifice, in the ascending portion of the aortic arch, there was an aneurismal sac projecting outward and to the right, and having a cavity of about the size and shape of a large olive. At the outer aspect of this small sac was a crescentic, valve-like rent, extending downward into the pericardium. The external lesion in the outer coat of the vessel was curvilinear, three-quarters of an inch long. The orifice through which the blood escaped through the intima was irregularly rounded and of the about the size of a pea.

The lungs were injected. The spleen was softened almost to a condition of diffuence; it was small, dark red, and adherent to the adjacent tissues by the products of former inflammation. The stomach and intestines were normal. The liver showed the appearances of fatty infiltration. The kidneys represented chronic interstitial inflammation. The brain was unnaturally moist.

CASE V. Leodegar M. L., aged fifty-one, was found dead in his room in a hotel, lying back against some pillows on a lounge, one foot on the lounge and the other hanging off its edge. An hour and a half previously he had walked up the three flights of stairs leading to his room, and seemed in his usual good health and spirits when he entered the hotel office.

He was the subject of a lateral curvature of the spine, and to his acquaintances this appeared to be his only disability. It was ascertained from one of his intimate friends, however, that for many months he had had pain in his shoulders and in the right sub-clavicular region, to such a degree that he had talked of sudden death as a possible termination of his trouble. The last evening of his life he had seen a well-known and experienced physician who gave him some advice of a general nature, but did not entertain the idea of any serious organic disease.

Autopsy. — The body was emaciated. The countenance indicated distress. There was a marked lateral curvature of the spine in the dorsal region, which gave also a "pigeon-breasted" deformity to the sternal region.

When the sternum was removed, the pericardium was observed to be prominent, distended and elastic, showing dark contents through its translucent wall. It contained sixteen fluid-ounces of blood, fluid and clotted. The source of this hemorrhage was found to be a minute rupture in the wall of an aneurism of the ascending and transverse portions of the aortic arch. This portion of the artery was enlarged to about twice its normal size; its intima was rough and thick. From

the outer and upper part of the ascending section a secondary projection was found, the result probably of a former rupture of the aortic wall. The wall of this smaller sac was relatively thin, and was lined with loose, rather dry clot. At its upper border, as close as possible to the pericardial line, was a minute orifice, hardly admitting the head of a small probe. The size of the sac was that of a large apricot.

The heart was firmly contracted and empty; its structure was normal. There was no effusion of blood outside the pericardium. The lungs were injected; in other respects they were normal. The spleen and kidneys were reddened. The other organs were healthy in appearance.

CASE VI. John H. H., aged fifty-one, ran to catch a train which was about to start. He entered a car and took his seat. Presently he was observed to be ejecting blood copiously from his mouth; his death quickly followed. It was learned from his kindred that he had been ailing many months with some obscure symptoms which represented "heart disease" to him; but he had not been incapacitated for the performance of his daily duties. He himself had anticipated sudden death.

Autopsy.—The body was sparely nourished. The surface was pale. Post-mortem rigidity was pronounced. Dried blood was in the nostrils, on the mustache and beard, and on the lips and teeth.

On raising the left lung, a firm adhesion was found posteriorly, near the apex, tying the lung to the spinal column and the adjacent ribs, over a surface two inches in diameter. When the heart, lungs, esophagus, and aorta were removed together, this area of adhesion was found to be a portion of the wall of an aneurism of the thoracic aorta, involving the lower section of the descending portion of the arch as well. The aneurism consisted almost wholly of the dilated arterial walls, much thinned; there was no deposit of fibrinous layers within it. The lining surface was rough from atheroma, with projecting calcareous plates. The part next to the spine, where the adhesion was found, had eroded the bodies of the vertebrae to a slight extent. Just in front of this eroded space, the aneurism had ruptured in a forward and upward direction into the upper lobe of the left lung. At the point of rupture, the wall was thinner than elsewhere. The rent was irregular and somewhat stellate in shape, and admitted the tip of the finger. The size of the aneurismal cavity was about that of an orange.

The entire arch of the aorta was considerably dilated, and its intima was roughened and thickened. The aorta below the aneurism also showed atheromatous changes, without dilatation.

The heart showed no change whatever from the normal condition, in size, thickness of its walls, color of its muscle, or state of its valves. Its cavities were empty, and its left ventricle was contracted.

The left lung at the point opposite the aneurismal rupture showed an excavation half an inch deep and of irregular periphery; all around this the tissues were infiltrated with blood, giving an engorged appearance to the entire upper lobe, and, to some extent, the upper part of the lower lobe also. There was no blood in either pleural cavity. The right lung was somewhat reddened. The trachea and bronchi contained blood, and there were about four fluid-ounces of clotted blood in the stomach.

The other organs showed nothing noteworthy.

CASE VII. An unknown woman about sixty years old, presenting the aspect of a homeless street-beggar, was seen to stagger across Atlantic Avenue and to drop helplessly upon some store steps. She was bleeding from the mouth. She was insensible when the bystanders reached her, and presently she died. The front of her dress was blood-stained, but the evidences of very profuse hemorrhage were wanting. The body was not identified, and therefore all knowledge of her health previous to her attack on the street is lacking.

Autopsy.—The following appearances were the only ones of immediate interest: The upper portion of the thoracic aorta, just below the arch, presented an aneurismal dilatation of the size of a large orange; it was located opposite the bifurcation of the bronchi. Portions of the wall were very thin, while other parts were much reinforced by layers of fibrin. The aneurism had ruptured into the bronchi. There was no blood in the pleural cavities. The lungs were engorged, and the bronchi and trachea contained frothy blood. The heart was enlarged, the hypertrophy being chiefly on the left side. The aortic valves were thickened, and behind them were small calcareous plates of great density. The aorta was dilated just above the valves, and at one point in the ascending portion the walls had yielded, forming a depression one inch in diameter and a quarter of an inch deep. The intima of the aorta throughout its extent was thick and rough.

CASE VIII. Michael F., aged seventy-seven, was seen to topple over as he was in the act of crossing Park Square at 10 o'clock A. M. Medical attendance was immediate, and the man was placed in an ambulance and transferred quickly to the City Hospital. On his arrival he was in a state of profound collapse. He gave his name and address, but no other facts. He died at 10.45 A. M., three-quarters of an hour after the seizure. His family stated later that they had had no knowledge of any disability of which he was the subject.

Autopsy.—The body was spare, and its surface was pale and exsanguine. The pericardium, prominent and bulging when first exposed, was found to contain a pint and a half of fluid blood and soft clots. The heart was moderately enlarged, and its left ventricle showed a thickened wall; its valves were normal.

The arch of the aorta was much dilated, its lumen being expanded into a cavity of the size of a large lemon. In the descending portion of the arch, just behind the pulmonary artery, there was a transverse rent in the intima, two and a half inches long, linear, straight, but not penetrating into the pericardium; the most careful exploration failed to discover any communicating opening, and the conclusion was that the leakage seemed to be by filtration through the outer layer of the aorta's wall. The inner coat of the aorta was thick and rough, and the lumen of the artery below the arch was narrow and irregular. The tissues in the posterior mediastinum and in the posterior parts of both lungs were fully infiltrated with blood; the lungs elsewhere were edematous. About a pint of thin, bloody serum was found in the pleural cavities.

The spleen, pancreas, stomach, and intestines were normal. The liver represented passive congestion. The kidneys were typical specimens of chronic interstitial inflammation.

CASE IX. Chipman H. S., aged thirty-seven, was admitted to the City Hospital about 10 o'clock P. M., January 20th, at the request of a physician who stated that the man was suffering from paraplegia, in some way connected with two doses of a poisonous drug prescribed by an irregular practitioner. It appeared from S.'s story that he had not suffered any disability until the forenoon of that day; at this time his "legs gave out" and he sank to the floor of his room. He said he had great pain in his back, not localized, but general. There was also an account of vomiting and of the passage of bloody matter in his dejections, and this lent some aid to the theory of poisoning.

At the hospital a loud souffle was heard over the heart. The man was restless, very thirsty, and disinclined to talk. Toward morning, January 21st, he sank into a stupor and had some equivocal convulsive movements. He gradually failed, and died at 12.05 P. M., that day. The hospital diagnosis was not conclusive, but cerebral hemorrhage seemed the probable condition.

Autopsy.—The body was well nourished and of good muscular development. Cadaveric lividities were more than ordinarily pronounced on the lateral and dependent parts.

The heart was hypertrophied without dilatation. Its valves were all in normal condition. The myocardium was pale but firm. The aortic arch was dilated moderately and displayed old endarteritis. The aorta below the arch and to within five inches of the diaphragm was normal. At this point, just above the diaphragm, there was an aneurism of the size and shape of a large kidney. Its anterior wall was adherent to the posterior surface of the lower lobe of the left lung. Its posterior wall was the exposed and eroded bodies of the eighth, ninth and tenth dorsal vertebrae; the necrosis of these bones had gone so far as to leave upon the front and left side deep excavations into which the forefinger could easily be laid, leaving a thin shell of denser bone at the upper and lower margins, with the intervening cartilages in place. Around this bony destruction the aneurism was firmly attached to the bone at either side. The contents of the sac consisted of laminated and rather dry, easily broken blood-clots, brownish-red in color, through which ran a tortuous blood canal of the size of the finger.

The lungs, spleen, stomach, intestines and liver were healthy. The kidneys were injected. The brain was of normal appearance.

The spinal cord was taken out from behind. The vessels of the dura were injected throughout the dorsal region. The body of the tenth dorsal vertebra, in front of the dura, was carious and dark-red. The ninth vertebra showed less change. There was a marked excess in the spinal fluid, fully distending the cavity of the dura. The vessels of the pia were fully injected, especially along the anterior surface of the cord. In the anterior and left lateral columns of the cord, near the affected vertebrae, there was a marked degree of reddening, in contrast with the color above and below; but the consistence of the cord was normally firm.

CASE X. Patrick J. S., aged thirty, a tailor by trade, had been ailing many months with an obscure pain in his right side; and, also, at times, with what he had called "neuralgia of the heart." He had

received medical treatment for "liver complaint." He had kept at his work, without interruption, up to the hour of his death. The first symptoms of his approaching end were pallor and great dyspnea. He entered a liquor store, where he was known, and sat down "panting for breath." A carriage was called, and the man was placed in it and started for the City Hospital. He died on the way.

Autopsy.—The body was lean. There was rather more than the usual degree of cadaveric lividity.

The left pleural cavity contained ten fluid-ounces of thin, red fluid. Both lungs were, in general, gray in color, and were thoroughly edematous and sodden. The right lower lobe and left upper lobe were injected more than other parts; but the reddening was very moderate in degree. The pericardium contained five fluid-ounces of straw-colored serum. Both ventricles were firmly contracted; their walls were not thickened. The several valves were normal.

An aneurism projected from the anterior wall of the aorta, immediately above the semilunar valves. Its size was that of a small orange. Its wall was translucent at its most projecting part; elsewhere it was lined with friable coagula, or masses of fibrin, and was opaque and thickened. The orifice of entrance to the sac, seen from within the aorta, was one inch above the right semilunar valve, and appeared as a round aperture through the wall of the vessel; the opening admitted the tip of the forefinger.

The aneurism was so located that it overlay and nearly obliterated the lumen of the pulmonary artery just above its origin at the heart. The aortic arch was moderately dilated, and its intima was thick and uneven.

The other organs of the body displayed nothing noteworthy.

In addition to the features which the foregoing cases have in common (the suddenness of their termination and the fact that the development of serious aortic disease had never been discovered or treated), these deaths suggest some points of special interest, among which the following may be deemed worthy of mention:

(1) The rupture of an aneurism of the aorta, although it sometimes has physical exertion as its exciting cause (Cases V and VI), does not of necessity require such a cause (Cases I, III, VIII).

(2) The pericardium, more often than other cavities, receives the escaping blood; and, in these cases, it is not the amount of the hemorrhage which kills, but the inhibition of the heart's action, by compression of the cardiac walls, in a sac filled to distension with blood (Cases III, IV, V and VIII).

(3) Deaths by aneurismal rupture, although deserving the description "sudden" are not instantaneous; an appreciable interval (Case VI), and, sometimes, a very considerable period, elapses between the attack and its termination (Cases VII and VIII).

(4) A death by aneurismal rupture is not generally a painful one (Cases I, III); although it may leave evidences that it is so in some cases (Cases IV and V).

(5) The escaping blood in an aneurismal rupture does not always follow the line of least resistance (Case II); and, sometimes, it makes a devious dissection to reach an outlet (Cases III, IV).

(6) Its small size and fusiform shape do not give

an aneurism immunity from sudden rupture (Cases II, III, IV, VIII).

(7) An aortic aneurism is not necessarily an affair of advanced life (Cases I, II, V and VI).

THE ANTITOXIN TREATMENT FOR DIPHTHERIA.¹

A CLINICAL REPORT.

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THE object of the present paper is to report the results of the treatment of diphtheria by antitoxin in a series of cases in my recent service in the contagious wards of the City Hospital. This service comprised the two months of December and January. Through the enterprise and liberality of the trustees a supply of antitoxin was secured about December 12th, and the first injection was made on that date. The first twenty injections were made with the solution prepared under the direction of Behring and Scherer, and the remainder were with the product of Dr. Gibier, from the Pasteur Institute in New York. Most of the former series were made with the "No. 1" strength, of which ten cubic centimetres, the dose usually given, contains 600 immunization units. In a few cases the No. 2, representing 1,000, and the No. 3, representing 1,500 antitoxin normals, were used. The Gibier product was furnished in two strengths, marked 1-50,000 and 1-80,000, the latter of course the stronger, as one part was supposed to immunize an animal of 80,000 times its weight against what would be to it a fatal dose of diphtheria toxine. Dr. J. L. Morse, who made some tests of this material found that a specimen marked 1-80,000 actually immunized a guinea-pig of 11,500 times its weight against ten times its fatal dose of toxine.

The treatment, other than antitoxin, employed in the cases to be reported, was frequent feeding, alcohol, iron and cardiac stimulants as required. Locally, irrigation was practised with normal salt solution, or diluted Dobell's solution, whenever it could be done without provoking great resistance from the patient. When violent resistance was encountered which seemed to exhaust the patient's strength, irrigation was omitted.

Before passing to the consideration of the antitoxin cases it is worth while to say a word regarding the cases which were treated during the same interval without antitoxin. This latter group, rejecting all which did not show the Klebs-Löffler bacillus, comprised 40 cases. The reasons why antitoxin was not employed in these cases were as follows:

In nine cases, lack of serum; that is, in nine cases which were suitable for treatment the material was not at hand. Of these, three died.

In six cases, lateness in the disease. In these the patients had been ill five days or more when they came under treatment, and in the scarcity of the material it seemed wise to withhold it in favor of more promising cases. It is to be noted that it was the lateness and not the gravity of the disease which governed this selection. Three of these patients died, and three recovered.

In five patients antitoxin was withheld because they entered moribund. All these died within two days of entrance.

In two cases, antitoxin was withheld because of a negative report from the bacteriologist on the first examination, although the second examination showed the diphtheria bacillus. Of these two cases one died. A corollary of this is that in cases clinically diphtheria it is not well to wait for a bacteriological verdict before using the remedy, and so to lose valuable time.

In 18 cases the remedy was withheld because of the mildness of the disease and the probability that the cases would recover without antitoxin. They all did recover.

On the whole it may be said that the group of 40 cases represented rather less than the average gravity of the disease. The deaths were 12, or 30 per cent., and the recoveries 28, or 70 per cent. Three of the deaths were intubation cases, and no intubation in this group recovered. It may be said in passing that there were five other non-antitoxin cases which had laryngeal membrane and failed to show the diphtheria organism, of which two recovered without operation, two with operation, and one died after operation.

The average duration of the residence in the hospital of the 28 non-antitoxin diphtherias which were discharged well, was fourteen days.

Turning now to the group of antitoxin cases, I have to report 80 cases of diphtheria treated by this remedy between the dates above mentioned. As a matter of fact, 91 cases which would clinically be classed as diphtheritic received injections; but I have excluded from the list all who failed to present the bacteriological evidence of the disease. In reality, I believe some of them to have been, notwithstanding the negative report of the bacteriologist, true diphtheria; and their inclusion would of course raise the percentage of recoveries of the treatment. For example, among the 11 cases were two of membranous laryngitis, intubation and recovery, and two children with membranous throats, one of them septic, who had brothers or sisters in the hospital at the same time, with undoubted diphtheria, a fact strongly presumptive of the diphtheritic nature of the membrane in the other children.² In order, however, to disarm criticism, I exclude all these cases; and we have left 80 patients clinically and bacteriologically suffering from diphtheria. The cases represented rather more than average severity, especially during the earlier part of the series. In view of the scarcity and expensiveness of the material, such cases only were selected for treatment as were of sufficient gravity to make it reasonably likely that they would prove to show the diphtheria organism.

Of these 80 patients, 13 died, a mortality of 16 per cent. A study of these fatal cases may be of interest and profit, and I will therefore briefly describe them. As to the first two, there is considerable doubt as to whether they should be considered deaths due to diphtheria, though I have included them in the list.

CASE I. G. B., male, age six. Entered December 9th. Injected December 12th, on the seventh day of his illness. Membrane disappeared in two days, but returned. Reinjecting December 18th. Contracted scarlet fever December 21st, from which he died Jan-

² Of the occasional failure of bacteriological evidence of diphtheria, I would cite an instance in one child, M. J. M., who had membrane on both tonsils and palatine arch, and a nasal discharge. Two cultures from the throat showed pure staphylococcus aureus; two from the nose also failed to show the diphtheria organism; and, finally, a fifth culture, twelve days after entrance, showed for the first time the Klebs-Löffler bacillus, and that in the nose only. This patient is living at the present writing, twenty-two days after his first injection, but is not yet well. He is, however, the only one of the non-fatal cases which is not convalescent.

¹ Read before the Boston Society for Medical Improvement, February 18, 1895.

uary 5th, septic, but two days after Klebs-Löffler bacilli had disappeared from his throat, twenty-four days after his first injection, and thirty-one days after the onset of his diphtheria.

CASE II. A. H., boy, age four years. Entered January 21st. Period of disease unknown. Injected January 22d; Gibier solution, 1-50,000, 20 c. c. Klebs-Löffler bacilli; then disappeared in four days. Then irregular, rising temperature; scarlet fever; broncho-pneumonia. Died February 7th, seventeen days after entrance.

CASE III. N., age twelve. Admitted January 24th. Membrane tonsils, pharynx, nose. Enlarged glands, intense sepsis. Injected January 25th, second day of illness; 25 c. c. Gibier solution, 1-50,000. Second injection January 27th, Gibier solution 10 c. c. Hemorrhages, nose and mouth. Membrane much diminished on fourth day, but what is left not well demarcated. Died January 30th. Klebs-Löffler still present.

CASE IV. A. B., female, age three. Sick on or before December 8th. Injected December 12th. Behring No. 1, 10 c. c. Died in five hours. Profound sepsis. Membrane tonsils, pharynx and nose.

CASE V. A. M., female, age eight. Taken sick December 6th. Injected December 13th. Behring No. 1, 10 c. c. Membrane tonsils and palate. Re-injected Behring No. 1, 5 c. c., December 21st. Klebs-Löffler and streptococci. Lived twelve days after first injection. Membrane nearly disappeared, later returned. Died of heart-failure.

CASE VI. D. M., female, age three. Admitted December 19th. Duration unknown. Intubed December 20th, and not injected because thought to be moribund. Being still alive December 21st, injected as forlorn hope, *very late* (unknown how late) Behring No. 2, 8 c. c. Same day tube removed; broncho-pneumonia. Died December 22d.

CASE VII. A. J., a female, age ten months. Nursing child, both parents in hospital with diphtheria. Injected December 29th, five days after onset. Sepsis profound. Membrane tonsils, pharynx and nose. Vomited everything. Died December 31st.

CASE VIII. C. O'D., male, age two. Sick three days. Entered December 31st. Intubed at 11 A. M. Gibier, 1-50,000, 6 c. c. Died 11 P. M., same day.

CASE IX. V. E., male, ten months. Bottle fed. Sick eight days. Injected Gibier, 1-80,000, 7 c. c., January 3d, and 6 c. c., January 5th. Membrane much diminished after second injection. Later returned; vomited everything. Died January 11th.

CASE X. A. N., male, twenty months. Mixed infection of Klebs-Löffler and streptococci. Sick three days. Injected Gibier, 1-80,000, 7 c. c., January 3d, and 6 c. c., January 4th. No improvement whatever. Died January 6th.

CASE XI. J. C., male, age fifty-five. Had been "spitting up pus" three or four weeks; cause of this unknown. Klebs-Löffler and streptococci. Injected, December 28th, 14 c. c. Gibier, three days after onset, and December 30th 8 c. c. Sepsis, hemorrhages, cyanosis, delirium, obstruction, tracheotomy. Death January 1st. No improvement here. Extension downward. See autopsy, *infra*.

CASE XII. J. F., male, age five. Sick four days. January 17th, injected 20 c. c. Gibier, 1-80,000. January 18th, reinjected 16 c. c. Gibier, 1-50,000.

January 19th died. Profound sepsis, hemorrhages. Membrane in throat, palate and nose. See autopsy, *infra*.

CASE XIII. H. S., age three. Entered January 17th, and was intubed at once. Injected, January 18th, Gibier, 1-50,000, 16½ c. c., eight days after onset. Entered partly unconscious. Pneumonia same day. Died day of injection.

It will be seen that of these 13 cases four died within the first twenty-four hours after the first injection, and two others died within the second twenty-four hours. The average time which elapsed in these fatal cases between the onset of the disease and the injection was almost exactly five days, a period so long as to seriously invalidate the efficacy of the serum treatment. On the other hand, the treatment was given early in two or three of the cases, and the conditions seemed those which ought to have led to better results than those attained.

The extent of the invasion in some of the fatal cases is illustrated in two autopsies.

CASE XII. Autopsy twelve hours after death showed "diphtheritic inflammation of the tonsils with ulceration and necrosis, hemorrhagic broncho-pneumonia and purulent bronchitis of both lungs, and discrete patches of fibrinous pleuritis, general acute lymphatic hyperplasia, acute splenic tumor, cloudy swelling of kidneys, liver and heart muscle. . . . Bacteriologically, the tonsils showed many colonies of Klebs-Löffler and short, thick bacilli. In the lung were very many colonies of typical Klebs-Löffler and a few larger colonies of streptococcus pyogenes from broncho-pneumonia. The heart's blood showed a few colonies of typical streptococci, and the kidney a few typical Klebs-Löffler and streptococci."

CASE XI. Autopsy, adult. "Anatomical diagnosis — tracheotomy wound: diphtheria affecting uvula, soft palate, left tonsil, larynx, trachea and bronchi; emphysema, broncho-pneumonia. Bacteriologically: Lung, broncho-pneumonia, moderate number of colonies of colon bacillus, a few of diphtheria. Larynx, many colonies of Klebs-Löffler. Brain, a few colonies of colon bacillus. Heart's blood, sterile. Liver, sterile. Kidneys, a few colon bacilli."

Among the fatal cases were three of intubation and one of tracheotomy. Of the intubations, in one the injection preceded the operation, and in two the intubation preceded the injection. The tracheotomy was performed three days after the first injection, and was a fruitless attempt to ward off an asphyxia due to pulmonary extension and sepsis.

In one case of intubation where the injection preceded the operation, recovery took place. The tube was left in the larynx only three days.

Combining now, the 80 cases of diphtheria treated by antitoxin with the 40 treated otherwise, we have a total occurring in the period covered, of 120 cases with 25 deaths, a mortality of a little less than 21 per cent. The average hospital mortality from diphtheria is from 45 to 50 per cent. For the corresponding period in the previous year, December 12, 1892, to January 20, 1894, there were 84 cases of diphtheria with 44 deaths, a mortality of 52 per cent.

We have thus, I think it must be admitted, evidence of a very substantial reduction in the death-rate of diphtheria under the antitoxin treatment. But the mathematical expression of the fact is not to my mind the most striking one. The general appearance of the

patients, the look of the ward is different from what it formerly was. It is a common thing to see a child within 24 hours after an injection, sitting up in its crib and playing with its toys. In cases where I have wished as a safeguard to the heart, to keep the child recumbent, it was very difficult to do so, the buoyancy of improving health asserting itself in this way unless a nurse is constantly at hand to restrain the child from sitting up. There are a less number of children than formerly lying about in that dull, comatose condition of profound, advancing sepsis, and the aspect of the ward is more like that of a convalescent hospital than of a lazaretto. There is less steam needed for the relief of choking patients. The proportion of operative cases is, I think, less. Five of the cases, as I have said, came to operation, and the mortality of them was large, 80 per cent.; but four others who entered croupy, with labored breathing and retraction, and who seemed destined to an early operation, recovered without that necessity.

The duration of the residence in the hospital of the antitoxin-treated cases, furnishes an interesting comparison with that in the cases not so treated. As I have already said, the latter group showed an average hospital residence of 14 days for the cases which recovered. In the antitoxin group, the average hospital residence of 58 cases which recovered and were uncomplicated with other diseases (for nine children developed either scarlet fever, measles, chicken pox or some other affection which increased their hospital residence) was eleven days. Hence arises the deduction, interesting from the financial point of view, that the hospital saved in this treatment an average of three days' board for each patient who recovered, which was enough to a little more than pay for the antitoxin used. Moreover, it may be mentioned in this connection that the omission in these cases of other treatment often pursued made a still further saving, the one item of peroxide of hydrogen (none of which was used in any of the cases) having cost the hospital about \$550 the previous year. Thus it is pleasant to see how a liberal policy works even a financial saving!

The patients were all retained in the ward until the disappearance of all visible membrane and two negative reports from the bacteriologist as to the existence of the diphtheria bacilli. These bacteriological examinations were, so far as possible, made daily and the record shows the date at which the membrane was gone, and the first permanent disappearance of the bacilli. From this it appears that the membrane disappeared on the average a little earlier than the bacilli, the figures being six and one-sixth days and seven days respectively, from the date of the first injection.

But the range of variation was very great, and the membrane was by no means always the first to disappear; it was only so in the *average* of the cases of recovery (that is, in the cases where it had full time for its evolution). The earliest date of the complete disappearance of membrane after the injection was one day, which was noted in one case; but in this the bacilli persisted for five days. In three cases the Klebs-Löffler bacilli lasted but one day after the injection, but in these traces of membrane persisted for three, four and five days respectively, after the injection. It was not uncommon for the bacteriologist to report a single swab as having no Klebs-Löffler when the next day's examination again revealed the organism. Hence the importance of requiring two consecu-

tive negative reports before considering the case as well.

In a few instances a temporary interruption in the supply of material forced upon me a sort of control experiment. For example, a girl, aged two, entered January 14th. Had been sick five days. Serum was not at hand, and the membrane increased under observation till January 16th, when the material was obtained and she was injected. On the 18th both membrane and bacilli were absent, and she was discharged well on the 22d. A similar case was that of a boy, aged six, who entered December 26th. Sick two days, with a good deal of membrane, which grew steadily worse till the material arrived on the 28th, when he was injected. Six days later his membrane had disappeared, and he was up and dressed, though the bacilli persisted for fifteen days. A third child, a girl, aged eight, entered December 31st. Sick one day. She was profoundly septic; had membrane on the tonsils and pharynx; and no improvement occurred up to January 3d, when she was injected for the first time, and again on the 5th. The bacilli had disappeared on the 9th, but the membrane persisted till the 14th, and she was discharged well on the 16th.

Twenty-two of the cases were injected a second time, at an interval of one or two days from the first treatment. Seven of these reinjections were in patients who died. The reasons for such reinjections was failure of membrane to be thrown off, failure of a sharp line of demarcation about it, extension of membrane, and increase in the gravity of the symptoms.

Besides the 102 injections already accounted for, five more were made for purposes of immunization. Three were upon house-officers and two upon nurses, all of whom were coming into the wards for the first time or after a long interval. None contracted the disease, and all had a slight local dermatitis at the site of the puncture after a few days. One of the house-officers suffered from slight malaise and headache the day of the treatment. One patient, a girl of eleven, had received from a physician outside a prophylactic injection on the occasion of the appearance of another case of diphtheria in the household, and developed the disease exactly three weeks after the immunizing injection was given. It is well known that the immunity conferred by antitoxin is of comparatively short duration, and that on renewed exposure after three or four weeks, a new protection should be given. This I did not do in any of the five cases mentioned above.

A few words regarding the technique of the injections. The syringe used for the most part was of glass with asbestos packing of the piston which allowed the piston to be disinfected by fire while boiling water was used for the barrel and needle. This instrument proved more convenient than the Koch syringe which was employed at first.

As to the site, the interscapular region was at first made use of, but was speedily abandoned on account of the discomfort from lying on the seat of the puncture. A few injections were made in the flank, but the most advantageous place seemed to be the outer and front aspect of the thighs, which were not exposed to pressure; absorption was rapid. The skin at the site selected was prepared for injection by scrubbing with soap and water and later with corrosive solution. No pressure or massage of the tissues was practised. The puncture was closed with adhesive plaster.

The dose of Behring's solution was usually 10 c. c. of the No. 1 solution. The No. 2 and No. 3, of higher strength, were used in somewhat reduced doses, according to the gravity or especially the lateness of the case. The earlier doses of the Gibier solution were small—too small, 10 to 15 c. c. Later I used 20 to 25 c. c. of this, and if reinjection was employed about one-half the quantity.

The first good result from injection was usually seen within twenty-four hours in the form of a whitening and a dense milky color of the membrane, and its sharper line of demarcation. The exfoliation of membrane was generally most marked in the second twenty-four hours. A fall of temperature, although often occurring, seemed to be less significant than general improvement in the condition, for many of our worst cases of septic diphtheria have but slight temperature elevation.

Of unfavorable results from the injections the most annoying have been cutaneous eruptions. So far as I know no case of urticaria occurred after the use of the Behring serum which was employed in the first 20 cases, though this exemption may have been merely a coincidence. In the other 60 cases, 13 are known to have developed urticaria, in some of whom it was very severe and painful. As many patients were discharged early, in four to seven days after the injection, and as the urticarial affection does not appear often for a week or more, it is probable that a larger proportion had this skin eruption than the 21 per cent. who are known to have had it. A part of the difference in this regard between the two kinds of serum may have been due to the fact that larger volumes of the Gibier solution were injected than of the Behring.

Pain was complained of in several cases as being severe, both during and for hours following the injection, and also after several days' interval. The later manifestations were sometimes all over the legs and sometimes specially in the joints and of a rheumatoid character.

I could not satisfy myself that any cases of nephritis or endocarditis were attributable to the serum, as the proportion of these complications was not larger than is usual. Seventeen cases of the 80 showed signs of nephritis, being 21 per cent., which is not so large a proportion as occurred in my previous service under other methods of treatment.

The painful complications above noted will, I hope, disappear with greater perfection in the preparation of the material. With more moderate prices for the product the temptation will be less to the employment of horses which have a tendency to produce the cutaneous accidents, and the immunization of the animals can, when the hurry to "realize" on the product is less, be carried to a greater degree, so that the dose required for injection may be expected to become less. Finally, we may, I think, look for the time when the true antitoxin will be isolated from the blood-serum in which it is contained, and be employed in a smaller and more precise dose, with the total elimination of the cutaneous and other accidents which now constitute a drawback to serum therapy. Meantime, in the method as it stands, we have, as I believe, an achievement which in its beneficent results, is comparable only to the discovery of Jenner.

An anti-cigarette league, representing 25,000 public-school boys in New York City, has been organized.

A CLINICAL AND EXPERIMENTAL STUDY OF THE LEUCOCYTOSIS OF DIPHTHERIA.*

BY JOHN LOVETT MORSE, M.D.

(Continued from No. 10, p. 224.)

THE object of the first experiment was to determine whether a local diphtheria would cause a hyperleucocytosis.

RABBIT No. 1.

October 24th. 9.30 A. M., white corpuscles, 5,800. 11 A. M., the palpebral conjunctiva of the left eye was excoriated over a small area and a pure, fresh culture of the Klebs-Löffler bacillus on blood-serum rubbed in. This culture was the second generation from a fatal case.

October 25th. 9.30 A. M., a spot of membrane, about one-quarter of an inch long and one-sixteenth of an inch wide, was present at the site of the excoriation. White corpuscles, 6,400.

October 26th. 10.30 A. M., membrane all gone. White corpuscles, 7,100. As the amount of membrane had been so small, and the increase of white corpuscles so slight as to be within the bounds of possible error, it seemed best to repeat the experiment. Accordingly, the conjunctiva was again excoriated at the same spot, but more deeply and over a larger area. 11.30 A. M., reinoculated with same culture.

October 27th. 10.15 A. M., excoriated spot covered with membrane over an area about one-quarter of an inch square, the membrane also extending a little onto the ocular conjunctiva which had not been irritated. White corpuscles, 9,100.

October 28th. 9.15 A. M., membrane a little less extensive. White corpuscles, 9,100. A blood-serum tube, inoculated from the eye at this time, twenty-four hours later showed a pure culture of the Klebs-Löffler bacillus.

October 29th. 12 M., membrane only about half as extensive. White corpuscles, 8,400.

October 30th. 9.30 A. M., membrane disappeared. White corpuscles, 8,200.

November 1st. 9.30 A. M., white corpuscles, 6,000.

The result of this experiment proves that a local diphtheria, produced by the Klebs-Löffler bacillus alone, is capable of causing a hyperleucocytosis. The results also agree in a general way with the conclusions arrived at clinically, namely, that the hyperleucocytosis varies with the amount of membrane and ceases soon after its disappearance.

A series of experiments was next undertaken to determine if the toxine produced by the Klebs-Löffler bacillus would alone, as seemed probable, cause a hyperleucocytosis.

RABBIT No. 2.

October 31st. 9.30 P. M., white corpuscles, 12,400.

November 1st. 10 A. M., one-half a cubic centimetre of toxine solution injected into ear-vein.

November 2d. 9 A. M., found dead. A count of the heart's blood showed white corpuscles, 23,400. Autopsy showed inguinal, axillary, mesenteric and retroperitoneal glands enlarged and reddened. Liver, macroscopically, showed no necrosis. Kidneys moderately congested. No fluid in thorax. Lungs somewhat congested and slightly edematous. Bone-marrow somewhat reddened.

RABBIT No. 3.

November 2d. 12 M., white corpuscles, 6,700. 12.45 P. M., one-tenth of a cubic centimetre of toxine solution injected into ear-vein.

November 3d. 10.30 A. M., white corpuscles, 12,000.

November 4th. 10 A. M., white corpuscles, 16,300. At this time the animal was decidedly sick, showing marked

* A paper to which was awarded the First Lyman Prize for the year 1894. This paper will appear in the Medical and Surgical Reports of the Boston City Hospital, Sixth Series.

paresis of hind legs and some of front. 3.30 P. M., white corpuscles, 20,800. The rabbit was moribund at the time of this examination.

November 5th. 12 M., autopsy, rabbit having died during the night, showed axillary glands enlarged and reddened. Little or no enlargement and no injection of inguinal, mesenteric or retroperitoneal glands. Supra-renals much reddened. No macroscopic necrosis of liver. Kidneys much congested. No fluid in thorax. Lungs slightly congested, but not edematous. Bone-marrow very red.

In this case the leucocytosis had doubled in twenty-two hours and continued to increase steadily up to the time of death.

RABBIT No. 4.

November 6th. 3.30 P. M., white corpuscles, 5,200. 4.30 P. M., one-fiftieth of a cubic centimetre of toxine solution injected into ear-vein.

November 7th. 9.30 A. M., white corpuscles, 8,400. 3.30 P. M., white corpuscles, 11,400. The rabbit was now evidently sick.

November 8th. 9.15 A. M., white corpuscles, 11,700. Rabbit much sicker. A differential count of the white cells made at this time, the height of the hyperleucocytosis, resulted as follows:

	Per cent
Small Lymphocytes	30.8
Large Mononuclear and Transition Forms	5.8
Polynuclear Neutrophiles	7.8
Eosinophiles	55.6

The consideration of this, as well as of the following differential counts will be taken up later.

November 9th. 9.30 A. M., white corpuscles, 7,600. The rabbit was livelier than during the two previous days, and evidently on the road to recovery.

DIFFERENTIAL COUNT.		Per cent.
Small Lymphocytes		41
Large Mononuclear and Transition Forms		10
Polynuclear Neutrophiles		11
Eosinophiles		38

November 10th. 9.30 A. M., white corpuscles, 4,000. Rabbit still improving.

November 17th. 9.30 A. M., white corpuscles, 5,800. The rabbit was now entirely well, but showed considerable induration about the seat of injection. It showed no signs of paralysis at any time.

In this case the increase in white corpuscles was well marked in seventeen hours, reached its maximum in forty-one hours, and had disappeared in eighty-nine hours. It is to be noted that the animal's condition varied with the leucocytosis, he being sickest when it was at its height, and improved as it diminished. It is also worth noting that the hyperleucocytosis disappeared before any local reaction manifested itself, which is in direct contradiction to v. Limbeck's theory.

The three preceding experiments seem amply sufficient to prove that the toxins alone are competent to produce a hyperleucocytosis. They also justify the conclusion that the hyperleucocytosis in diphtheria is due to the absorption of the toxic products of the Klebs-Löffler bacillus and varies directly with the amount of absorption.

It is probable, however, that clinically the toxic products of associated bacteria play a part in its production. The subsequent experiments, although undertaken for other purposes, emphasize the same points.

The next experiment was undertaken to determine whether the toxins of the Klebs-Löffler bacillus cause an initial hypoleucocytosis, and if so, the time of its appearance and its duration.

RABBIT No. 5.

November 10th. 4 P. M., white corpuscles, 7,900.

DIFFERENTIAL COUNT. NORMAL BLOOD.

	Per cent.
Small Lymphocytes	45.2
Large Mononuclear and Transition Forms	6.6
Polynuclear Neutrophiles	11.4
Eosinophiles	37.0

November 11th. 9.15 A. M., Four-tenths of a cubic centimetre of toxine solution injected into ear-vein. 9.30 A. M., white corpuscles, 5,100.

DIFFERENTIAL COUNT.

	Per cent.
Small Lymphocytes	32.4
Large Mononuclear and Transition Forms	7.6
Polynuclear Neutrophiles	8.9
Eosinophiles	51.3

10.30 A. M., white corpuscles, 4,900.

DIFFERENTIAL COUNT.

	Per cent.
Small Lymphocytes	31.2
Large Mononuclear and Transition Forms	7.4
Polynuclear Neutrophiles	11.2
Eosinophiles	50.2

11.45 A. M., white corpuscles, 7,300. 3.30 P. M., white corpuscles, 13,100.

November 12th. 9.15 A. M., white corpuscles, 11,500. The animal at this time, although not well, showed no very marked symptoms.

November 13th. 9 A. M., found dead, but warm.

At the autopsy the axillary glands were slightly enlarged, but not much reddened. No enlargement or injection of inguinal, mesenteric or retroperitoneal glands. Supra-renal capsules moderately reddened. No macroscopic or microscopic necrosis of liver. Kidneys much congested. No fluid in thorax. Lungs moderately congested, but not edematous. Bone-marrow very red.

As is evident above, the result of this experiment is positive, a definite hypoleucocytosis being present fifteen minutes after the injection. The lowest point was reached in an hour and a quarter. One and one-quarter hours later the number had nearly returned to normal, and three hours after this there was a marked hyperleucocytosis. The differential counts will be considered later. In "Rabbit 7" also, a marked hypoleucocytosis was present in half an hour.

The existence of hyperleucocytosis and hypoleucocytosis having been demonstrated, a series of investigations was begun to determine, if possible, the nature of the processes, and to determine also which, if any, of the theories detailed above was tenable. The best way of getting at this seemed to be to kill animals during the various stages and then to make careful microscopic examinations of the organs, paying especial attention to the distribution of the white cells in them and to the bone-marrow.

The animals were killed by a sharp blow on the back of the neck, immediately autopsied, and the organs removed with as little handling as possible and placed in a saturated solution of corrosive sublimate in normal salt solution. After hardening in this for twenty-four hours they were washed in running water for twenty-four hours, then placed in absolute alcohol and mounted in celloidin in the usual manner. The sections were all cut of the same thickness in order to avoid error. Sections of the femur were made in the normal rabbit and in one killed during hyperleucocytosis and kept in absolute alcohol for ten days. The outside bone was then removed and the marrow placed in five-per-cent. nitric acid for twenty-four hours. It was then washed and mounted in celloidin as were the other organs. Cover-slips were also made from the fresh bone-marrow and hardened in alcohol and ether.

RABBIT No. 6.

A normal rabbit killed for purposes of comparison. It is noteworthy that the bone-marrow of the rabbit is extraordinarily rich in eosinophile cells, they forming the very great majority of the white cells present there.¹⁴

RABBIT No. 7.

Killed during hypoleucocytosis.

November 15th. 10.30 A. M., white corpuscles, 7,300. 11.15 A. M., seven-tenths of a cubic centimetre of toxine solution injected into ear-vein. 11.45 A. M., white corpuscles, 4,500. 12.15 P. M., killed.

At the autopsy no macroscopic changes were recognizable. Bone-marrow yellowish-red. Microscopical examination of specimens of the liver and kidney, stained with saffranin, showed no abnormal changes. There was no congestion and no increase in the number of white cells in their capillaries. Sections of the lungs were stained both with saffranin and with Ehrlich's "triple-stain," the latter giving a most beautiful differentiation of the white cells. These sections were carefully compared with those of the normal lung prepared in the same way. It must be admitted here that the conclusions arrived at are founded entirely on individual estimation and judgment, it being impossible to count the cells.

Drs. Councilman and Mallory, however, who were shown the specimens from the three cases, without being told which was which, arrived at the same conclusions regarding the number of white corpuscles as myself. While there was no noticeable increase in the number of red corpuscles in the lung capillaries, the white cells were very much more abundant than in the normal lung. In the large blood-vessels, however, the white corpuscles were much diminished. It was impossible to tell whether any one kind of white cells was more than proportionately abundant, the general impression being, however, that the proportions were about normal. Numerous hyaline thrombi were present in the lungs.

RABBIT No. 8.

Killed during hyperleucocytosis.

November 18th. 11 A. M., white corpuscles, 12,700. 11.45 A. M., two-tenths of a cubic centimetre of toxine solution injected into ear-vein.

November 19th. 9.30 A. M., white corpuscles, 29,200.

DIFFERENTIAL COUNT.

	Per cent.
Small Lymphocytes	15.4
Large Mononuclear and Transition Forms	1.6
Polynuclear Neutrophiles	4.4
Eosinophiles	78.6

11 A. M., killed.

At the autopsy the axillary, inguinal, mesenteric and retroperitoneal glands were unchanged. Supra-renals much reddened. No macroscopic necrosis of liver, which was somewhat congested. Kidneys much congested. Urine not hemorrhagic. No fluid in thorax. Lungs moderately congested, but not edematous. Bone-marrow yellowish-red, but no redder than normal.

Microscopic examination of sections of the liver, stained with saffranin, showed marked congestion. The increase in white cells did not seem out of proportion to the increase in red, when the hyperleucocytosis was taken into consideration. Double-staining with eosin and methylene-blue failed to show any necrotic areas. Sections of the kidney, stained with saffranin, showed an enormous congestion. The increase in white cells, however, was not out of proportion to the hyperemia and hyperleucocytosis. Sections of the lungs were prepared as in the previous cases. There was a decided increase in the number of red cells in the capillaries. The white corpuscles seemed less abundant in the capillaries than during hypoleucocytosis. They were more numerous than in the normal lung, however, and seemed to be in larger numbers than the con-

gestion and general hyperleucocytosis would explain. The impression obtained was that the eosinophile cells were more than proportionately abundant. The white cells in the large blood-vessels seemed about proportionate to the red corpuscles, when the general hyperleucocytosis was taken into consideration. Numerous hyaline thrombi were present in these lungs also.

Specimens of the bone-marrow stained with saffranin and compared with the normal showed a diminution in the number of polynuclear cells and giant cells; nuclear figures, however, were much more abundant. Those stained with "triple-stain" also showed a diminution in the number of giant cells. There was a great increase, however, in the number of small cells with small, round, deeply-staining nuclei and a marked increase in the nuclear figures in these same cells. I am unable to give any explanation of the significance of these cells or of the change in them.

The object of the last experiment was to determine whether there was the same increase in the number of erythrocytes during experimental hyperleucocytosis as appeared clinically. The corpuscles in five cubic millimetres were counted at each examination.

RABBIT No. 9.

December 1st. 3.45 P. M., red corpuscles, 6,075,200; white corpuscles, 8,800; white to red, 1,690. 4.15 P. M., two-tenths of a cubic centimetre of toxine solution injected into ear-vein.

December 2d. 9.30 A. M., red corpuscles, 7,436,400; white corpuscles, 12,400; white to red, 1,600.

That is, there was an increase in the number of red corpuscles of a little more than 20 per cent., thus confirming the clinical observations. As stated, when considering the clinical examinations, I am unable to find any satisfactory explanation for this increase.

December 3d. 10 A. M., rabbit moribund. Circulation so feeble that no blood could be obtained from ear.

December 4th. 9 A. M., died during the previous afternoon.

At the autopsy the axillary glands were moderately enlarged and reddened; inguinal glands less so; mesenteric and retroperitoneal not at all. Supra-renals moderately reddened. Liver moderately congested, but showed no macroscopic necroses. Kidneys much congested. No fluid in thorax. Lungs moderately congested and edematous. Bone-marrow no redder than normal.

The results of my experiments coincides pretty closely with those obtained by Goldscheider and Jacob. They show that hyperleucocytosis occurs without local inflammation or exudate, and that, experimentally at any rate, hyperleucocytosis is preceded by hypoleucocytosis. The presence of an increased number of white cells in the lung capillaries during hypoleucocytosis, and to a less extent during hyperleucocytosis, is in direct contradiction to Löwit's theory of leukolysis. The absence of an increase of white cells in the liver and kidney during hypoleucocytosis and the persistence of an increased number in the lung capillaries during hyperleucocytosis prove that Schultz's supposition that hypoleucocytosis and hyperleucocytosis are merely the expression of a shifting of leucocytes is wrong.

As already noted, my results were the same as those obtained by Goldscheider and Jacob, except that I found rather fewer leucocytes in the lung capillaries during hyperleucocytosis than during hypoleucocytosis. This is a comparatively unimportant difference, however, as there are so many more there than in the normal lung that it is evident that at least only a part of the cells can have returned to the general circulation, and hence that the white cells in the general circulation during hyperleucocytosis must be largely new accessions from the blood-forming organs; that is to

say, my results corroborate the chemotaxic theory and seem explicable by it alone.

Everard concludes that there is a special diminution in the polynuclear cells with granular protoplasm during hypoleucocytosis, and that these same cells are very abundant during hyperleucocytosis. Löwit and Goldscheider and Jacob found almost exclusively mononuclear cells immediately after hypoleucocytosis, and that a decided preponderance of polynuclear cells arises during the course of the hyperleucocytosis. The proportions of the white corpuscles in the rabbit differ decidedly from those in man. The average of the differential counts made in the normal rabbits is as follows:

	Per cent.
Small Lymphocytes	43
Large Mononuclear and Transition Forms	8
Polynuclear Neutrophiles	11
Eosinophiles	38

That is, there are twice as many small mononuclear cells as in human blood while the polynuclear neutrophiles, which make up the bulk of the white cells in human blood, here form but a small factor. The eosinophile cells, however, are very much more numerous, making more than a third of the total. They probably correspond to the polynuclear neutrophiles in the human blood and represent the oldest forms. Attention has already been called to their extreme abundance in the normal marrow. Two counts made during hypoleucocytosis (Rabbit 5) resulted as follows:

	Per cent.
Small Lymphocytes	32.2 31.2
Large Mononuclear and Transition Forms	7.6 7.4
Polynuclear Neutrophiles	8.9 11.2
Eosinophiles	51.3 50.2

That is, there was a diminution in the small mononuclear cells and a proportionate increase in the polynuclear eosinophiles, which is directly the opposite of Everard's observation. No count was made at the beginning of hyperleucocytosis. One made at its height (Rabbit 8) resulted as follows:

	Per cent.
Small Lymphocytes	15.4
Large Mononuclear and Transition Forms	1.6
Polynuclear Neutrophiles	4.4
Eosinophiles	78.6

Another made during the subsidence of hyperleucocytosis was as follows:

	Per cent.
Small Lymphocytes	30.3
Large Mononuclear and Transition Forms	5.8
Polynuclear Neutrophiles	7.8
Eosinophiles	55.6

This agrees entirely with the results of other observers, and is undoubtedly the analogue of the increase in polynuclear neutrophiles in man. Goldscheider and Jacob lay much stress on this large proportion of eosinophiles, and consider that they are not entirely formed from the new mononuclear cells, but are partly old cells which were lying in the bone-marrow ready for extrusion, and have been brought into the circulation in increased numbers by chemotaxic action. A careful study of slips made from the fresh bone-marrow was very unsatisfactory. The impression obtained, however, was that the eosinophile cells were less plentiful in the marrow of hyperleucocytosis than in the normal. As mentioned above, the cut section of the marrow of hyperleucocytosis showed a diminution in the number of polynuclear cells. These observations, as far as they go, agree with Goldscheider and Jacob's position, that the increase in the eosinophiles is partly the result of the extrusion of the cells

already formed in the marrow, and confirm the chemotaxic theory.

The gross pathological lesions observed in the five animals autopsied during hyperleucocytosis are of some interest. In one case there was no involvement of the lymph-glands. In all the others the axillary glands were enlarged and more or less congested, while the inguinal were affected in two, and the mesenteric and retroperitoneal in only one. The supra-renal capsules were involved in every case, being moderately reddened in three and much in two. The kidneys were enormously congested in four cases, and moderately so in one. The liver was slightly congested in two, not at all in the remainder. No macroscopic necroses were observed and none were found in the two cases examined microscopically. The thorax never contained fluid. More or less congestion of the lungs was present in every instance, however, and in two there was slight edema. The bone-marrow was redder than normal in three cases.

To sum up, the constant and most striking lesions were congestion of the kidneys, supra-renals and lungs. More or less acute lymphadenitis was usually present, and occasionally edema of the lungs and reddening of the bone-marrow. Necrotic foci in the liver and fluid in the thoracic cavity, which were found so frequently by Wright¹⁵ in guinea-pigs dead of experimental diphtheria, were not observed.

When my work was nearly completed, a paper was published by Gabritschewsky¹⁶ entitled "Du Rôle des Leucocytes dans l'Infection Diphtérique." He investigated the general leucocytosis of diphtheria in children and rabbits, and in addition studied the local leucocytosis and the action of the antitoxin serum on the progress of the leucocytosis. His conclusions regarding the general leucocytosis, based on his observations on fourteen children and on rabbits, are as follows: There is always a hyperleucocytosis in diphtheria, which is greatest in the fatal cases, and which progressively diminishes during convalescence and after injections of antitoxin. A progressive hyperleucocytosis in diphtheria justifies a bad prognosis, and the analysis of the blood gives useful information regarding the value of treatment. He found that the number of white cells ordinarily varied between 11,450 and 25,000, and in fatal cases between 29,500 and 51,000.

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M. ALPHONSE GUERIN, of Paris, died on Thursday, February 21st. He was seventy-eight years of age.

Clinical Department.

LEUCOCYTOSIS IN POISONING BY ILLUMINATING GAS.

BY RICHARD G. KATON,
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In view of the attention which is being given to the presence and signification of leucocytosis in various pathological conditions, I venture to report, with the permission of the Visiting Physician, the results of the blood examinations in four cases of poisoning by water-gas, occurring recently at the City Hospital.

CASE I. Male, twenty-one, single. Entered on the morning of October 7th, in an almost unconscious condition. He had been drinking the night before, and returned to his room some time after midnight. In the morning he was found unconscious, with a strong odor of gas in the room and the gas turned on. He was brought to the hospital. An examination of his blood at that time showed roughly an apparent increase in the neutrophilic leucocytes and poikilocytosis. A careful count of the blood gave an average of 4,000,000 red and 22,000 white corpuscles to the cubic centimetre. The patient recovered consciousness in a few hours after entrance, and was discharged well in a few days. Blood-counts were made in the instance of three other gas-poisoning cases on the service, as the leucocytosis observed in the first case was considered of sufficient importance to make a record of it. The three following cases also showed a leucocytosis varying from 15,000 to 19,000.

CASE II. Female, twenty, single. Entered the hospital November 10th, having been in an unconscious state for eight hours. An examination and blood-count was made on the following day, the blood being very dark when drawn. The leucocytes numbered 15,000.

CASE III. Male. Entered November 15th. Unconscious, cyanotic, and with an odor of gas in his breath. A blood-count showed 19,000 white corpuscles. On the following day another count was made, the whites numbering 18,000, and the reds 4,000,000.

CASE IV. Female, sixty, married. Entered November 18th. Was unconscious and somewhat cyanotic, with an odor of gas in her breath. A blood-count was made on the following day, when the whites numbered 18,000, and the reds 4,810,000; hemoglobin was 96 per cent. The patient recovered from the effects of the gas-poisoning and was discharged.

Medical Progress.

RECENT PROGRESS IN PATHOLOGY.

BY W. T. COUNCILMAN, M.D.

THE ETIOLOGY OF CARCINOMA.

MOST of the recent articles on the etiology of carcinoma refer it to organisms belonging to the protozoa.

Since the last report on this subject in the *Boston Medical and Surgical Journal*, many new articles have appeared. One of the most important is a collective report by Stroebe in the *Centralblatt f. Allgemeine Pathologie*, in January, 1894. In this article a critical review is given of the most important pub-

lications on the parasitism of carcinoma which have appeared in the last three years.

In the beginning of the article Stroebe refers to publications on the diseases of animals supposed to be due to parasites belonging to the sporozoa. One of the most important works on this subject is that of Pfeiffer. He has investigated affections of animals and of man in which sporozoa have been found, and has embodied the results of his investigation in an extensive monograph accompanied by an atlas filled with photo-micrographs. In almost all of these diseases the epithelial structures are involved, and the lesions consist essentially in hypertrophy and hyperplasia of the cells. Pfeiffer has also described certain affections of the voluntary muscles in various animals, especially in fish. In the latter the nerves may be affected and the disease may appear as a parasitic polyneuritis. Invasion of the red blood-corpuscles by the sporozoa is seen in birds and mammals. The classification of the sporozoa is very indefinite. Pfeiffer follows the classification of Butschli, who has divided them into the gregerina, the coccidia, and the sporidia. The best known among the coccidia is the *coccidium oviformis*, which is a common parasite of the liver of the rabbit. The sporidia are further divided into the sarco-sporidia, the micro-sporidia and the myxo-sporidia. Many of these exist as parasites in the muscles. As a further division Pfeiffer makes a class of hemo-sporidia, to which belong the blood parasites in the frogs, in birds and in man.

With regard to the development of coccidia and sporidia, he shows that there is a protoplasmic youthful form resembling a naked cell which grows to a considerable size and then becomes encysted. The protoplasmic masses within the capsule segments into a number of bodies, the so-called spore-cysts, or spores of the first order; and in the interior of these small boat-shaped bodies the typical spores develop. He shows that the number of the spores in the sporoblast is characteristic for the different species. From these spores the protoplasmic youthful form can develop. The organism does not always go through these different stages. The stages of development are frequently shortened, and in many species some of the stages are wanting. Most of the phases of development of the parasitic sporozoa are met inside of the host, whereas others take place outside.

In the work of Pfeiffer there are a number of interesting observations. There can be little doubt that in many cases the conditions which he describes are due to parasitic sporozoa, and there can be equally no doubt that in many cases he has described and depicted conditions in cells which have nothing to do with parasites. Steinhouse has described a condition in the cells of the alimentary of the salamander probably due to a sporozoic parasite. This develops in the nucleus of the cell, and devours the nuclear substance. Pfeiffer has also given a careful description of the coccidial disease which appears in the liver and intestine of rabbits. The disease is a very common one, and in the liver the parasites can be easily demonstrated in the epithelium of the bile-ducts. These produced hyperplasia of the bile-ducts leading to more or less extensive capillary ingrowths of the epithelium, which appeared as tumor-like masses in the liver. In its youngest form the parasite appears as a round protoplasmic mass of about the size of red blood-corpuscles with vesicular nucleus, which does not stain with the

ordinary nuclear stains. These bodies are found partly free in the contents of the bile-ducts, partly in the epithelium of their walls. In the course of development, which is exclusively intra-cellular, the parasites press to the foot of the cylindrical epithelial cell, greatly distending it. It then becomes granular, and surrounded with a double-contoured membrane. It has been known that these oviform coccidia grow outside of the body of the host, but Pfeiffer was the first to discover its inter-cellular growth. This oviform structure divides into four round or ovoid structures which are also surrounded by a membrane, and these divide each into two sickle-shaped spores which represent again the youthful form. In some cases segmentation of the parasite can take place without the preceding stage of encysting. It then divides into a number of sickle-shaped structures which become surrounded by a membrane, as the skin of an orange surrounds the segments. The infection of the rabbit takes place by these ripe cysts filled with spores, being taken into the stomach with food. The membrane of the cysts are softened by digestion, and the spores having become free enter into the intestine or liver. These organisms, or organisms similar to these, have been found in affections of the intestines of young sheep and in other places.

When we leave this simple disease of animals and take up what has been written concerning the supposed coccidial affections in man, we come to much more uncertain ground. They have been described in the affection known as Darier's disease. In this the pathological condition consists in the formation of small foci of hyperkeratosis, producing small elevations distributed over almost all parts of the body. According to Darier and White, the abnormal keratosis takes place from the ducts of the hair-follicles. In the neighborhood of the small foci there is increased pigmentation of the reti, the epithelial cells of the horny layer are loosened, frequently separated by fissures, and the cutis shows slight inflammatory changes. Darier has described in the horny layer of the skin peculiar structures which he regards as psorosperms, and which he thinks can be distinguished from the epithelial cells. The views of Darier on the parasitic nature of these structures are opposed to Bowen, who studied the histological changes in the disease. At present most of the authors who have investigated this disease are inclined to refer the supposed parasites to abnormal processes of cornification.

The epithelioma contagiosum has long been considered as due to a parasite. The disease appears in the form of small nodules of about the size of a pea, with a central depression. On section it has a distinctly lobular form due to the epithelial masses which extend out from the central depression. Peculiar highly refractive bodies are found in the central depression, and in the masses of epithelial cells. In 1888 Neisser described a supposed parasite in this affection, and considered it as belonging to the coccidia. Torok opposed this view, and considers the molluscum bodies as the product of degenerative processes in the epithelial cells. He considers them, on account of their great resistance to chemical changes, as probably formed of a colloid substance, and thinks that they should not be considered as animal parasites until evident signs of development or proliferation can be made out in them. Zeigler regards the parasites

as probably belonging to the coccidia, and the cause of the peculiar growth of the epithelium. He describes as the youthful forms of the parasites, round protoplasmic structures, lying in the epithelial cells beside the nucleus. The parasite is at first difficult to distinguish from the cell protoplasm, but later shows small, distinct granules in its interior which grow out to large bodies. The whole parasite increases in size and takes up almost the entire cell, pressing the nucleus to one side.

When we take into consideration all the views which have been held as to the character of the molluscum bodies, it appears evident that the authors who regard them as non-parasitic in character have rather the best of the argument. No certain proof of their parasitic character has ever been given. They are simply peculiar bodies which stain differently from the rest of the epithelium. Eleidine and other constituents of normal epithelial cells have been made out in them, and they are most probably epithelial cells which have undergone some peculiar form of degeneration. The results of inoculation show that the affection is contagious, but the contagion may be due to something else than the molluscum bodies.

Under the name of epithelioma follicularis cutis, Israel has described a peculiar form of tumor very similar to molluscum contagiosum, and in this he has found structures similar to the molluscum bodies. The formation is an epidermoid tumor of benign character, and which appears on those parts of the skin which are covered with hair. The surface of the tumor is covered with a thin layer of epidermis, and there are crater-like openings which pass in the interior. These depressions which are due to enlarged and deformed hair-follicles give the tumor an irregular surface; and he considers it a retention tumor, with proliferation of the surrounding epithelium. In the epithelial covering the depressions, structures in every way similar to the molluscum bodies, are found in great numbers. He does not regard it as certain that they are parasites, although he says that many of them correspond to certain forms found in the various stages of development of the sporozoa.

In Paget's disease of the nipple, structures of a similar character have been described. In this affection there is an early stage similar to eczema. This produces a superficial ulceration with depression of the nipple, and sometimes, after years, a typical epithelioma develops. Darier, Wickham and Malassez regard this affection as parasitic and due to living sporozoa in the epithelial cells, but this view has been opposed by various authors. Affections in some respects similar to Paget's disease have been described in other parts of the body. Pick has reported a similar condition arising in the glans penis. In the epithelial growth of this he found numerous bodies similar to the psorosperms described by various authors. Ruffer and Plimmer found in two cases of Paget's disease a supposed form of parasite different from that described by Darier and Wickham, and similar to the forms found by these authors in carcinoma and considered by them as parasitic. These supposed parasites were not found where the affection had an eczematous character, but in the epithelial cells of the parts in which the distinct carcinoma had developed. Neisser, who regards the parasitic character of the molluscum bodies as certain, expresses himself cautiously about Paget's disease. On the other side, the

proof which would be given by differences in staining, that the structures are parasitic, is wanting. Further, the regular localization of the affection in the female breast does not speak in favor of its parasitic nature. In the metastases of the carcinoma developing from this, Neisser was not able to find the supposed parasites. Karg, who has investigated the affection carefully, does not consider the structures described as parasites. He thinks that the disease in the very beginning is an epidermoid carcinoma.

When we review what has been given here it is seen that strict proof of the parasitic nature of the bodies described in these affections has not been given, and for some of them it is very probable that they are altered epithelium. We could divide the four affections into two groups: one in which the molluscum contagiosum and the epithelioma follicularis could be placed, and in the other Darier's disease and Paget's disease. The proven infectiousness of the molluscum contagiosum, the peculiar position and shape of the structures described in it, and their similarity to some of the known forms of the sporozoa would incline one to consider them as parasitic in character. It is possible, however, that they may be altered or degenerated epithelial cells and the infectious matter may still be undiscovered.

A great number of publications have appeared on the supposed sporozoa found in carcinoma. New forms of the supposed parasites are constantly being described and many articles have appeared, some speaking for, and others against the parasitic nature of these structures. The appearances described by the different authors are of a very different character; and almost all appearances in the cells, which with our present knowledge cannot be well explained, have been regarded as parasites.

Steinhaus has carefully investigated these appearances in the carcinoma cells, and thinks that they are to be referred to a number of conditions. They may be due to leucocytes which have become enclosed in the bodies of the epithelial cells, and these undergo degeneration, or partial cornification of cells, or to inclusion of one cell, or part of a cell in another cell. In 95 carcinomas of various sorts Soudakewitch found structures which, on account of their morphological characters, he considers identical with the parasitic sporozoa. Frequently several of the supposed parasites were included in the same cell. They were found in the hypertrophied cells, and even in those which showed nuclear division. He does not think that the multiplication of cells is produced by the parasites, but it is not retarded by their presence. Where destruction of the cell is due to the parasite, it is in consequence of the atrophy of the nucleus from the pressure exerted by the growing parasite. Finally the cell bursts and the parasite is free, and other cells may be infected. When the cell containing several parasites divides, then each of the daughter cells may contain the parasites. Metschnikoff confirms the observations of Soudakewitch, and thinks that these structures are most probably coccidia. He has found forms of parasites in carcinoma which show a remarkable similarity with certain stages of development of the oviform coccidia in the rabbit's liver. Podwiszoki and Sawschenko have found sickle-shaped structures in 20 carcinomas from different organs, which they considered as parasitic. Foa found in 70 carcinomas, most of which were in the mammary gland,

structures enclosed in cells, which he regards as parasites. As the earliest stage of the development of the parasite, he describes small, round, oval, vesicular bodies, which were frequently contained in great numbers in the protoplasm of the cancer cell. In the vesicles there is an irregular central body which is colored a dark blue with hematoxylin, and divided into segments by lines radiating from the centre to the periphery. These structures may be so large that the nucleus is pressed to one side. He thinks that the presence of these parasites in the cells is not accidental, but they stand in a causal relation with the development of the carcinomas. In a second publication on the subject he remarks that the interest of the investigators has centred on certain forms of cell-inclusion which have nothing to do with degenerative products, but which are most probably parasitic in character. In sixty different tumors investigated by him about one-third show clearly the parasites. Almost every form of the tumor shows a special form of parasite. In the places where cell-division was going on most rapidly the parasites were most numerous.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting Monday, January 7, 1895, DR. C. J. BLAKE in the chair.

ANATOMICAL SPECIMENS.

DR. HOMANS: I have here a fibroid consisting of two principal lobes with the body of the uterus between them, that is, dumb-bell shaped. The patient was a single woman, thirty-two, thin and suffering from pelvic pain and from constipation; otherwise pretty well, but as I had seen one patient with a fibroid filling the bony inlet of the pelvis and compressing the rectum, I thought it was well to remove this tumor. This woman did remarkably well, had no rise of temperature. There was one peculiar thing about her, a susceptibility to morphia. The family was said to be remarkably susceptible to morphia, and as I always give my patients morphia subcutaneously before etherization, I was careful to give this patient only one-sixteenth of a grain at nine o'clock. At two o'clock I was called to see her, and her respirations were seven per minute, her face dusky, and she was evidently very deeply narcotized. She was given one-sixtieth of a grain of atropia, and in the course of an hour or two the respirations rose to sixteen or seventeen and she recovered well. But I never saw morphia poisoning from one-sixteenth of a grain of morphia before.

DR. S. L. ABBOTT related

A CASE OF EMBOLISM OF THE FEMORAL ARTERY.

DR. JOHN HOMANS read a paper on

THE SURGICAL TREATMENT OF UTERINE FIBROIDS.¹

DR. BAKER: I have been very much interested in Dr. Homans's paper. I am very glad indeed to hear

¹ See page 221 of the Journal.

that Dr. Homans has given up the method of extra-abdominal treatment of the stump. It always seemed to me to be rather an unsurgical method, although I never used it but once. It seems to me we have gone through, in the treatment of the stump, very much what was gone through years ago in regard to ovarian cysts. We remember when Sir Spencer Wells was treating the pedicles of ordinary ovarian cysts outside of the body with a clamp, and it seems to me it is a great advance in the treatment of fibroids by the intra-abdominal method. And I quite agree also with Dr. Homans in his make-up of the class of cases of fibroids that require operation. It seems to me his draft of those causes was exceedingly well made. I am also glad to see he uses the braided silk in preference to the catgut for these cases. I was talking a short time ago with Dr. Kelley of Baltimore, and that is what he makes use of entirely in those cases. It seems to me there are certain advantages to be gained sometimes in the removal of fibroids by preceding the operation by thorough curetting of the uterus and the thorough cleansing of the vagina, inasmuch as we cannot always tell in advance what case may require opening of the vagina and perhaps removal of the entire uterus. Certain it is that some cases seem to be better treated by the removal of the whole uterus, and even in the cutting off the uterus, as Dr. Homans has described, I think that preceding the operation with thorough curetting of the uterus will give a little better chance to do a clean operation, and prevent any sepsis from the wound, and not trust entirely to the use of the cautery for that purpose.

My experience in the removal of the ovaries and tubes for the disappearance of fibroids would teach me to take a little exception to what Dr. Homans has said in the matter of its being unreliable. In a limited number of cases, perhaps ten or twelve, where I have removed the ovaries and tubes for the disappearance of the fibroid it has been exceedingly reliable: but it is only right to say that I should choose for that operation a fibroid where the uterus and the fibroid together were not larger than the uterus at three or three and a half months of pregnancy. I should not hope to cause a disappearance of a large fibroid by the removal of the tubes and ovaries although it might sometimes occur; still I think in the small fibroids, if not larger than the gravid uterus of three or three and a half months, it would be found to be more reliable than perhaps Dr. Homans has intimated.

I do not know of anything that requires a more careful exercise of judgment than to know what to do with an individual case of fibroid, so many things have to be considered; and I think as we go on and see more and more cases, we are perhaps all the more at a loss to know exactly what advice to give in any individual case. I think Dr. Homans expressed it very well indeed: "If it is so large and for reasons of delicacy of feeling of a single person, or if by its pressure it is accomplishing so much harm, it is a case to be operated upon." But it is surprising sometimes to see what an amount of disturbance even a small fibroid will make. In the case Dr. Homans showed to-night, the size of which is nothing like some of the large fibroids he has shown here, the disturbance from it was undoubtedly so great as to necessitate its removal; therefore I do not think you can always reason from the size of the fibroid that it would or would not necessitate an operation. I showed to this Society

within two years quite a small fibroid that caused such an amount of disturbance, both nervously and of the rectum, that it necessitated its removal, and this was accompanied by perfect relief.

I think we all should thank Dr. Homans most heartily for the very interesting paper which he has presented to us to-night.

DR. RICHARDSON: I have followed the teachings of Dr. Homans in the treatment of fibroids as I have in the treatment of ovarian tumors, looking to him as the pioneer of abdominal surgery in this community, and adopting in almost every respect his methods of treatment. I feel more inclined to operate on fibroids now than I did, because in two of my cases the operation has been seriously, I may say fatally, complicated by abscess. In fact, the only deaths that I have had in the last two years after hysterectomy for fibroids have been caused by pus in the posterior cul-de-sac, this combination demanding operation when the conditions were most unfavorable. The patients were much reduced in strength. The fibromata, fixed in the pelvis by extensive inflammatory exudations, caused the phenomena of incarceration. The operations were performed as a last resort, and both were fatal.

I feel so safe now in abdominal hysterectomy, practically by the same method which Dr. Homans describes, that I advise the operation for pain that does not yield to treatment, for persistent hemorrhage, for rapidly growing tumor. The operation of abdominal hysterectomy, it seems to me, is one of the most beautiful in abdominal surgery. I am rather inclined to remove the cervix with the tumor, in order to get drainage in that small space enclosed by the inverted peritoneal edges, fearing that the uterine canal may not be large enough for this purpose. In my experience there has always been, between the layers of the broad ligament about the stump of the uterus, abundant oozing, which can escape only by the cervical canal. I do not think that it adds much to the dangers of the operation to remove the whole of the uterus. I have not done this except in cancer, but it seems to me that in the future I shall try to make this thorough extirpation. I have been interested in everything that Dr. Homans has said as to technique, especially with reference to the bladder. I think that we cannot be too careful in looking out for some abnormal position of the bladder, especially if the tumor is a large one. One case I recall especially — I think Dr. Homans will remember it — in which the bladder had been stretched so that it was apparently attached to the posterior and upper part of a large uterine fibroid. It is not surprising that in removing the tumor a large opening was made in the bladder. This was immediately closed, and, like all the wounds which I have made accidentally in the bladder during abdominal operations, seemed to add nothing to the risk. In one instance I have removed from the female bladder a stone which had formed upon the knots by which a bladder wound, made accidentally by another surgeon in a hysterectomy, had been closed. Not that that is a very serious matter; but if the bladder had not been opened, the stone would not have formed.

DR. CONANT: I have been extremely interested in this paper, and I wish to thank Dr. Homans for showing the way to so many of the younger men who have been attempting to follow in his footsteps. It is some-

thing like two years since I first did a hysterectomy by this method, with this modification; in every case but one, of taking out everything, leaving only the vagina. That one case was fatal. I do not know whether it had anything to do with the fact that the whole cervix was not taken out or not, but that is the only case, except one other of recent date which was of immense size and done as an emergency operation rather against my wishes, but at the request of the patient. The patient did not recover from the operation. With the exception of these two cases, as far as I remember now, every case for fibroid that I have done by hysterectomy has done well, and I have had twenty-one cases in all; and I have preferred this method. I never have used the extra-abdominal method.

I understand that there has been some criticism about removing the cervix, because you do not thereby get as good support. In a certain number of cases where I have removed the cervix I have attempted to get that support by sewing up the top of the vagina and sewing the peritoneum over that, and I have yet to see a case that does not present support enough for all practical purposes.

I should agree with Dr. Richardson, that I am much more inclined to operate on fibroids than Dr. Homans would seem to be. I have had in my own family a case I took to Dr. Homans a number of years ago; and he advised the patient, unless there was some trouble, not to have the tumor removed. That young woman has never had what you call a great deal of trouble, but has been a confirmed invalid from that time to this. She has to keep quiet from ten to fourteen days in every month, unable to take active exercise; and judging from that case and several others I have seen, I am inclined to operate on a case that is not even causing a great deal of discomfort, believing that the result gained is very much superior to the amount of risk. I believe that the operation as described by Dr. Homans is almost absolutely safe, provided the patient is healthy and the tumor not excessively large.

I agree with Dr. Homans as to the necessity of perfect antisepsis. And yet this summer I did an operation on a sloughing fibroid in a woman over seventy in a very bad condition generally from sepsis, and having had just before I planned to operate a very severe hemorrhage stopped by perchloride of iron by the vagina. The next morning the operation was performed; there was no rise of temperature; recovery in three weeks. I had no expectation that the woman had any chance of recovery, and it was done as an emergency operation.

I think this operation we can safely commend as one which offers great relief to a set of annoying symptoms, and it can be done with safety and with celerity. One who has never done it is surprised at the celerity with which it can be done by an experienced operator; thirty-five to forty-five minutes is an average time, and I have seen it done in less time than that. Considering the character of the operation that is a remarkably short time, and the shock is usually very slight. If there is no sepsis the patient has almost no reaction, oftentimes no rise of temperature.

REGULAR Meeting, February 18, 1895, the President, DR. CLARENCE J. BLAKE, in the chair.

DR. C. F. WITHINGTON read a paper on

THE ANTITOXIN TREATMENT OF DIPHTHERIA.²

DR. MASON: I had the pleasure of seeing a considerable number of Dr. Withington's cases, and it is quite evident that his report shows a very careful and painstaking use of this new agent. The results are certainly gratifying. I took charge of the diphtheria ward for a short time myself, and observed a certain number of cases of the same kind. I can add little to what Dr. Withington has said. The number of cases treated in this way is now over one hundred, the supply of serum being sufficient for all cases which come, and the mortality is very much reduced. The chief drawback, I think, is the fact that the cases come late. The statement of the parents is not usually accurate, and children who are said to have been sick one or two or three days present every appearance of having been sick much longer, with the throat full of membrane, nasal discharge, perhaps hemorrhagic, and the glands swollen; in fact with all the signs of a longer period of sepsis. The throat contains various germs (streptococci, staphylococci); if the infection is a mixed one, it is not amenable to treatment by this serum; and the number of deaths is greater than if the children were brought during the earlier days. That seems to be the chief reason, in fact, why the serum cannot be regarded thus far as strictly a specific for all cases.

The complications I have observed also. It seems that the skin complications are of little consequence, but the most troublesome one which has fallen under my observation has been the arthritic pain which Dr. Withington referred to, a rheumatoid condition of the joints of the lower limbs, which in two cases I have seen lasting from two to three weeks. Exactly what its nature may be is not clear, whether a septic complication or a neuritis. The pain is in the soft parts as well as in the joints, but in the cases I have seen it has disappeared without any permanent ill effect, so that it seems now as if we can be fairly confident that this remedy is safe from any serious drawbacks.

DR. WITHINGTON: I have not the tabulation of cases from which the report was drawn up, but three-fourths of all the injections were with the New York serum, and I think it is safe to say that a still larger proportion of the cases in which the injection was made early and which did not do well, were made from that serum.

DR. MORSE: I have also tested a specimen of Gibier's antitoxin according to the method given by Kossel in the *Deutsche medicinische Wochenschrift* of October 25, 1895, and in the specimen tested there were only two and a half immunization units to the cubic centimetre; that is, if, as Ehrlich and Kossel claim, 500 immunization units are necessary for the treatment, you have got to give 200 c. c. of the specimen which I tested.

I also want to speak of the diagnosis of mixed infection by the bacteriological examination of the throat. It seems to me it is not fair to say that because you find streptococci in the throat that the case is necessarily one of mixed infection. The streptococcus is such a common bacterium in the throat normally that you are not justified in making the diagnosis of mixed infection because you find it there.

I wish to speak briefly of a case which I saw in

² See page 249 of the Journal.

consultation with Dr. Thayer of Wenham. The patient, a girl sixteen years old, was given 50 c. c. of Gibier's antitoxin in divided doses. As far as the diphtheria went she did remarkably well. She had an urticaria on the fifth day which lasted two days, and on the eighth day after the first injection she had a sudden rise of temperature, accompanied with very severe abdominal pains which lasted two or three days. Of course, it is possible that this was due to constipation or stimulation, or perhaps to overfeeding. On the eleventh day, after she had recovered from this attack, she had a sudden rise of temperature to 104°, with very severe pains in the arms, especially localized in the shoulders and elbows, but no swelling in the joints and no redness. The pain lasted forty-eight hours; the temperature fell to normal; and she had no paralysis and made a normal convalescence.

DR. F. H. WILLIAMS: I have been very much interested in Dr. Withington's cases, and certainly can agree with him in the wonderfully prompt results which follow the use of antitoxin when it is used early in the disease. He spoke of the difficulty of making the diagnosis by means of the bacterial test. It seems to me that difficulty is encountered more often in laryngeal cases; it seems as if the bacilli were more apt to be either overlooked or perhaps not so easy to be obtained on the swab.

As regards Behring's solution and urticaria, I think we can hardly expect to be free from cases of urticaria in diphtheria by using Behring's solution. I have used only Behring's or Aronson's solution, and unfortunately have had urticaria from both of the German makes of antitoxin.

As regards the arthritic pains and the discomfort, I have had three cases in which this was quite severe, and one case in which disturbance of this character was serious for something like six weeks, the patients suffering a great deal, and one or two presenting the appearance of periostitis. There seemed to be a tenosynovitis, a good deal of swelling of the joints and a great deal of pain, and it seemed to me that that might have been due to the antitoxin.

As regards its use as a preventative of diphtheria, it seems to me that in adults who can be constantly under observation it is at present hardly worth while to use it. In one of the cases, an adult in whom I used the solution — perhaps not enough — I used only one cubic centimetre of Aronson's solution, which is as much as he recommended, but not a very large amount — the patient on the sixth or seventh day developed a diphtheria which promised to be a severe one; but how severe it would have been I do not know, because I gave ten cubic centimetres of the Behring solution on the second day, and she did very well.

I should like to ask Dr. Withington if he knows what make of serum was used in the fatal cases where the injection was made early. I think he mentioned several cases where, although the antitoxin was used early in the disease, the patients died.

I have here a syringe which seems to me rather a simple one for injecting antitoxin. I do not know whether that is the one Dr. Withington refers to. It seems to me this syringe is useful for other purposes. They are easily sterilized and comparatively inexpensive. The ordinary antitoxin syringe costs four or five dollars. I suppose this one would cost a dollar and a half.

DR. OSGOOD: I should like to ask what the indica-

tion is for the quantity of antitoxin necessary in a given case, whether it be the condition of the patient, the degree of dyspnea, amount of membrane, or age of the disease. For instance, in one *résumé* of cases, five cubic centimetres were injected for all ages from three to twenty-four years, and in a case which came under my notice twenty-five were injected. What is the indication for the quantity to be injected?

DR. WITHINGTON: A primary indication is the lateness of the case rather than the size of the patient. Cases that come late certainly require more than those that come within twenty-four hours, and if you assume that the quantity, for example, necessary for the immunization of a child from two to five years old is three cubic centimetres a proportional dose for the same child within the first twenty-four hours after the development of the disease would be fifteen to twenty cubic centimetres, and a person who first came under treatment later in the disease would have a correspondingly larger dose. I think the dose is an indefinite quantity at the best because the specimens even from the same manufacturer, vary. I am told by Dr. Ernst that Gibier has told him that successive products from his establishment will require to be used in smaller and smaller doses. But our first invoice was marked one to eighty thousand; and, instead of giving us a stronger solution, they dropped on the next lot to a solution that was marked one to fifty thousand. It is probable from what Dr. Morse ascertained as to the actual strength in immunization units of this particular make that the dose has got to be larger than was at first supposed in order to accomplish anything. Until the immunization of the animals from which the serum is derived is carried to a greater degree than has been done, the dose has got to be rather an uncomfortably large one in order to produce the desired effect.

DR. V. Y. BOWDITCH: I feel some hesitation in speaking of my experience with antitoxin because I have been only ten days on duty, and this is my first experience in the infectious wards, but the results thus far, as I have observed them and from what I read and hear, certainly seem to me encouraging, to say the least, for the use of antitoxin. Since I went on duty 26 new cases of diphtheria by the bacteriological test have entered. Of these, four have died, two being collapsed on entrance and dying the same day; one case required intubation and tracheotomy, and another case showed labored breathing and nasal discharge. According to the records, there has not been extension of the membrane in any one case, a possible exception being made in one in whom the symptoms were rather septic in character. In this one there was only a slight amount of membrane on each side of the uvula, which grew less after the first injection of antitoxin, and he was getting better even with an intercurrent attack of erysipelas of the face (from which he recovered remarkably quickly), when he showed a slight extension of reddening upon the soft palate, and membrane again appeared which has again grown thinner after another dose of the antitoxin. All the other cases are apparently doing very well, with one exception, a child who has been fighting his food and treatment since he came in.

In regard to the immunizing doses; two of the nurses under my care received immunizing doses about three weeks ago. I am inclined to think the dose was small in both cases, although I could not get precise data from either patient. One of them has already been

discharged after four days' stay in the ward, the bacillus having disappeared entirely and the membrane also. She is back again at work, not on my advice, however. In two other nurses also there was no membrane this morning after a stay of three or four days.

As to what Dr. Withington has said in regard to watching the children after the membrane has disappeared, I think it a very important fact, because just after my taking up the work it was rather disheartening to see three children who had been septic cases and had done remarkably well, suddenly, while sitting up and playing with their toys, develop symptoms of collapse and die. It is, of course, possible that these children would have died under any circumstances; but with our knowledge of the depressing effect of the diphtheritic poison upon the heart, the importance of absolute rest and quiet in severe cases, even after the most acute symptoms have passed, is made evident.

As to the appearance of urticaria, when I first came on duty there were several cases of urticaria, and one case of skin disease resembling the eruption often seen after taking aromatic medicines. It disappeared entirely the next day.

As to nephritis, we have but one case, and that developed scarlet fever.

DR. H. W. CUSHING: I should like to ask if there is danger from dyspnea by sudden loosening of the membrane.

DR. WITHINGTON: I think the gentlemen from the surgical side had the feeling that there might be an exfoliation of the membrane in the larynx which it would be difficult to expel if the tube was *in situ*, and the practice was to remove the tube a little earlier in the antitoxin-treated patients in order that its presence might not embarrass the throwing off of the membrane which the remedy would tend to produce; but that any actual dyspnea did occur from the throwing off of the membrane I am not aware.

DR. FOLSOM: I have seen little of the use of antitoxin, but I have followed the literature of the subject. The gentlemen who have seen the *Medicinische Wochenschrift* of Berlin, are aware that almost every number has something on this subject. After each meeting of the leading medical society there is usually a very long discussion, sometimes occupying several pages of that very large sheet. I have no doubt that there has been very little ill result reported so far, and it seems to me quite probable that it is quite true that the ill results are very small. From some 1,500 cases that have been carefully tabulated now, there is no question but it is safe to say that the statements by certain physicians that there is a greater proportion of nephritis with antitoxin than without it is entirely untrue. I am inclined to think that a great deal of stress should be laid upon the purity of the serum as well as the strength, and the New York Board of Health is clearly wise in cautioning all people against using any serum excepting from reputed sources. If the serum is three-fourths the strength it is reported to be, that is of little consequence because whoever uses it can find out that fact; but if it contains any impurity there is a source of a great danger. I do not know that there has been caution enough used in the country generally in regard to that point, but we can get antitoxin from the best sources hereafter. I do not think we are in a position to say what the mortality is in the use of antitoxin as compared with other methods of treatment. Of course, just as soon as any

community knows that there is a valuable remedy in the hospitals which is not widely available outside of the hospitals, they will send their patients much more readily, and a larger number of mild cases will be in the hospital than heretofore. In the Paris and German hospitals and here, previous to the use of antitoxin, only the severe cases were sent to the hospital. In Germany a very much larger proportion of the mild cases have been sent to the hospitals. In regard to Paris, I do not know whether it has been so.

Many of the gentlemen will remember that a little over twenty years ago we had a very severe outbreak of diphtheria which lasted two or three years, which extended over New England, much more severe than anything we have had since. Then a mortality of 24 per cent. of average cases as they occurred in the community was not uncommon. There were exceptional epidemics — one in Williamstown in this State, and some in the small towns in Vermont; and perhaps half-a-dozen small epidemics in which the disease was very virulent — one in Conway, in the region of Deerfield, in which the mortality was 75 per cent.; some died in twenty-four hours, some before any membrane could be seen anywhere. Leaving out those exceptional cases, 24 per cent. was an average mortality that was very commonly got in a number of towns. In Gloucester, which then had a population of 16,000, I went personally to every physician and got the name of every patient he treated and the locality of the city, to investigate with regard to the condition of drainage, etc.; and the total mortality in a very large number of cases there was less than 24 per cent, so that twenty-four per cent. probably is not an exceptionally good average to get for diphtheria in all sorts of cases. If the degree of severity of the cases that come to the hospital is still very much higher than of the cases in the community, the average mortality they are getting is a small one, and probably that is the case; but we are not in a position to say definitely in regard to that, and to say how far the reduced mortality is due to the antitoxin, and how far it is due to the fact of mild cases coming in. The statement is made frequently that antitoxin is still in the hospital stage, and various physicians state that the hospital is the only place where it should be used, because the hospital is a place for experiment. It does not seem to me that is a fair statement with the statistics which have been got from 2,000 cases, and when such a conservative man as Virchow admits that there is no evidence of any harm from antitoxin, it seems to me its use is justifiable in all cases.

DR. WITHINGTON: In regard to the percentage of recoveries quoted, of course 24 per cent. in an average of epidemics is a fair mortality for non-hospital patients. I suppose most of us expect that more than three-fourths of our patients in private practice will get well; but the patients in hospitals are ill-nourished and ill-fed children whose likelihood of doing well is less than that of the average child among the better-to-do, and there is not much doubt that the patients sent into the hospital are those who are more ill than the average. The poorer classes keep their children as long as they dare, and then send them to the hospital. The hospital mortalities have been about 50 per cent. for a number of years, and it is with that figure that we ought to make our comparisons rather than with the mortality which has prevailed in the country districts and in non-hospital patients.

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THREE CASES OF SPONTANEOUS HEMOPHILIA IN BROTHERS.

DR. JUDSON DALAND reported at the Philadelphia County Medical Society on January 9th, a case of hemophilia in a boy thirteen years of age, living in Pennsylvania at a height of 1,800 feet. The first symptom noticed was a profuse petechial eruption, which followed an attack of cholera infantum at the age of eight months. At the age of five years he began to have attacks of arthritis, which occurred on an average every two months from the fifth to the thirteenth year. Soon after the fifth year the arthritis was so severe that ankylosis ensued, necessitating the use of crutches until the ninth year, when relief was obtained from Swedish movements and massage. Between the ages of five and thirteen he had about fifty hemorrhages from the various mucous membranes, but no attacks of purpura. The attacks of hemorrhage were usually preceded by grinding of the teeth and flushing of the face, so they could generally be predicted.

Most of the hemorrhages were nasal; but on two occasions hematuria followed trauma of the renal region, and once hematemesis followed a blow on the abdomen. Later the boy accidentally bit his tongue, free hemorrhage ensuing, which lasted seven days. The nasal hemorrhage was only controlled by the application of ice to the nape of the neck and bridge of the nose, after many remedies had been tried, and large quantities of blood had been lost, so that the physician in charge thought death was imminent.

For the injury to the tongue Monsell's solution was first used, which caused a cessation of the bleeding for a short time; but soon the coagulum was loosened by the oozing of blood and saliva, so that the hemorrhage was more violent than at first, owing to the destruction of the tissue produced by the remedy. Efforts to check the hemorrhage from the use of intense cold produced by an ether spray proved valueless, as the spray could not be continued for a sufficient length of

time, owing to the danger of ether narcosis and the repeated attacks of vomiting excited by the anæsthetic. Compression by means of forceps was attempted, but owing to the site of the injury, which was on the side of the tongue, about two inches from the tip, it was extremely difficult to properly apply the forceps for any length of time without exciting gagging and vomiting. Ice was applied for five minutes, until the wound was partially frozen; then it was removed for a similar time, and subsequently reapplied. This was continued for twelve hours, after which the hemorrhage ceased. At that time he showed all the evidence of extreme anemia and caused his physician to think that death was imminent. Fluid extract of ergot was given in thirty-drop doses every three hours.

Dr. Daland saw the case, in consultation, for a second attack of hemorrhage from the tongue, which had been bitten during a choreiform attack. Numerous internal remedies had been tried by the attending physician, Dr. W. Duffield Robinson; but the hemorrhage had lasted six days. On the seventh day the hemorrhage decreased in quantity, ice having been applied every five minutes from six A. M. till noon. The boy showed the effects of the loss of a large quantity of blood, the heart-beats numbering 130 per minute, and the pulse at the wrist only seventy. Microscopic examination of the blood showed an enormous number of very small microcytes, many of which were mere points. There were a few macrocytes and a moderate increase in the number of leucocytes. There were no parasites nor distorted red blood-cells, and crenation and rouleauxing were normal. The blood for this examination, which was obtained at the end of a protracted hemorrhage extending over a week, showed a decidedly greater tendency to clot than on any former occasion. The Thoma-Zeiss hemocytometer showed 3,775,000 or 75.5 per cent., and Fleischl's hemometer showed 62 per cent. of hemoglobin.

The next day an examination showed well-marked evidence of quantitative and qualitative anemia, no hemic murmurs were audible, although especially searched for; the blood from the prick of the finger showed a normal tendency to clot, and the hemorrhage, which had recurred, instantly ceased when Dr. Robinson made a local application of a four-per-cent. solution of cocaine. The stomach was more retentive, and there were evidences of beginning convalescence.

The condition of the blood gradually improved, and an examination made two weeks later gave the following results: The blood emerged from the puncture freely, much more so than from a healthy individual. It was of a good color and coagulated slowly. Microscopically the blood presented a normal appearance, with the exception that there were rather more large red-corpuscles than are ordinarily seen. The microcytes had entirely disappeared. The color of the red cells was somewhat paler than normal. The Fleischl hemometer showed 70 per cent. of hemoglobin and the hematokrit showed 84 per cent. of red cells. There was no leucocytosis.

At this time the finger was accidentally cut, and hemorrhage continued for thirty minutes despite the application of ice. When a four-per-cent. solution of cocaine was employed, the bleeding was checked immediately, and did not recur.

The family history showed no hemophilia on either the father's or mother's side as far back as the fourth generation. Of their five children, however, the second at three and a half years developed hydrocephalus, and suffered from frequent severe and uncontrollable hemorrhages from the nose, of which he finally died. The third child showed no evidences of hemophilia, but died of malignant scarlet fever at two years of age. The fourth child had severe hemorrhage when he began cutting teeth, and at the eruption of the molars he bled to death.

The occurrence of these three cases in brothers, and the fact that no hereditary tendency to the affection could be traced, makes Dr. Daland's cases a peculiarly interesting contribution to our knowledge of the subject.

CONGRESSIONAL IGNORANCE AND BUFFONERY RESPECTING ANTITOXIN.

DURING the closing hours of the last Congress of blessed memory, a discussion arose on a bill to admit antitoxin free of duty. The chief opponent of the bill was Mr. Ray, a Republican, representing the twenty-sixth district of New York. He frankly avowed that the subject was one about which he knew nothing. We quote from the *Congressional Record*: "I do not know what antitoxin is, where it is made, what it is used for, nor whether it is animal, vegetable, or mineral, and I have inquired of a great many members of this House, but fail to find one here who has the slightest idea what this new discovery is, or what it is composed of. If it is a good thing, the owner of the patent or secret ought to come into the United States and establish an antitoxin factory here and give us an American industry; and for the purpose of building up such an industry, if its production be an industry in the United States, I oppose the bill."

Such ignorance on the part of men who are not supposed to be, but who ought to be and are not abreast of all the great questions of the day, including public hygiene, is not as astounding as it is lamentable. But Mr. Ray was not alone in not knowing what antitoxin is. His colleague, Mr. Van Voorhis, wanted to know whether the horse was not the raw material of antitoxin, and whether under the bill horses would not come in free. Mr. Henderson, of Iowa, who owned to the possession of "a stack of literature on the subject," added to his fame as a humorist by this lucid description of the antitoxin process: "They vaccinate the horse with diphtheria. Then they put him on to (*sic*) a very high grade of feeding, according to a formula which has been established, and they feed him up until his mane and tail are in the proper relations to each other, and then they bleed him; and this blood is the antitoxin." This gentleman, says the

Boston *Herald*, was fully impressed with the idea that the preparation of antitoxin involved setting to work the machinery of torture on the horse, and in his most serious vein he declared that Congress should not commit itself to this animal-torturing business until they knew something about it.

Here is a fitting mission for the *Medical Record* and New York *Medical Journal* to look after the Congressmen from that State. A "whole stack of literature" consisting of excerpts from those journals' publications on antitoxin, should be at once forwarded to Messrs. Ray and Van Voorhis, who have brought this disgrace upon their State.

We would suggest that the Chicago *Sanitary News* should do the same by Mr. Henderson. Here is a new educational field open for all these journals, unless perchance they feel that it would be casting the pearls of knowledge into the mire of demagogical unworthiness.

MEDICAL NOTES.

DR. ROSWELL PARK, of Buffalo, has recently been elected President of the Medical Society of the State of New York.

A YELLOW FEVER CONGRESS. — It is proposed to hold a congress on yellow fever during the Cotton States and International Exposition at Atlanta. The plan proposed is that the leading physicians of the city invite the leading physicians of the South Atlantic and Gulf cities, with a view of securing concert of action on quarantine measures and methods of dealing with the disease.

CHOLERA PRECAUTIONS. — Owing to the reappearance of Asiatic cholera in the suburbs of Constantinople, the Direzione della Pubblica Sanita of Italy has increased the stringency of its regulations requiring the medical visitation and disinfection of all vessels coming from the Black Sea, from the colonial French ports, from those of Russia and of Roumania on the Danube, from the Sea of Marmora, from the Ægean and from the North African littoral (excluding Tripolitania) and from Brazil. The Argentine government has formally recognized the existence of cholera in the Confederacy.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, March 13, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 52, scarlet fever 31, measles 88, typhoid fever 9.

POISONING BY ILLUMINATING-GAS. — The cases of poisoning by illuminating-gas in Boston continue to be very numerous.

HEARING ON THE STATE CARE OF CHILDREN. — On March 11th, the Committee on Charitable Institutions of the Massachusetts Legislature gave a hearing to the advocates of the establishment of a separate

board for the care of children now under the charge of the State Board of Lunacy and Charity. Some people who have given the subject attention and are interested in it are of the opinion that the children, about 2,000 in number, who are now under the care of the State Board of Lunacy and Charity, would be better cared for if separated from the other wards of the State and placed under the charge of a separate board.

INSURANCE OF CHILDREN'S LIVES.—A hearing is in progress, before the Insurance Committee of the Massachusetts Legislature on a bill to prohibit insurance companies from writing policies upon the lives of children less than ten years old.

PROPOSED LEGISLATION IN FAVOR OF THE KEELEY CURE: There is a petition to the Massachusetts Legislature which will probably be referred to a committee hearing, to the effect that the Massachusetts Hospital for Dipsomaniacs at Foxboro be compelled to employ the so-called Keeley cure in the treatment of its cases.

A PROTEST AGAINST THE MASSACHUSETTS MEDICAL REGISTRATION LAW.—Certain individuals are seeking to have amendments introduced in regard to the Massachusetts registration law, and those who desire to minimize or obstruct the operation of the law appear to think that their object would be furthered if the hearing on the amendments proposed were held before the Joint Committee on the Judiciary, instead of the Committee on Public Health.

MR. W. B. McVEY, professor of chemistry at the College of Physicians and Surgeons, has been elected a Fellow of the Chemical Society of London, Eng., in recognition of services rendered to the advancement of science during the trial of the late Dr. Meyer.

THE SAMUEL WINSLOW SURGERY.—Colonel Samuel Winslow, of Worcester, has presented the Worcester City Hospital with \$10,000 for the construction and equipment of an operating department, to be called the "Samuel Winslow Surgery," in memory of his father, who was Mayor of Worcester from 1887 to 1890.

COMPULSORY VACCINATION AT YALE.—Owing to the occurrence of three cases of small-pox at Yale University, compulsory vaccination of all students of the university who cannot show satisfactory proofs of having been vaccinated within two years has been ordered by the faculty.

REQUESTS FOR PORTLAND CHARITIES.—The will of the late Ira Farrington, of Portland, Me., gives sums varying from \$2,000 to \$40,000 to certain named public charities. Of the residuary estate, the two-thirds part goes to the Maine Eye and Ear Infirmary at Portland, while the remaining third is devised to the Public Library.

AGAINST THE "CHRISTIAN SCIENTISTS."—The following is the full text of the measure now before the New Hampshire Legislature to govern and regulate fraudulent medical practice and the so-called Christian science or faith cure:

SECTION 1.—No person within the limits of this State shall treat, attempt to heal or cure any other person or persons by the so-called Christian science or faith cures.

SECT. 2.—If any person shall treat, attempt to heal or cure, or claim or pretend to heal or cure any other person or persons by either of said methods and shall directly or indirectly accept or receive any money or other thing in payment for or on account of such services, or directly or indirectly accept or receive any gift or reward therefor in any form, such persons so offending against the provisions of this act by so accepting or receiving such money, gift, reward, or other thing shall be fined a sum not exceeding three hundred (\$300) dollars for each and every offence, and half of such amount to be given to the complainant, the other half to the State.

SECT. 3.—This act shall take effect upon its passage.

NEW YORK.

A NEW CENSUS.—The mayor has ordered a census of the city to be taken by the Police Board. The books required for the purpose which will be printed at the office of the *City Record*, will be ready March 20th, and it is thought that this census, which will take about two weeks to complete, will be commenced March 25th. This action has been taken at the request of the Board of Health, in order to complete the official records of the latter and enable it to fix the exact percentage of mortality in the city.

TRANSFER OF DEPENDENT INSANE.—It is announced from Albany that the Board for the establishment of State Insane Asylum Districts has reported to the State Commission on Lunacy on the request of the King's County authorities, that the State take charge of the dependent insane of that county and also possession of their care. The Board approves of the proposal that the State shall lease the Brooklyn Asylum property at Flatbush until it can transfer the inmates elsewhere. As to the St. Johnland property, which the county authorities desire to sell to the State for \$500,000, the Board expresses the opinion that much money has been wasted upon it and that several of the buildings are practically worthless, while others are very imperfect. Aside from these objections, the St. Johnland property has been found to be suitable for the location of a State hospital for the insane. The price asked, \$500,000, is declared to be excessive, and the Board urgently recommends that steps be taken by the legislature to fix an equitable price by negotiation and compromise.

DEATH OF DR. MATTHEW D. FIELD.—Dr. Matthew D. Field died March 8th, of renal and cardiac disease, at the age of forty-two. He was a son of the late Jonathan Field, who was a brother of Cyrus W. Field, David Dudley Field, and Judge Stephen Field of the United States Supreme Court. He was born in July, 1853, in Nashville, Tenn., although the permanent home of the family was at Williamstown, Mass. After being graduated at Williams College he studied medicine in New York, under Dr. Joseph E. Winter, and was graduated from Bellevue Hospital Medical College in 1879. After serving as interne at Bellevue Hospital for eighteen months, he became assistant to Dr. Stephen Smith. In 1882 Dr. Field was appointed one of the examiners in lunacy of the Department of Charities and Correction, and also

visiting physician to Bellevue Hospital; and in 1883 he was made chief surgeon of the Manhattan Elevated Railway Company. Both of these positions he held at the time of his death. He was the author of numerous articles on nervous and mental diseases, and for the last fifteen years has frequently appeared as an expert witness in lunacy cases. He married ten years ago his cousin, Miss Lucy Atwater, who, with two children, survives him.

DEATH OF DR. BERNARD E. VAUGHN.—Dr. Bernard E. Vaughn, who was an assistant surgeon to the New York Cancer Hospital, died on March 5th. He was a native of Worcester, Mass., and was graduated from the College of Physicians and Surgeons, New York, in 1887. He was a member of the house staff of St. Luke's Hospital from 1887 to 1889.

DEATH OF DR. DUBOIS.—Dr. Robert Ogden Dubois died March 9th, in the thirty-sixth year of his age. He was a graduate of the Yale Medical School in 1881, but had practised in New York for a number of years.

DEATH OF DR. AZARIAH D. NEWELL.—Dr. Azariah D. Newell, one of the best-known physicians in New Jersey, died at his home in New Brunswick on March 9th, after a short illness. He won special distinction during an epidemic of cholera many years ago. Dr. Newell early became interested in cattle breeding, and was among the first in this country to import Jersey cattle. He was of an inventive turn of mind, and a means of conveying the life line which he devised was adopted by the government and was used until the introduction of the Lyle gun.

Miscellany.

THE CARE OF THE SICK AND WOUNDED IN THE JAPANESE ARMY.

CHIEF SURGEON ISHIGURO has published in the *Yomiuri* an open letter to Japanese families, members of which are now in the army, which is summarized in the *Japan Weekly Mail*. A list of clothing furnished the soldiers for protection against the intense winter cold includes cotton-flannel under-garments, great-coats of wollen cloth, blankets, gloves, head-coverings of thick fur, great-coats with fur collars, flannel shirts, knitted woollen drawers, under-garments made of paper and floss silk, thick leather gloves, and an additional blanket. A large piece of fur has also been given to each soldier. Socks lined with flannel, straw foot-gear, and heavy boots have also been lately sent for both soldiers and coolies. The regular rations of rice and meat when in camp, and rice, indian corn, and pickled plums when on the march, are increased by liberal portions of fowl, pork or beef when booty is abundant.

When the enemy is to be charged at close quarters, the soldiers strip themselves of all extra clothing so as to ensure freedom of motion, and are then obliged to stand in the snow in their ordinary winter suits. On the other hand, soldiers who were the first to arrive at

the enemy's quarters in Fenghwan, Chiulien, Port Arthur, etc., found fur garments and boots of great value, which they now wear.

"As to the treatment of the wounded and diseased, it is highly satisfactory to find from the returns that lately reached headquarters how comparatively small is the number of wounded and killed on our side since the beginning of the campaign. It is also reassuring to learn that the ratio of mortality among the wounded who were brought under the care of surgeons was only four per cent. The number of deaths from sickness is rather large, but it is not to be wondered at when we remember how prevalent epidemics such as dysentery, typhus, and so forth were in Korea, and what hardships the Japanese suffered owing to change of climate and of diet. It is fortunate that owing to the resemblance more or less of food and customs among the allied races of Japan, China and Korea, our soldiers are less liable to suffer than Europeans or Americans would be under existing circumstances. The mortality among the sick was also small, only about 2.9 per cent. The total aggregate of military medical attendants in the army is 1,350, of whom 380 are surgeons and chemists, and the rest male nurses. The Red Cross Society has 138 practitioners and nurses in the army, besides a far greater number who attend the wounded and the sick at the various barrack hospitals in Japan. The medical attention in the field is thus as perfect as it can well be, but as the treatment given at home is necessarily better, I have enjoined the Medical Corps in the army to send the wounded and sick back to Japan with all possible speed. When a patient has been sufficiently restored to health in Hiroshima to be moved, he is at once conveyed to a military hospital near his home, as he will there enjoy greater facilities for seeing his family and friends.

"The progress that has been made in medicine in general and military surgery in particular, in Japan, is remarkable. In the Satsuma Civil War the mortality among the wounded was 170.5 per 1,000, whereas in the present campaign it has only been 27.2 per 1,000. A short account of the Hiroshima Barrack Hospital may be interesting. The hospital is directly controlled by Dr. Sato Susumu, and under him there are 56 surgeons and dispensers and 501 nurses. Besides these there are 20 practitioners and dispensers and 153 lady nurses from the Red Cross Society. Among the latter we find Viscountesses Kabayama and Niire, and other distinguished ladies indefatigably engaged in tending the wounded and sick, together with other nurses of humbler origin. No outsider can have an idea of the care that is taken of a patient seriously ill or wounded, be he an officer or a coolie. He is generally tended by two nurses, and the treatment he receives even surpasses that given to a patient of high rank at home. The public is gratefully cognizant of the assiduity of the court in relieving the pain of the sick and wounded and providing comforts for them. The emperor frequently sends messengers to the hospital, with grants of money to the patients, and causes the military bands to visit them and play for their pleasure. The empress-dowager, the empress, and the crown prince are equally solicitous, and the former have made bandages with their own hands to be given to the patients who, however, regard them as too precious for use and hang them on their bedsteads as mementoes of the imperial benevolence.

"The hospital is visited by princes of the blood and their wives and other distinguished personages. The Chief Abbot of the Higashi Hongwan Temple and other high priests, both Buddhist and Shinto, read prayers with any patient whose case is dangerous. The contributions sent to the hospital from almost every part of the empire are almost innumerable. Bandages are, of course, the article most needed, yet such is the supply incessantly sent by well-wishers that the hospital has not had to buy a single one. Light literature contributed by patriotic people for the use of the patients already fills one warehouse. It will thus be seen that the lot of those who receive wounds or fall ill in the discharge of their duties is not hard."

The letter closes with kind injunctions to the families of those away at the seat of war to await the return of their heroes with their stories of glorious deeds achieved by themselves and their comrades.

DUJARDIN-BEAUMETZ.

AMONG the French representatives of clinical medicine, no name has been more prominently before the profession during the past ten or twelve years than that of Dujardin-Beaumetz. This has been due to his contributions to medicine and the activity and zeal which he has manifested in forwarding advances in therapeutics by the critical testing in his hospital and private practice, of new remedies and methods, and the published results of those labors. He was popular as a lecturer and as a writer, and his principal works have been translated into nearly all the languages of Europe. Some eight translated volumes of his writings have been published in this country.

The "*Leçons de Clinique Thérapeutique*," in three volumes, has gone through eight French editions, and is a fine, lucid exposition of the most approved methods of treating the ordinary diseases. The aim of the writer was to be *practical*, and therefore just enough consideration was given to etiology, diagnosis, pathology, etc., to obtain useful hints as to treatment.

"The New Medications" has also passed through numerous editions, and contains a critical appreciation of new methods, such as lavage and gavage, nerve stretching; new remedies, such as acetanilid, antipyrin, phenacetin, exalgin, thallin, kaisin, convallaria and sulphonal.

The "*Dictionnaire de Thérapeutique*" (Therapeutic Dictionary) is published in four large quarto volumes and contains full consideration of almost everything of recognized utility in the treatment of disease.

Two volumes—one on Acute, the other on Chronic Alcohol-Poisoning are characterized by much original research, containing the details and results of numerous experiments extending through a series of years. An early treatise on Acute Myelitis was long regarded as an authority. Books on Hygienic Therapeutics, on Alimentary Hygiene, on Prophylactic Hygiene, etc., have appeared during the last few years and have been largely reproduced in medical journals in this country.

Dujardin-Beaumetz began his medical studies in 1853 in Paris. He became interne of the hospitals in 1857 under Velpeau and *chef de clinique* under Behier. He was three times Lauréat of the Faculty, then Lauréat of the Hospitals, and finally Lauréat of the Institute, obtaining the prize Montyon for his researches on the alcohols. He was received as doctor of medicine in 1862. He was long physician-in-chief to St. Antoine Hospital, afterwards to Cochin. His clinical lectures at both these hospitals attracted to him a large number of pupils. At Cochin he founded and equipped two large laboratories—the one for the teaching of therapeutics, the other of bacteriology, from both of which much good work has emanated.

He was a member of the Academy of Medicine, founded,

and had since been President of the *Société de Médecine et de Chirurgie Pratique*, also of the *Société de Thérapeutique*. He was long officially connected with the Council of Hygiene and Salubrity of the Seine, of which he was a prominent member, devoting himself with zeal to all questions affecting the health of Paris, and especially epidemics. In 1884, and more recently in 1892, during the cholera epidemic, he rendered important service to the prefecture of police and the citizens in the effective arrangements which he organized for fighting the epidemic. In 1893 the French government, in appreciation of his services, conferred on him the Cross of the Commander of the Legion of Honor.

He was for many years editor-in-chief of the *Bulletin Général de Thérapeutique*.

It is the same old story, of attempting to do too much work, and taking too little rest and recreation. Dujardin-Beaumetz has for several years been a sufferer from hepatic troubles, and a little more than a year ago underwent the operation of cholecystenterostomy for complete occlusion of the choledochus. The operation undoubtedly prolonged his life, but he none the less eventually succumbed to hepatic infection as the sequel. He died at the age of sixty-one.

Correspondence.

A REMINISCENCE OF DR. HOLMES.

BOSTON, March 7, 1895.

MR. EDITOR:—An excellent paper on "Microscopical Reminiscences," by Dr. Palmer E. Cole, published in the *New York Medical Journal* of February 23d, contains many pleasant recollections of Dr. Oliver Wendell Holmes and pays a well-deserved tribute to his great interest in the microscope, and his ingenious invention of various useful adjustments to it in those early days of its use by the medical profession. He also quotes a passage from his last letter to him, in which he says:

"My most successful contrivance was a stereoscope of a very simple pattern, which had a great run, and has remained popular, I think, to the present time."

It is well, I think, to remind your readers that this little invention, the hand-stereoscope, is one of Dr. Holmes's contrivances, as I dare say many of them, of the younger generation of doctors, are not aware of the fact. I myself have found it a very great convenience.

Dr. Cole's paper tempts me to give you a reminiscence of my own, which fully illustrates Dr. Holmes's *bonhomie* and at the same time his honest self-appreciation.

In my early student days in the Tremont Street Medical School, after a recitation in anatomy to Dr. Holmes, at which I happened not to be present, he sang to the class a new song of his own composition—probably one of his humorous medical productions, but of this I am not quite sure. Two days after, while he and I were engaged together in the dissecting-room, I casually remarked, "I greatly regret not being present at the last recitation in anatomy." "Why?" he asked. "Because I lost the song you were so kind as to sing to the students." After a moment's pause, with his head turned down a little towards one shoulder, and a peculiar compression of the lips—an attitude and expression of the mouth which all his old friends will remember, he said abruptly, "Would you like to hear it?" "Why, of course, doctor, I should," was my reply. "Well, I'll sing it to you," was his immediate response. So he laid down his scalpel and forceps and standing facing me, with the poor relic of humanity on the table between us, he began, and went through the whole of it, with as much enthusiasm as if he were singing to a thousand people. After the prolonged applause of his audience of one had subsided, he said, "Do you like it?" "Why, of course, doctor," said I, "no one could hear it without liking it." "Well," said he, "it is good. No one but a fool would pretend he doesn't know when he has done a good thing."

Very truly yours,

S. L. ABBOT, M.D.

METEOROLOGICAL RECORD.

For the week ending March 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'ht'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...24	30.42	18	29	8	40	44	42	W.	W.	8	12	F.	O.	
M...25	29.98	34	45	23	76	63	70	S.W.	W.	15	9	O.	O.	
T...26	30.03	22	27	18	62	53	58	N.W.	N.W.	20	20	F.	C.	
W...27	29.95	24	35	13	42	54	48	W.	W.	11	4	C.	C.	
T...28	29.58	36	42	30	79	68	74	N.E.	S.	4	6	F.	C.	
F...1	29.51	50	58	41	73	74	74	S.W.	S.W.	14	10	O.	O.	
S...2	29.74	37	42	32	100	90	95	N.W.	N.W.	10	9	R.	O.	.45

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 2, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.
New York	1,956,000	894	347	13.42	20.46	1.32	5.28	3.19
Chicago	1,600,000	—	—	—	—	—	—	—
Philadelphia	1,139,457	737	193	24.92	24.92	1.12	4.90	.14
Brooklyn	1,013,000	396	126	7.25	21.25	.50	5.50	1.50
St. Louis	540,800	—	—	—	—	—	—	—
Boston	501,107	282	68	7.00	26.95	1.05	4.20	—
Baltimore	500,000	—	—	—	—	—	—	—
Washington	285,000	138	54	5.11	26.28	2.92	3.65	—
Cincinnati	325,000	167	30	6.00	23.40	1.80	3.00	—
Cleveland	325,000	124	49	7.29	16.63	2.43	—	2.43
Pittsburg	272,000	82	25	7.32	25.62	1.22	1.22	1.22
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	42	6	4.76	23.80	—	4.76	—
Charleston	65,165	41	5	—	4.24	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	51	22	9.80	19.60	1.96	3.92	—
Fall River	92,233	44	20	13.62	29.51	11.35	2.27	—
Lowell	90,613	45	21	11.11	24.42	6.66	2.22	—
Cambridge	79,607	34	5	8.82	26.46	2.94	—	5.88
Lynn	65,123	37	—	5.40	35.10	—	—	5.40
Springfield	50,284	21	13	4.76	57.12	—	—	4.76
Lawrence	49,900	43	14	16.31	23.30	2.08	—	—
New Bedford	47,741	31	11	—	19.38	—	—	—
Holyoke	43,348	—	—	—	—	—	—	—
Brookton	33,939	—	—	—	—	—	—	—
Salem	33,155	26	4	3.85	19.25	—	—	—
Haverhill	32,925	18	4	—	22.22	—	—	—
Malden	30,209	10	2	—	—	—	—	—
Chelsea	29,805	6	2	16.66	16.66	—	16.66	—
Fitchburg	29,373	8	4	—	25.00	—	—	—
Newton	28,837	6	1	—	33.33	—	—	—
Gloucester	27,293	—	—	—	—	—	—	—
Taunton	26,954	12	2	—	—	—	—	—
Waltham	22,058	11	4	9.09	36.36	—	9.09	—
Quincy	19,642	8	3	—	25.00	—	—	—
Pittsfield	18,802	5	5	40.00	80.00	—	20.00	—
Everett	16,576	8	2	—	25.00	—	—	—
Northampton	16,331	5	2	—	—	—	—	—
Newburyport	14,073	13	0	—	30.76	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 3,487; under five years of age 1,073; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 338, acute lung diseases 812, consumption 392, diphtheria and croup 136, diarrheal diseases 48, scarlet fever 48, typhoid fever 44, whooping-cough 18, measles 17, erysipelas 10, cerebro-spinal meningitis 8, malarial fever 8, small-pox (New York) 1.

From typhoid fever Philadelphia 24, New York and Pittsburg 3 each, Brooklyn, Boston, Somerville and Lawrence 1 each. From whooping-cough New York 7, Brooklyn 4, Philadelphia 3, Worcester 2, Lowell and Northampton 1 each. From measles New York 15, Philadelphia and Brooklyn 1 each. From erysipelas New York 3, Brooklyn and Boston 2 each, Salem, Pittsfield and Marlborough 1 each. From cerebro-spinal meningitis Lawrence 4, New York 2, Boston and Washington 1 each. From malarial fever Cleveland 3, New York and Cincinnati 2 each, Brooklyn 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending February 23d, the death-rate was 29.6. Deaths reported 6,014: acute diseases of the respiratory organs (London) 1,119, whooping-cough 94, measles 70, diphtheria 55, diarrhea 43, scarlet fever 35, fever 20, small-pox (London and Derby 1 each) 2.

The death-rates ranged from 17.4 in Gateshead to 46.1 in Liverpool; Birmingham 21.8, Bradford 28.3, Croydon 24.5, Hull 20.5, Leicester 19.9, London 34.0, Manchester 26.6, Newcastle-on-Tyne 21.7, Nottingham 35.2, Portsmouth 25.1, Sheffield 23.1, Sunderland 22.0, Wolverhampton 30.4.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 9, 1895.

F. W. RICHARDS, assistant surgeon, detached from Naval Laboratory and Department of Instruction and to the U. S. S. "Minnesota."

JAMES STOUGHTON, assistant surgeon, detached from the U. S. S. "Minnesota" and to the Puget Sound Naval Station.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 18th, at 8 o'clock.

Dr. Wm. A. Brooks, Jr., will present a paper on "The Educational Aspects of Physical Training." Discussion by Drs. H. P. Bowditch and Dr. E. M. Hartwell.

Dr. J. E. Goldthwait will read a paper entitled "A Report of Cases of Metatarsalgia Treated by Correcting the Transverse Arch of the Foot." The following gentlemen have been asked to take part in the discussion: Drs. E. H. Bradford, R. W. Lovett and J. Dane.

JAMES G. MUMFORD, M.D., Secretary.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT.—The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place, on Wednesday evening, March 20th, at 8 o'clock.

Papers: Dr. Richard Hogner; "Intravenous Medicated Injections According to Prof. Guido Baccelli's Method."

Dr. Edw. O. Otis; "The Treatment of Advanced (Hopeless) Cases of Phthisis."

JOHN L. AMES, M.D., Secretary.

RECENT DEATH.

D. HACK TUKE, M.D., F.R.C.P., LL.D., the author of well-known works on mental diseases, died in London on March 5th, aged sixty-eight. Dr. Tuke was lecturer on mental diseases at the York School of Medicine and editor of the *Journal of Mental Science*. In 1881 he was elected president of the Medico-Psychological Association of Great Britain. His essays on psychological medicine, insanity and kindred topics have been valuable contributions to the subjects of which they treat. He was the editor of a Dictionary of Psychological Medicine, for which he wrote several essays.

BOOKS AND PAMPHLETS RECEIVED.

Observations on the Action of Chloroform on the Functions of the Human Brain and Spinal Cord, as witnessed in Extensive Injuries of the Cranium and Brain. By Bedford Brown, M.D., Alexandria, Va. Reprint. 1894.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Vol. I. Diseases of Uropoietic System. New York: William Wood & Co. 1895.

A Manual of Diseases of the Ear for the use of Students and Practitioners of Medicine. By Albert H. Buck, M.D., Clinical Professor of Diseases of the Ear, College of Physicians and Surgeons, Columbia College, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary and the Presbyterian Hospital. Second revised edition. New York: William Wood & Co. 1895.

Materia Medica and Therapeutics for Physicians and Students. By John B. Biddle, M.D., Late Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, Philadelphia. Thirteenth edition, revised, rearranged and enlarged, with special reference to Therapeutics, Toxicology, the Physiological Action of Medicines and containing all the preparations and remedies described in the U. S. Pharmacopoeia of 1890, to which this work has been made to conform. By Clement Biddle, M.D., Medical Corps, U. S. Navy. With numerous illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

Original Articles.

CLINICAL FEATURES AND TREATMENT OF EXTERNAL PILES.¹

BY WALTER J. OTIS, M.D.,

Surgeon to Department for Diseases of the Rectum, Boston Dispensary.

ALTHOUGH external piles may be regarded as of no serious import, a study of the numerous cases coming under my observation convinces me that sufficient attention has not been devoted to the significance of their various phases. In a previous paper read before this Society, I considered somewhat at length their etiology and pathology, and suggested a classification based upon the nature of the abnormal processes to be recognized as the cause of their existence. At this time I beg to offer the following observations as a conclusion to the subject, asking your attention for a brief consideration of the clinical features and treatment of these swellings and vascular tumors that are at times the cause of much discomfort and real suffering. The fact is perhaps not generally appreciated that this affection affords a practical illustration of the relation between cause and effect, inasmuch as each form of external pile is the expression of a definite abnormal process which either is taking place, or has taken place, and so plainly indicates its own history that it is possible for the experienced eye to read it almost at a glance. Take, for example, the cutaneous variety of external pile, which I classify as either *redundant*, *hyperplastic*, or *hypertrophic*. The name *redundant* indicates that its distinctive feature is a superabundance, or redundancy of the circum-anal integument, brought about by the stretching it receives from the subjacent varicose external hemorrhoidal veins when they are fully distended, as during defecation. The term *hyperplastic* indicates that the pendulous cutaneous tag associated with an abrasion, fissure, or ulceration at the anal verge, is the result of an inflammatory hyperplasia. In like manner the term *hypertrophic* indicates that the swollen, thickened, radiating anal folds, associated with an eczematous inflammation, are the result of an inflammatory, or irritative hypertrophy.

The site of external piles is confined to the region of the radiating folds of the circum-anal integument. Inasmuch as the pleating of the integument is due to the firm tonic contraction of the internal sphincter, these folds radiate in all directions from just within its lower ring-like border. From this central point they pass over the lower portion of the internal surface of the external sphincter and its lower border to disappear in the contiguous skin. For it must be remembered that the lower border of the internal sphincter is subcutaneous, and that the external sphincter partially overlaps the internal. Under no circumstances are external piles to be regarded as internal piles that have been permanently crowded down and forced outside the internal sphincter. "Certainly it often happens that internal piles of long standing become habitually extruded beyond the sphincter, and can be seen surrounding the anal outlet. Nevertheless, they are still internal piles in the clinical nomenclature, since they originate within the bowel, their protrusion being merely accidental." (Cripps.) There should be no difficulty in distinguishing between external and prolapsed internal piles; because the external pile being

covered with skin will have the color of skin, and will be dry with no tendency to bleed, the internal pile, on the other hand, being covered with mucous membrane will have the appearance of mucous membrane—more or less altered to be sure, especially in cases of long standing; but with this exception it will be moist, of a deep red color, with a history of bleeding, soft to the touch, with a velvety or granular surface.

External venous piles are readily distinguished from the cutaneous by their unmistakable sanguineous nature. Some difficulty, however, may be occasionally experienced in recognizing the thrombotic pile, by reason of the complications with which it is liable to be surrounded.

The existence of a varicose condition of the external hemorrhoidal veins can probably be demonstrated on every adult. Indeed, a varicosity of these veins is of so common an occurrence that it can scarcely be called pathological, and no cognizance need be taken of it; but when repeated and excessive venous engorgement in the varicosities has produced a degree of enlargement sufficient to have caused a permanent stretching of the external anal integument, then we have to do with a pathological condition, constituting the form of external pile implied by the term *varicose*.

The *varicose pile* is seen to best advantage when in a state of venous engorgement, the turgidity and dark-blue color, together with the fact that it can be emptied by pressure, are very characteristic, and demonstrate its sanguineous nature. Its presence, however, may be surmised even when the pressure causing its engorgement is not in force, by the fact that the external skin covering the varices has been so over-stretched that it cannot assume its normal shape, but will be seen hanging about the anus in numerous loose, redundant folds. That is to say, the presence of a redundant cutaneous pile is a sure indication of a varix directly underlying it. There are no symptoms connected with this form of pile aside from the mere physical ones. As a varicosity of the external hemorrhoidal plexus is always associated with and secondary to a similar condition of the internal plexus, all *treatment* of the external varicose pile must be directed to the removal of the cause of the varicosity of the internal plexus. Practically the great majority of these cases will be found in those individuals who have been subject to internal piles for a considerable length of time, and in whom the frequent prolapse of the internal tumors has produced a laxity of the internal sphincter, thus allowing a backward flow of portal blood from veins destitute of valves, and deprived of the support that a healthy sphincter affords. Hence these cases must be regarded as intimately connected with internal piles and treated like them. It is evident, therefore, that any local treatment applied to the external varicose pile, to be of any lasting benefit must apply as well to the varicose condition of the internal hemorrhoidal veins. The tonic effect to be derived from the daily application of cold water appears to have this double effect, and can be very conveniently applied at the time of the morning bath by repeated splashing up against the anus, or by a specially arranged anal douche.

The essential element in the production of the *thrombotic pile* is a thrombosis in one or more of the dilated veins of the external plexus. I have never seen a case of thrombotic pile in which the lesion appeared to be a hematoma resulting from rupture of one

¹ Read before the Boston Society for Medical Improvement, December 17, 1894.

of these veins. It seems to me that an undue amount of stress has been put upon straining at stool as a cause of this pile. The preconceived idea that the thrombotic pile is a hematoma resulting from rupture of a vein presupposes excessive straining at stool, causing an increased blood-tension with sudden rupture of the vein at some weak point. Whereas, I have often observed in these cases that the call of nature at the customary time was put off to a more convenient one, and that when the movement took place the pain and soreness experienced was due to the tumor already formed, though not discovered by the patient until the close of the act. This rapidity of formation is one of the chief characteristics of the thrombotic pile. Another characteristic of this pile is its livid and bluish color, not at all like that of an extravasation, but rather such as might be transmitted from a thrombus, its intensity depending upon the thickness of the tissue covering the thrombosed vein. The closer the pile is to the lower border of the internal sphincter, the more painful and annoying it is—acting in this instance like a foreign body—the lower end of the rectum being in a continual state of unrest in its attempts to eject it. Even the external sphincter will partake of this spasmodic unrest and give the tumor an occasional squeeze, thus adding greatly to the pain. Standing, walking and sitting are alike equally painful, and the pain will be aggravated by coughing or sneezing. More or less edema of the cellular tissue about the vein accompanies the thrombosis; this will be most marked in those cases in which there is a redundancy of the anal integument. I cannot subscribe to the claim of most writers that the thrombotic pile terminates in the formation of a cutaneous pile. It is only when incision has been employed in its treatment or after suppuration has taken place that a cutaneous tag is liable to form, as in these events the conditions favoring the formation of an hyperplastic pile will be present.

In the *treatment* of this pile some relief will be obtained from the use of cooling anodyne applications, as the dilute liquor plumbi subacetatis, or lead and opium wash, or Pond's Extract, but the greatest amount of relief will be experienced from incision of the vein and the removal of the thrombus.

In the *redundant cutaneous pile* the normal pleating of the anal integument into compact radiating folds is replaced, in whole, or in part, by abnormal soft, loose, pendulous folds arranged about the anus like a tuft. By placing the patient in a position that will favor hemorrhoidal engorgement, and requesting him to strain, the necessity of such an arrangement of the integument will be made manifest by the skin being rounded out, and put on the stretch from the distention of the subjacent varicose veins, at the same time the natural color of the skin will change to a livid dusky blue, thus proving the existence of a varicose condition of the external hemorrhoidal plexus, and at the same time demonstrating the manner in which the redundant pile is produced. As with the external varicose pile, there are no symptoms connected with this form of pile aside from the mere physical one of a superabundance of circum-anal integument. Accordingly, from a hygienic standpoint, extra care will be required on the part of the patient to keep the part clean by the daily use of soap and water. In many persons the failure to realize the need of proper ablutions of the anus, and its consequent neglect, is the cause of many an attack of erythema intertrigo, or

even a more troublesome eczematous inflammation. The redundant pile is always associated with and a symptom of internal piles of long standing, and when such cases of internal piles have become prolapsed and strangulated, there results an edema of the external redundant pile, so that the condition present will be prolapsed internal piles surrounded by an edematous swelling of the external redundant pile, and between the two will be noticed the *ano-rectal groove*. It often happens in such cases that this external swelling is considered as a part of the prolapsed internal tissue and its removal by operation advised, whereas, it is only an external evidence that such a condition is present, and all treatment should be directed to the tissue just above the ano-rectal groove, leaving the part below the groove, which is external tissue, to take care of itself.

The *hyperplastic pile* is always inflammatory in its origin, the inflammation, in this instance, resulting in a localized hyperplasia of skin and subcutaneous connective tissue in a region covered with a loose and distensible integument. The peculiar tag-like shape of this pile is due to the limited space in which it forms, being flattened laterally in the cleft between the nates. It varies in size from a small bean to a large almond. When it occurs at the anterior or the posterior margin of the anus it is very apt to assume a crescentic shape, and in the concavity of the crescent, which is directed upward, will be found the ulceration that is responsible for its presence. In an acute state the hyperplastic pile has a pinkish-red color, is very sensitive, is more or less edematous, is firm in its texture, and very much indurated. As I have already remarked, this form of pile is pathognomonic of an abrasion, fissure, or ulceration at its base, and as might be inferred, defecation is apt to be a painful and much dreaded procedure. After the healing of the ulceration at its base and with the subsidence of the acute symptoms, the hyperplastic pile will be somewhat smaller and less indurated owing to the disappearance of the edema, and the general appearance of the pile will depend upon whether the hyperplasia of skin or subcutaneous connective tissue predominates. The *treatment* of this affection to be efficacious should be fourfold: (1) to render the stools semi-liquid, (2) the protection of the ulcer during defecation, (3) the local treatment of the ulcer, (4) the removal of the pile.

To render the stools semi-liquid, it will be necessary to regulate the diet, and to administer some laxative.

To protect the ulcer during the passage of feces, I have the patient use an ointment of boracic acid (two drachms in one ounce vaseline), to be applied with the finger immediately before stool.

The treatment of the ulcer should be carried out daily by the surgeon; the first requisite for the successful application of remedies to an ulcer situated just within the margin of the anus, being the exposure of the ulcer; in a large majority of cases this cannot be done without the aid of a small-sized speculum. The passage of a small speculum under these circumstances, if introduced slowly and gently, is by no means as painful as one might imagine. After the ulcer has been exposed, it will be necessary to touch it for the first few days with nitrate of silver to get it in an active granulating state, then blow upon its surface some dry powder, as iodoform, aristol, or eugenol, for the purpose of hastening cicatrization;

lastly, place directly over the ulcer a small pledget of cotton saturated with the same powder. This will keep the ulcer flat and prevent the rolling in of its edges, and at the same time will exert a certain amount of pressure upon the granulations. In this way nearly all ulcers and fissures of the anus can be cured without resorting to forcible dilatation, or division of the sphincter ani. The hyperplastic pile, as a rule, is the only form of cutaneous pile that will require excision. This will be best accomplished by using toothed scissors which have the advantage of cutting without slipping. The pain of this operation can be mitigated by the injection of a two-per-cent.—or even weaker—solution of cocaine into the base of the pile.

By the term *hypertrophic pile*, I designate the swollen and thickened condition of the anal folds that is apt to be associated with an eczematous inflammation in this region. Some exception may be taken to my inventing a special name for this condition, and considering it as a separate variety of cutaneous pile. Inasmuch as such hypertrophies do result from an eczematous inflammation, I see no objection to giving this condition a place in the clinical nomenclature, and at the same time conceding some foundation for the popular term of "itching piles." The changes to be observed in the circum-anal integument resulting from an eczematous inflammation, will, of course, depend upon the length of time that the irritation has existed, as well as the co-existence of either of the other forms of cutaneous pile. These changes may result in giving the folds a mere thickened, or swollen appearance, or they may be increased in depth as well, causing them to be more or less pendulous; in either event the condition is one of an hypertrophy of the integument involving the entire length of the radiating folds. The principal symptoms connected with this disease are itching and moisture. The attempts on the part of the patient to relieve the itching by scratching produces excoriations, and the moisture from exudation gives to the part a whitish and macerated appearance.

The *treatment* of the hypertrophic pile should be directed solely to treating the anal eczema. The patient should be instructed to resist any inclination to scratch, and the unconscious scratching during sleep should be prevented by tying the hands with a bandage in such a manner as to check any attempt at reaching the anus, while not preventing free movements about the upper part of the body. Without going into an elaborate enumeration of the various modes of treating this most distressing and intractable affection, I will merely mention what I have found to be the most useful, namely, that recommended by Dr. White, consisting in the application of black-wash and oxide-of-zinc ointment. The wash should be applied morning and night, and from ten to fifteen minutes should be occupied in sopping the wash on the part affected, and gently rubbing it into the furrows between the folds as well as on their free borders. After the wash has been allowed to dry, the ointment should be rubbed on in a similar manner. This mode of treatment has been so satisfactory that it has become with me a matter of routine in dispensary and private cases. A not infrequent cause of anal eczema is the presence of oxyurides in the rectum, and when these thread-like worms descend to the anal margin they produce by their wriggling movements a most intolerable form of

itching, and the scratching and rubbing of the sufferer brings about an eczematous inflammation that will in time result in an hypertrophy of the radiating anal folds. So in every case of anal eczema the possible presence of oxyurides as its cause must be considered. An anal eczema may in certain persons be a symptom of gout, and in such cases, without the dietetic and medicinal treatment of that condition, no local applications will avail.

It must be remembered that not in every case have we to do with a single one of these types; combinations, in point of fact, are frequent. The study of the pathological varieties will enable the practitioner to analyze each complication, and to recognize the appropriate therapeutic agents suitable for the case in hand.

A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF AUTOPSIES.¹

BY J. H. WRIGHT, M.D.,

Assistant in Pathology, Harvard Medical School.

AND WM. R. STOKES, M.D.,

Resident Assistant Pathologist, Boston City Hospital.

In this paper we report the results of the bacteriological study of a large number of autopsies which have been performed at the Boston City Hospital and elsewhere, during a period of about two years prior to January 1, 1895.

This work has been carried on under the direction of Prof. W. T. Councilman, both in the pathological laboratory of the hospital and in the Sears pathological laboratory of the Harvard Medical School.

METHODS OF STUDY.

As a rule, bacteriological examinations have been made from the various organs in every case which came to autopsy, the lung, liver, spleen, kidney and blood of the heart being usually examined. In most cases culture methods only have been used to determine the presence and character of the bacteria in the organs, but in a few instances direct examinations by cover-slip preparations have been employed for this purpose, where this mode of examination has seemed to be adequate.

The culture medium used almost exclusively has been the coagulated blood-serum mixture of Löffler, prepared in tubes in the form of "slants." This medium is prepared by a modification, originated by Dr. F. B. Mallory, of the method generally followed, so that large quantities of it can be readily made up in a short time. The special points in this modified method consist in firmly coagulating the Löffler blood-serum mixture (one part one-per-cent. grape-sugar bouillon and three parts beef blood-serum) in the ordinary dry air sterilizer at 80° to 90° C., in the form of slant tubes, and then sterilizing it in the steam sterilizer during three successive days, as in the case of ordinary culture media.

The main difficulty to contend with is the formation of cavities and bubbles in the medium by too great or too rapid heating, so that the smooth surface of the "slant" is destroyed. This can be avoided, however, by securing a thorough and firm coagulation before placing the tubes in the steam sterilizer. Care should also be taken, in the coagulation by dry heat, not to

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

allow the temperature to get above 90° C., or the same formation of cavities may take place. The culture-medium thus prepared is opaque and of a creamy or brownish-white color, resembling in consistency coagulated egg albumin, and presents a smooth, almost perpendicular surface in the tube, upon which there is abundant space for the development of colonies.

The blood-serum used for this medium need not be collected with any special precautions to avoid contamination, and the amount of red blood-corpuscles in it is of little or no importance. The firm coagulation to which this mixture of blood-serum and bouillon is subjected does not seem to impair its nutritive qualities, as might be supposed, for one of us (Wright) has isolated the bacillus tuberculosis upon it directly from tubercular lesions, both in human and in experimental tuberculosis, a fact which is an excellent proof of its efficiency for the cultivation of bacteria.

A further proof of its great value as a culture medium is afforded by the fact that the micrococcus lanceolatus (pneumococcus) and the streptococcus grow upon it much better and more readily than upon ordinary solid media.

The method of examination of organs by cultures consists in smearing a small amount of the tissue or blood to be examined, over the smooth surface of the culture medium in a tube, by means of a stiff, flattened platinum wire, under the usual precautions, and then placing the culture in the incubator for development. After twenty-four hours the colonies which may have grown out upon the nutritive surface are examined and their character determined.

If the organ is suspected of containing large numbers of bacteria, a second tube may be inoculated from the first one by touching the sterilized platinum wire to the infected surface of the first tube, and then rubbing the infected wire thoroughly over the surface of the second. Since usually only a comparatively few bacteria will be carried over by the platinum wire and distributed over the surface of the media in the second tube, it will be found that in this tube the colonies afterwards developing will be rarely so numerous as to be confluent. If desirable, a third tube may be similarly inoculated from the second, but this is rarely necessary; and, as a rule, one tube is sufficient.

The use of this coagulated blood-serum has greatly simplified the technique of the bacteriological examination of pathological material. It possesses so many advantages over the media usually employed that we have long abandoned the use of any other form of culture at autopsies. These advantages are:—

(1) The fact that the micrococcus lanceolatus and the streptococcus grow on it much better and much more quickly than on ordinary media, such as agar-agar, while the bacillus diphtheriæ grows on it fully as well and quite as characteristically as on the blood-serum medium sterilized fractionally at low temperature, which costs so much labor to prepare.

(2) The ease with which the identification of the bacteria concerned in acute infections can be made; the microscopical examination of the original cultures made at the autopsy being in nearly all cases alone sufficient to establish the identity of the infecting organism, if this is considered in connection with the naked eye appearances of the colonies. For when cultivated on this medium the colonies of the pathogenic bacteria which are ordinarily met with in human pathology present much more characteristic appear-

ances than when grown on agar-agar, so that to a great extent the diagnosis of the bacteria present may be made by microscopic examination alone. Moreover, in cases of poly-infection, or infection with two or more species of bacteria, the estimation of the comparative numbers of the different species is greatly facilitated by the fact that all of the colonies are on the surface, where they can assume their characteristic form, and not, as in agar-plate cultures, for instance, also in the depths of the medium, where their development is impeded, and such an estimation often difficult. We have been able repeatedly to identify with certainty three species of bacteria in a single tube and to form a clear estimate of the relative number of each. The cultural peculiarities of the species above mentioned, when grown on this medium are described elsewhere.

(3) A third advantage is the facility with which the media can be prepared as compared with the agar-agar so generally employed, the preparation of which demands great patience and considerable experience.

(4) Finally, the quickness and simplicity of the method by which cultures on this media are made at autopsies as compared with the usual methods of bacteriological examination by cultures. After a rather extensive experience in bacteriological work, we believe that the plate method and the method of Esmarch roll-tubes have no advantage over this simple method of successive "smears" when the object is to obtain discrete colonies from an infected organ or to isolate bacteria in pure culture.

Of course, when it is desired to study colonies with a low power of the microscope, the smear method is not to be used; but since in the case of the colonies of the common pathogenic bacteria such study on the usual media gives little information beyond that to be obtained by the naked eye, the simpler methods seem to answer all the requirements in pathological work, especially if blood-serum be the media employed.

METHODS OF BACTERIOLOGICAL DIAGNOSIS.

The main object which we have placed before ourselves in this work, has been the recognition and the identification of the well-known bacteria concerned in the infectious processes which we have met with.

It is now clearly established that the important pathogenic bacteria which we have to deal with in the vast majority of cases of acute infectious disease in man are really few in number and comprise the staphylococcus pyogenes aureus, the streptococcus, the micrococcus lanceolatus, the bacillus diphtheriæ, the typhoid bacillus, and the bacillus coli communis. We have, therefore, devoted our attention towards determining the presence and identity of these species, and have not occupied ourselves with the minute study of the various unknown bacteria which have appeared in our cultures from time to time, for, either their presence could be accounted for by putrefactive processes, or there was no good evidence connecting them with the pathological conditions.

The chief characteristics of these half-dozen forms of pathogenic bacteria upon which we have based their recognition and identification are detailed in the following sections:

THE STAPHYLOCOCCUS PYOGENES AUREUS.

This organism grows on the coagulated blood-serum in the form of golden-yellow to orange-colored, slightly elevated, shining colonies, which may in two or three

days attain a diameter of several millimetres. The great advantage in the use of this medium for the cultivation of this organism lies in the fact that the characteristic yellow color of its colonies appears immediately and not after several days, as in the case when agar-agar is used as a culture medium.

We have repeatedly recognized the presence of the staphylococcus pyogenes aureus when only a few of its colonies were present in the midst of hundreds of colonies of other bacteria, by means of this yellow color. In our work at autopsies we have not met with any other organism which produces this peculiar color, and so characteristic is it of the staphylococcus pyogenes aureus, when appearing in the cultures from an organ, that microscopic examination is hardly necessary.

The diagnosis of this organism, therefore, depends mainly upon the appearance of its colonies to the naked eye, and these considered in connection with the results of the microscopical examination to determine the morphology of the constituted organisms, are amply sufficient for positiveness. The occurrence of the other variety of the staphylococcus pyogenes, namely, the albus, has been only very exceptionally observed in our studies.

THE STREPTOCOCCUS.

In agreement with the prevalent opinion among bacteriologists we make no distinction between the streptococcus found in erysipelas and that occurring in other conditions; but we consider that but one true species of streptococcus is concerned in human pathology, which, like the bacillus tuberculosis, is capable of inducing lesions of various forms, the form of lesion depending largely upon the tissue involved, and upon the duration of the infection.

The streptococcus grows on the coagulated blood-serum in the form of minute colonies, but more rapidly and better than upon the ordinary media. These colonies have no definite color, and when numerous are seen as fine grains or as a finely granular appearance on the surface of the medium. On microscopical examination these colonies are found to consist of cocci, in which the chain mode of proliferation may, or may not, be apparent, owing to the breaking up of the chains during the preparation of the cover-glass specimen for examination. Well-marked chains of streptococci can be usually demonstrated, however, in the fluid which is usually present at the bottom of the culture tube. This fluid constitutes essentially a bouillon culture, in which form of culture the organism finds the best conditions for chain formation, as is well known. The diagnosis of the streptococcus rests, then, upon the finding of definite chains of cocci in the culture by microscopical examination, and also upon the growth of these cocci in the form of minute colonies. The only bacterium with which the streptococcus may be confounded is the micrococcus lanceolatus.

THE MICROCOCCUS LANCEOLATUS.

The micrococcus lanceolatus also grows in the form of minute colonies; but these are usually more moist, flatter, more shining, and generally somewhat smaller than those of the streptococcus. The appearance of the colonies is quite characteristic. On microscopical examination the colonies of the micrococcus lanceolatus are seen to consist of pairs of small oval organisms

often resembling pairs of small, short, oval, lancet-shaped or conical-ended bacilli. Some variation in form and size is usually to be noted, and occasionally indications of capsule formation. In the fluid at the bottom of the culture tube longer and shorter chains may be found, which are sometimes very difficult to distinguish from chains of the streptococcus. By careful examination, however, it will commonly be found that the chain of the micrococcus lanceolatus is made up of pairs of oval organisms, while the streptococcus chain is composed of hemispherical cocci. Our diagnosis, therefore, of the micrococcus lanceolatus in cultures rests upon the minute size and the other appearances of its colonies, and the morphology of the organism itself. The pneumococcus may also be identified in the tissues by direct examination of stained preparations, by its morphology and its characteristic capsule. It may be said also that the pathogenic effect of the bacterium exhibiting the characteristics above described, has been repeatedly demonstrated on animals by the production of the characteristic septicemia after subcutaneous inoculation.

THE BACILLUS DIPHTHERIÆ.

The morphology of this organism when cultivated upon the blood-serum, prepared by the rapid method, is quite as characteristic as when this medium, prepared by the ordinary more difficult method, is employed.

We have found this medium especially adapted for determining the presence of the bacillus in the organs of cases dead of diphtheria, because its growth on the coagulated blood-serum is so much more luxuriant and certain than upon agar-agar. In fact we consider that if agar-agar had been used instead of blood-serum in our work on diphtheria autopsies, we should have failed in many cases to have recognized the presence of the bacillus diphtheriæ, when that organism was found in very small numbers, as is most frequently the case in the viscera.

THE TYPHOID BACILLUS.

The colonies of the typhoid bacillus on the coagulated blood-serum are round, grayish-white disks, often several millimetres in diameter, and are essentially like the colonies of the bacillus coli communis. For the identification of the typhoid bacillus we have not been satisfied with the microscopical examination of its growth on the serum, although this may give important information, if, in the fluid in the bottom of the culture tube, motile bacilli corresponding in morphology to the typhoid bacillus are seen, and the gross appearances of the colonies on the surface of the medium fulfil the requirements, but we have also applied the various tests which serve to distinguish this organism from the bacillus coli communis.

These tests are; the absence of gas-production in sugar agar or sugar gelatin cultures; the absence of any appreciable change in the litmus milk culture; the invisible growth on potato; the absence, or slight amount, of indol production in Duham's pepton solution; active motility, and facility with which the locomotor organs, or flagella, may be stained by Löffler's method. Another distinguishing point, which we have found constant between the typhoid bacillus and the bacillus coli communis, is the less dense cloudiness of the bouillon culture of the typhoid organism.

THE BACILLUS COLI COMMUNIS.

The colonies of this organism on the coagulated blood-serum are round, shiny, moist, and of no definite color. They grow rapidly and may obtain a diameter of several millimetres. Our experience has shown us that when colonies of this character, made up of short bacilli of a morphology corresponding to that of the bacillus coli communis, appear in a culture from an organ, they are to be regarded as colonies of that organism almost certainly, and we have generally so considered them. We have satisfied ourselves that the bacillus growing in such colonies is the bacillus coli communis, by subjecting it in numerous cases to most of the various tests for the identification of that organism. These consist in the formation of gas in sugar gelatin, sugar agar-agar, or in glycerine agar-agar suspension cultures; in the reddening, and usually the coagulation also, of litmus milk cultures; in the moist, slimy growth on potato; in the usual absence of motility; in the abundant production of indol in Dunham's pepton solution; and in the difficulty of staining the flagella by Löffler's method. The bacillus coli communis has been met with very frequently in the organs of cases of all kinds, both infectious and otherwise. In fact, so frequent has been its occurrence in our cultures that its absence rather attracts attention, and we have ceased to attach much importance to its presence, in most cases at least. From our experience we are of the opinion that the significance of the presence of this bacillus in pathological processes has been greatly overestimated.

For these reasons we have practically ignored the presence of the bacillus coli communis in reporting the results of our work. It should be understood, however, that in the vast majority of cases here reported it has been found in greater or less numbers along with the infecting bacteria in some or all of the organs.

ACUTE LOBAR PNEUMONIA.

It is now generally believed that the micrococcus lanceolatus is the only organism which has any etiological significance in acute lobar pneumonia.

The work of a host of investigators has proven this conclusively, and has further shown that the micrococcus lanceolatus is not only concerned in the causation of the disease, but that it is frequently the infecting organism in other acute inflammatory processes, both in the lung and elsewhere. This organism was first discovered in the salivary secretion by Sternberg and Pasteur in 1880, but it was not until 1886 that Fränkel and Weichselbaum demonstrated the occurrence of the same bacterium in the hepatized lung in the majority of cases, at least, of acute lobar pneumonia.

The early history of the micrococcus lanceolatus and of the bacteriology of acute lobar pneumonia are admirably presented by Welch, in a paper published two years ago.

Welch concludes as the result of his study of the extensive literature on the subject of the bacteria concerned in acute lobar pneumonia and his own observations on fifty cases of the disease, that the micrococcus lanceolatus is undoubtedly its cause. Our own results are in harmony with this conclusion. While in a few instances we have found other pathogenic bacteria in the solidified lung, as others have done, we do not attach any significance to them, for their presence can be

usually explained on the ground of secondary infection.

We have never met with the bacillus of Friedlander, which Welch considers as "probably in no way concerned in the causation of genuine acute lobar pneumonia in man."

The occurrence of the micrococcus lanceolatus in the blood and internal organs in cases of acute lobar pneumonia has not received a great deal of attention in the literature. It has been found in the circulating blood, *intra vitam*, by Belfanti in six cases, and by Boulay in two cases. Post-mortem it has been found in the blood by Pernice and Alessi in two cases, and also by Netter (one case) and Levy (one case) in intra-uterine infection of the fetus with it. In the kidneys in cases of acute lobar pneumonia the micrococcus lanceolatus has been observed by Faulhaber in 29 cases and by Fränkel and Reiche in 22 out of 26 cases. The occurrence in the spleen has been noted by Prior (five cases) and by Sée and Bordas. Welch, in his examination of ten cases, found it in the spleen in four, in the kidney in one, and in the blood of the heart in one case.

In the course of our work bacteriological examinations of the hepatized lung in acute lobar pneumonia have been made in 42 cases, and the presence of micrococcus lanceolatus demonstrated in 38. Among these 42 cases there were four cases of the unresolved or organized form of acute lobar pneumonia, in three of which the micrococcus lanceolatus was found, in one accompanied by the staphylococcus pyogenes aureus, and in another accompanied by both that organism and the streptococcus.

The staphylococcus pyogenes aureus also accompanied the micrococcus lanceolatus in one of the cases of the ordinary form. With the exception of this case and the two cases of organized pneumonia just mentioned, in all of the positive cases the micrococcus lanceolatus has been present alone or associated with the bacillus coli communis, or similar non-significant organisms. In two of the four cases in which the micrococcus lanceolatus was not found, the negative result may be ascribed to the large number of apparently unimportant bacteria which were present, and which may have prevented the development of the feebly-growing micrococcus lanceolatus.

Of the two remaining negative cases, in one the staphylococcus pyogenes aureus and bacillus coli communis were found, and in the other the streptococcus, the bacillus diphtheriæ and the staphylococcus pyogenes aureus.

In the first case there was coincident a purulent epididymitis with multiple abscesses in the kidneys, and in the second there had been empyema, thoracentesis and general infection with the streptococcus. It seems probable that the abundant growth of the various bacteria found in these two cases in the lung may have obscured the recognition of the micrococcus lanceolatus or prevented its development in the culture, if present.

As to the occurrence of the micrococcus lanceolatus in the various organs in these cases of acute lobar pneumonia, our results may be summed up as follows:

The micrococcus lanceolatus has been found in the liver in 8 out of 26 cases examined; in the spleen in 6 out of 26 cases; in the kidney in 11 out of 26 cases, and in the blood of the heart in 3 out of 11 cases. It is apparent, therefore, that there is more of a general invasion of the blood by this organism than is generally supposed.

PLEURITIDES.

The most extensive investigations of the bacteria concerned in exudative pleuritis are those of Levy, Netter, Koplick, Jakouski, Prince Ludwig Ferdinand and Prudden. The results obtained by these bacteriologists and others have shown that there is no one species of bacteria constantly associated with this condition, but that any of the common pathogenic bacteria and others may be present. From the work of Prince Ludwig Ferdinand and of Prudden, it would appear that cases in which the micrococcus lanceolatus is found have a better prognosis than others.

Of 13 cases of fibrinous pleuritis accompanying acute lobar pneumonia the micrococcus lanceolatus was found in 12, in practically pure cultures in nearly every case, the contaminating organism being usually the bacillus coli communis. In the single negative case various unknown bacteria were present. In all of four cases of purulent pleuritis coincident with acute lobar pneumonia the micrococcus lanceolatus has been present, in two cases in company with the staphylococcus pyogenes aureus. Of three additional cases of fibrinous pleuritis, not accompanying acute lobar pneumonia, the micrococcus lanceolatus was found in two (in one along with the staphylococcus pyogenes aureus) and the streptococcus in the third case.

Also, in two out of three additional cases of purulent pleuritis, not associated with acute lobar pneumonia, the micrococcus lanceolatus was present, in one case with the streptococcus, and in the other with various unknown bacteria. In the third case the staphylococcus pyogenes aureus was found (culture taken a few hours before death). This was a case of purulent broncho-pneumonia and general infection with the staphylococcus pyogenes aureus.

ACUTE PERICARDITIS.

The bacteriological examinations of the exudate in acute pericarditis recorded in the literature are not numerous.

Weichselbaum has found the micrococcus lanceolatus in several cases; Bainti the same organism in two of three cases; Steinberg in one case; and Thue in four out of five cases. Barbacci in the examination of three cases found the staphylococcus pyogenes aureus in one and the micrococcus lanceolatus in two cases, while Foureur in one case found the streptococcus.

The occurrence of other bacteria in pericarditis have also been reported by Ernst (tubercular pericarditis), and by Paviot.

In seven out of 10 cases of acute pericarditis, seven of which accompanied acute lobar pneumonia, the micrococcus lanceolatus has been present. Of the three negative cases, in two only the bacillus coli communis was found, while the other case was sterile. In one additional case of acute pericarditis in which no culture was taken from the pericardial exudate, a streptococcus septicemia was demonstrated, so that it is fair to conclude that the pericarditis was due to that organism.

It may also be mentioned that a case of hemorrhagic pericarditis after abortion was negative for specific bacteria.

PURULENT LEPTO-MENINGITIS.

The extensive literature on the subject of the bacteria associated with purulent lepto-meningitis has recently been summarized by Flexner and Barker in

their interesting study of epidemic cerebro-spinal meningitis. According to these writers the micrococcus lanceolatus has been found in the great majority of the numerous cases recorded in the literature, while the streptococcus, the staphylococcus pyogenes aureus and other bacteria have been met with in but a small proportion of the cases.

This very frequent occurrence of the micrococcus lanceolatus in purulent inflammation of the pia mater has been observed in the cases examined by Flexner and Barker, as well as in those here reported.

In eight of 11 cases of purulent lepto-meningitis and in one case of the sub-acute form the micrococcus lanceolatus has been present. The staphylococcus pyogenes aureus accompanied the micrococcus lanceolatus in one of the eight cases of purulent meningitis.

Of the remaining three cases of purulent meningitis, in one the streptococcus was found and two were negative; but one of these negative cases was probably due also to a streptococcus infection proceeding from an otitis media, in the pus of which that organism was present.

Two of the micrococcus lanceolatus cases were secondary to fracture of the base of the skull, the fracture going through the petrous portion of the temporal bone, and thus, by presumably placing the brain cavity in communication with the pharynx, through the Eustachian tube, an infection-atrium for the micrococcus lanceolatus, so common an inhabitant of the throat, was provided. Acute lobar pneumonia was coincident in two of the micrococcus lanceolatus cases and in the negative case. Otitis media was also coincident in one of the same cases.

(To be continued.)

HALLE AND THE AURAL CLINIC OF PROFESSOR SCHWARTZE.

BY GEORGE L. RICHARDS, M.D., BOSTON.

HAVING recently spent a semester with Prof. Hermann Schwartze at Halle, Germany, some account of his work and methods may be of interest. Halle is a manufacturing city on the river Saale in Saxony, not far from Leipzig. Outside of the university there is little of interest to Americans. The medical department is in the same inclosure with the hospital, beautifully situated on a hill away from the university proper, and with attractive grounds. Every department has its own building; and as the buildings are all new, the equipment of the medical department as a whole is as fine as any in Europe. Everything is wonderfully clean, and arranged on a thoroughly antiseptic basis, being in this respect in marked contrast with the Vienna clinics, where everything is theoretically antiseptic, but not practically so to nearly as great a degree.

There are few especially noted professors; and about the only branches foreign students can study to advantage are otology, ophthalmology and bacteriology. Behring, one of the discoverers of antitoxin, occupies the chair of hygiene, having recently succeeded Renk. Eberth, the discoverer of the bacillus of typhoid fever, teaches bacteriology; and von Hippel is professor of ophthalmology, a chair long held by von Graefe. The eye clinic is a large one, and lasts from quarter-past eight to twelve or one daily. There are usually from four to six operations. Seven thousand new out-

patient cases are yearly treated and there are seventy beds for in-patients. I saw the operation of discission of the lens for myopia of high degree several times performed, and always with good results, useful vision following the removal of the resulting cataract. Unlike Vienna, where a student can begin work almost any day, in any branch and continue as long as he pleases, paying the fees directly to the instructor, in Halle and many other German university towns every student must matriculate and arrange and pay for all courses in person at the office of the university. Private courses, as given in Vienna, are also unknown.

Matriculation is a matter of considerable red tape, and consumes much time. Foreign students must furnish a diploma from some recognized university or a certificate from some German or Austrian university. No courses can be begun or even arranged for until all matriculation formalities are finished. Then the student receives a card certifying that he is a member of the university, and from that time on is held by the same rules as all undergraduate students. Although taking only special courses and having no connection with the university proper, I was once fined five marks for failing to observe some petty ordinance of whose existence I was totally ignorant. The penalty for non-payment of the fine was confinement in the university prison for three days. The expense of living in Halle is very small, about half as much as in Vienna. It is also a good place in which to learn the German language, providing one knows something of it before, as absolutely no English will be heard.

Professor Schwartz's (clinic) occupies a portion of the same building with the eye clinic, and has some twenty-eight to thirty beds for in-patients. The out-patient clinic begins at eight A. M., and the ordinary treatment is done by assistants. Daylight is used for illumination except on very dark days. He holds a public clinic three times a week, lasting about one hour and a quarter, beginning with the examination and demonstration of cases by his students and ending with a lecture. An operation almost always follows, and students are detailed to assist. Operations are done on other days also; in fact, mastoid operations are of almost daily occurrence. It is as an operator on the mastoid that Schwartz is universally known, but before taking up that subject I will mention some points in otology, taken somewhat at random from my notes, which will illustrate the man and his methods. Everything which he does is very thoroughly done. Very complete clinical histories are taken of all house-patients, including always an examination of the nose and naso-pharynx and frequently of the fundus of the eye as well. Here, much more than in Vienna, is the intimate relation between affections of the ears, and the nose and naso-pharynx recognized, and treated accordingly. Adenoid vegetations and hypertrophied tonsils are always to be sought for, and, when found, removed. Suppuration of the middle ear cannot be healed while enlarged tonsils or adenoids are present. For the removal of adenoids, anesthesia is not used; but the antiseptic preparations are as elaborate as possible—gown, sterilized instruments and absolutely clean hands. Tonsils are removed with the Mathieu tonsillotome, and adenoids with Volkmann's sharp spoon. Any part remaining is removed with the finger-nail or Meyer's ring-knife through the nose. This method causes considerable bleeding, and did not seem to me to have any advantages over the use of a

properly curved Gottstein's knife or the Læwenberg forceps. Schwartz does not approve of removing adenoids and tonsils at the same time, in private practice. He would remove the adenoids first, and then keep the child in bed for two or three days on liquid diet and away from other children. He thinks there is some danger from catching cold and from sepsis, as he has seen one death from infection, follow the operation. If all goes well after the removal of the adenoids, the tonsils can be removed a few days later. He thinks hemorrhage after tonsillotomy is more feared than the facts warrant. This may be so, but I once saw quite a degree of hemorrhage follow the removal of adult tonsils in London, with the Mackenzie instrument. In the case of a child, if the palate is dark blue and the crying violent, there may be some danger.

Politzer's method of inflation is but seldom used; and Schwartz lays down the rule that it is never to be used for one-sided affections. Inflation is almost always done through the catheter. Instead of the usual Politzer bag the double bag of Lucae is used. This consists of two rubber bulbs connected by a short piece of tubing, the second bulb being covered with netting. At the end of the second bulb is a piece of rubber tube, and attached to this a disinfecting capsule containing absorbent cotton. From the capsule extends more tubing, and at the end there is a small quill which fits into the catheter when in position. As the apparatus is a little heavy, a hook is attached to the tubing a short distance from the disinfecting capsule, so that the whole can be suspended from the lapel of one's coat. For use, the second bag is filled from the first and then compressed with the hand. The advantages claimed for this are more uniform air-pressure and greater cleanliness. The air introduced is absolutely clean; and as all air enters the bulb from the same place and always in the same direction, there can be no sucking back into the bag or into the catheter of secretions from the Eustachian tube, naso-pharynx or nose. The diagnosis tube is always used.

Chronic purulent catarrh of the middle ear with a perforation large enough to permit the free discharge of the secretions is treated by syringing through the catheter. Should the opening in the tympanic membrane be small, it may be advisable to enlarge it. Physiological salt solution (previously boiled), or sublimate (1-10,000), is used for this purpose; carbolic solution never, as any solution of carbolic acid strong enough to do any good would cause great pain. The catheter must be absolutely in the right place, and the fluid at about body temperature. The patient is told to breathe in and then hold the breath. During the period of rest, the syringing is done. This cleans out the attic and tympanic cavity more thoroughly than any other method. The syringing is continued until the fluid comes out of the external canal free from any secretion. Syringing through the catheter, while sometimes painful, is not usually so, providing the perforation is sufficiently large to permit the free escape of the introduced fluid.

Powders are not very much used in suppurative middle-ear cases, and always in small quantity, never sufficient to prevent the free outflow of secretion.

Aural polypi are removed with the Wilde snare, and the point of origin cauterized with nitrate of silver or chromic acid. Schwartz has no faith in the alcoholic treatment for polypi, and thinks they recur because they have not been completely removed.

He is not very enthusiastic over removal of the stapes for cure of noises, vertigo, or very great deafness. He thinks the operation should only be done when noises are very troublesome, both ears affected, the patient complaining very much, and with the understanding that the expected improvement is not at all certain. The operation has the possible danger of injury to the facial nerve with resulting paralysis, owing to the near relation of the canal of the facial to the foramen ovale. He removes the stapes only through a wound made from behind. The membranous external canal is separated from its bony attachments and drawn forward with the retractor, a portion of the bony canal and attic wall is cut away and the posterior border of the tympanic membrane cut through and laid forward. The stapes is much more readily reached and foot-plate and all removed. Schwartze regards this method as preferable to operating through the canal, where there is always danger of breaking the crura and leaving the foot-plate in position. Even by this method failure to remove the foot-plate sometimes happens.

Children suffering from foreign bodies in the external canal, should, if syringing fails to remove them, be anesthetized before using forceps or any forcible attempts at extraction; and this failing after reasonable time, extraction should be done from behind. After separating and drawing forward as much as possible the membranous from the bony external canal, and the body being still firmly impacted, sufficient bone should be chiseled away to allow removal. The after-treatment consists in preventing the closing up of the external canal, and is brought about by keeping it filled with plugs of gauze until the healing is complete.

Before doing paracentesis the external canal should be made antiseptic, the cartilage scrubbed, and the nose and naso-pharynx sprayed with antiseptic solution; no anesthesia. The usual paracentesis needle is employed and the opening if necessary further dilated with a blunt-pointed knife. If there is no marked swelling to indicate the point of operation it is done in the post-inferior quadrant as here there is no danger of injuring other structures. The cut should be large enough to allow of the free escape of secretion. The catheter is to be used afterward, the nose having been previously cleaned as indicated above. The after-treatment must be thoroughly antiseptic. Fill the ear with a pledget of iodoform gauze and dress as after more severe operations, and keep the patient in bed. Paracentesis in an out-patient clinic is disapproved of unless absolutely necessary, and then only under strict antiseptics.

Schwartz regards the operation of tenotomy of the tensor tympani muscle as having only temporary results in the way of improving the hearing and lessening the noises; at times the hearing becomes worse instead of better. The method of operation is that in general use. A cut is made one millimetre behind the handle of the malleus; a suitable curved tenotome is introduced through the cut with the point in the direction of the tegmen tympani; it is then turned forward at a right angle till the tendon of the tensor is reached and with a sawing motion this latter is cut through.

Tenotomy of the stapedius may be of use when the free movement of the stapes is hindered through retraction. The operation is done with a paracentesis needle or crescent-shaped knife, and is possible only when the tendon is visible.

The operation of dividing synechiæ of the membrana tympani is not regarded as of much worth, as they tend always to re-form. In cases of perforation, with adhesion of a portion of the border to the inner wall of the tympanum, closure of the perforation never takes place.

The malleus and incus are removed for chronic suppuration in the tympanum, or in the hope of improving the hearing and removing the subjective noises. The many cases which I saw done, and the two which I myself did, were all for chronic suppuration with a large perforation and more or less destruction of the tympanic membrane. I do not know that the method differs from that in use by other operators, except that after freeing the tympanic membrane from its marginal attachment and dividing the tensor tendon the Wilde snare is used to remove the malleus. It is sometimes quite difficult to snare the end of the handle after it is severed from its attachments and possible adhesions, and has the disadvantage that in case the whole of the malleus were not absolutely free from adhesions, pulling with the snare might separate the handle from the head. The incus is removed with Ludwig's hook, being first dislocated and then brought downward and forward into the field of vision or into the external canal when it may be removed with snare or forceps. The removal of the incus is often quite difficult. It may lodge in the opening leading to the antrum or in some fissure. Sometimes removal fails with instruments, and at another time it can be syringed out. As the incus is more often carious than the malleus, it is necessary always when the malleus is removed to remove the incus also. Nothing, however, should be done in the way of operations on the external canal except under good illumination and with all bleeding stopped. One should be able to see to the deepest point. The chorda tympani nerve is sometimes injured but no evil consequence results. Facial paralysis and dizziness may appear after this operation. It usually disappears in from six to eight weeks, at latest six months, though it has lasted longer.

Healing takes place in from eight to fourteen days, and where the operation is done on account of purulent or carious conditions the results are usually good. In cases of sclerosis and when done for noises or deafness or synechiæ, Schwartze regards results as very uncertain.

Before taking up the mastoid operation I will briefly describe Stacke's method of laying bare the attic, a procedure which enters into many of Schwartze's operations. The skin cut is made in the usual manner except that the cut is carried above the ear to the fascia temporalis, and the attollens aureus muscle is cut through. All bleeding vessels are tied; the cut then extended through the periosteum to the bone, and with the periosteotome the membranous portion of the canal is separated from the bony, and the whole cartilaginous ear drawn forward with a retractor, leaving the bony external canal bare. The tympanic membrane is divided on its upper and posterior border. One now chisels away the tegmen tympani at its posterior superior angle, and so much of the adjacent bony canal as may be necessary to lay the attic bare to the antrum, frequently probing so as not to go too far in any direction, especially upwards. The bones, if not already destroyed by caries, are then seen to lie free *in situ*, and after tenotomy of the tensor, and

freeing of the incus-stapes joint, if necessary, are easily removed. With the sharp spoon preferably, or further chiselling if necessary, all carious bone in this situation can now be removed. The membranous canal, having first been slit in a direction corresponding to the long axis of the external canal, is now laid back in such a way as to cover so far as possible the bony surface previously laid open, and the original incision stitched. A drainage-tube is placed in the external canal to prevent any stenosis during healing.

The indications for the mastoid operation, as originally given by Professor Schwartze remain practically unchanged. Briefly these are:

(1) In acute primary and secondary inflammation of the mastoid, if after the use of antiphlogistic remedies, the edema and fever do not, in a few days, at most eight, disappear.

(2) In chronic inflammation with swelling, abscess formation, fistula in skin or secondary abscess in the neighborhood, even if at the time there appears to be no immediate danger to life.

(3) In chronic suppurative of the middle ear without signs of inflammation of the mastoid, as soon as any symptoms dangerous to life appear or seem at all probable, in consequence of pus-retention or the formation of cholesteatomata.

(4) In cases of otherwise incurable neuralgia of the mastoid.

(5) As a prophylactic measure in incurable fetid middle-ear inflammation, without inflammatory symptoms in the mastoid and without signs of pus-retention, as soon as it is demonstrated that the seat of pus-formation is not limited to the cavity of the tympanum.

Schwartze regards the operation as practically devoid of danger when properly done; even in those cases where no pus is found in the mastoid cells, but only inflammatory swelling of the pneumatic cells, the results seem oftentimes to be as good as in the cases where pus is found. On the other hand delaying to do the operation often costs the life of the patient. He thinks many lives are lost through too long delay or because conditions demanding operation are not recognized and acted upon.

Cholesteatomata in the middle ear and accessory cavities indicate themselves by the presence of symptoms of cerebral irritation, one-sided headache, dizziness, etc. In these cases the indication is always for the largest possible opening into the antrum from without. Should cholesteatomata be present without dangerous symptoms, the removal of the epidermal masses may be attempted with forceps, spoon, curette or syringing through Hartmann's canula, but healing is never brought about in this way. The moment more acute symptoms appear, as pain and fever, there is danger to life and the operation is urgently demanded.

Persistent incurable purulent discharge from the middle ear does not demand operation if limited to the tympanic cavity and its contents, and not involving the mastoid. In these cases removal of any carious parts through the external canal answers all the indications.

When the bone is much sclerosed and consequently very hard, the external signs of pus over the mastoid may be entirely absent and yet the mastoid cells much excavated and cholesteatomata or pus be present in large amount. In these cases of very thick bony wall there is frequently either a fistula in the external canal or a deficit in the posterior upper quadrant of

the tympanic membrane; sometimes, though much more seldom, a large carious depression through which one can go with a probe into the mastoid.

Schwartze regards the ophthalmoscopic examination of the fundus oculi as a valuable aid to diagnosis. Optic neuritis coincident with ear symptoms, in otherwise normal eyes, other causes for the eye symptoms being excluded, indicates intra-cranial complications such as increase in amount of subarachnoidal fluid, and urgently indicates operation. If the neuro-retinitis is very marked and apparently progressing, the prognosis is bad and an operation may be contraindicated. Hence the rule is laid down, though I cannot say that I saw it always carried out, that in cases of mastoid disease an ophthalmoscopic examination should be made. Advanced tuberculosis, great anemia, and albuminuria, a late stage of diabetes, and meningitis may be considered as among the affections which contraindicate operation; and yet the operation may be demanded even in the presence of these.

The two principal landmarks in the operation are the linea temporalis and the spina supra meatum. The greatest care must be exercised in the region of the former in order to avoid the possibility of opening into the middle fossa of the base of the skull and injuring the dura. The spina sometimes, though rarely, fails; and the skin over the mastoid, usually thin, may be as a result of pathological processes quite thick. Before operation the hair should be cut quite short, and a sufficiently large area around the site of operation shaved and then scrubbed with soap followed with ether and sublimate.

The first incision should begin about one centimetre behind the insertion of the auricle, beginning one centimetre above the linea temporalis and following the line of insertion of the auricle, carried to the apex of the mastoid process. In cases of great edema or where the sides of the cut cannot be sufficiently separated, it may be necessary to lengthen the cut in both directions, or even to make an incision backwards at right angles, at about the level of the external canal. Following the first incision, which goes to the periosteum, sometimes to the bone, all bleeding vessels are tied until the field of operation is free from blood. With a dull periosteotome the bone is then laid bare, in front to the border of the external canal, above to the linea temporalis, below to the apex of the mastoid process, behind as far as needed; the prime essential at this stage being, to have a field for operation which is large enough and which is free from blood. The bone is now opened unless caries or perforation from pus has already made an opening and the amount and extent of the operation determined by the findings. Professor Schwartze never starts out to do any particular operation, but only to remove with the chisel and sharp curette all of the diseased bone. If to do this it becomes necessary to remove the whole posterior wall of the external canal or the outer attic wall, he always does so. If the mastoid wall is outwardly sound, then the point chosen to begin chiselling, will be that from which the antrum is easiest reached. This point is usually about five millimetres underneath the linea temporalis at about the level of the superior wall of the bony canal five to ten millimetres behind and on a level with the spina supra meatum. Normally at this point the bone shows a number of openings for nutrient foramina. The operation is to begin on the point of the mastoid only when there is

reason to think that the trouble is there, although in cases of extensive caries the whole apex may be chiselled away.

In cases of cholesteatomata the operation is very thorough. Here he removes the whole cortex over the involved area, and chisels away every bit of infected bone. As in cases of extensive general caries, with pus and granulations, throughout all the cells, the whole posterior and upper wall of the external canal is cut away, laying bare the cavity of the tympanum, and removing any portions of the small bones which are not destroyed. Before cutting away the wall between the antrum and the tympanic cavity a probe is always passed into the cavity from the antrum and the wall chiselled away over this probe as a guide. In all other cases, especially in sclerosis, it is superfluous to remove more than is necessary to make a way to the antrum. The depth of the antrum is usually twelve to eighteen millimetres. If the cortex is thickened or the whole mastoid sclerosed, as may come after long purulent processes, it is deeper. No absolute rule can be given as to how deep to go, owing to individual peculiarities. In general, it is not safe to go any deeper than the depth of the external canal or tympanic membrane, otherwise there is danger of wounding the facial nerve and labyrinth. Schwartz exercises the greatest care whenever chiselling near the Fallopian canal. Exceptionally the facial nerve is met with at the depth of eighteen millimetres; at twenty millimetres the greatest care must be observed and twenty-five millimetres never exceeded.

I did not gather anything new from Professor Schwartz as regards the pathology of cholesteatomata, but the measures he adopts to prevent recurrence are quite novel and unique. As is well known, cholesteatomata are often of very great extent, even encroaching at times on the dura. They have a great tendency to recur some months or years after removal. To prevent this Professor Schwartz makes the opening in the mastoid as large as possible, and then lays therein a flap of skin. Before doing this, however, in all operations where the bony external canal has been chiselled away, the membranous portion previously held forward with a retractor is slit on a director from its attachments to the tegmen tympani as far as the pinna, and a smaller cut then made at right angles to the first at the outer end. The two free ends of the membranous wall are next stitched to the upper and lower border of the periosteal surface of the original incision over the mastoid. This throws the external canal and the cavity made by the operation into one. A skin flap from three-fourths of an inch above to one-half of an inch in width below and parallel with but longer than the first incision over the mastoid is now dissected off behind, being left attached above. This flap is brought forward and laid in the cavity from whence the cholesteatoma was removed. The resulting bare space is left to granulate and cover with new epithelium. The transplanted flap is held in place by one stitch in front and by a wad of sterilized gauze. The wound as in all operative cases is dressed with iodoform and sterilized gauze and the dressing unchanged for seven days.

I was able to follow such a case for some weeks after the operation. The skin flap lived and became attached in its new situation and the place from whence it was removed was covered over with new skin. The cavity in the bone being entirely covered

with healthy skin and granulations, there is no chance for the cholesteatoma to again form. Schwartz has now followed this plan for many years and finds that there are practically no recurrences. While there is a large cavity which always remains open behind the ear, that must be protected from the entrance of water and dust and from the cold in winter, yet these persons are able to work and become practically sound as far as the ear is concerned. I saw such a case four years after removal of a cholesteatoma with healing of the skin flap in hole. There was a little black stuff in the hole but no symptoms had appeared in the meantime.

In this connection it may be said that cosmetic effects are not considered in Germany to anywhere near the extent they are in this country, where no larger permanent hole will be left behind the ear than is absolutely necessary, and where as a general thing granulation from the bottom and final filling up and obliteration of the cavity is allowed and favored. On the other hand, in Schwartz's clinic, in cases of cholesteatomata the hole is always kept open, being touched with nitrate of silver from time to time to prevent the filling up with granulations; while in Professor Lucae's clinic in Berlin, nearly all the mastoid cases had large permanent holes behind the ear occupying the site of antrum and aditus.

The possible dangers in the operation are venous bleeding; injury to the facial nerve and semicircular canals and opening the middle fossa of the base of the skull. Venous bleeding can come from large veins in the bone which communicate with the jugular or its branches. I once saw quite a degree of hemorrhage come through the floor of the external canal from the jugular, necessitating stopping the operation, which, however, was practically completed. Injury to the lateral sinus causes profuse bleeding, easily controlled by tampons of iodoform gauze. The operation, if not completed, must be postponed some eight days or so until the resulting thrombus is fully organized. No ill results follow.

Much more common than troublesome hemorrhage is injury to the facial nerve, and, moreover, not only in that portion of the Fallopian canal which is above and behind the round window and on the lateral wall of the antrum, but also farther under and outward on towards the stylomastoid foramen, a portion of the canal that shows in its course many variations. In most cases the paralysis disappears after several weeks or months. Only when the nerve is completely cut through is it complete and lasting. The paralysis may not appear until some time after the operation. It is then the result of a perineuritis extending from point of injury, caused probably by pressure from blood exudation in the canal. Whenever during an operation the region of the Fallopian canal or the round window is reached, the greatest care is exercised and an assistant told to watch for the slightest sign of involuntary swallowing so as to avoid if possible any injury to the nerve; still it sometimes happens.

Injury of the labyrinth may follow the use of the chisel as well as the drill, and death can result from purulent inflammation. Loss of hearing, dizziness, and disturbance of gait always follow injury to the labyrinth.

If by accident the dura is laid bare or even opened, no danger is likely to follow if the operation is as nearly aseptic as possible, and has no more unpleasant

results than does laying bare the lateral sinus. In fact the dura is often laid bare in operations where the caries is very extensive. One precaution must be taken, namely, that the edges of bone have no sharp points which can by any possibility injure the dura. The change of dressings should be made with great care so as to avoid any injury to the granulating surface.

Schwartzte sutures the skin wound and allows it to heal by first intention only in those cases where with the exception of the antrum the bone is quite sound, or where one can be certain that every bit of diseased tissue has been removed. In all other cases the wound must be kept open until all evidences of pus in the tympanic cavity or antrum have disappeared and the whole wound has granulated at least on the bottom. The first dressing is changed only when stained through.

For instruments, chisels with straight and concave cutting edges varying from two to eight millimetres in width and eleven centimetres long; two large chisels with concave cutting edges eighteen centimetres long, and ten and eight millimetres wide are used. They are used with great care, and I never saw a false cut made. As a caution to be observed he directs that, in order not to injure the lateral sinus, the chisel should never be directed backward. The chisel must never be held at right angles to the plane of operation, but always slanting as nearly horizontal as possible. The chisel must always be directed from the linea temporalis, never towards it. The sharp curette of various sizes is very much used in exploring and removing soft bone, fungoid granulations, and cheesy pus, followed by the chisel if, as is usually the case, the curette does not completely remove the diseased tissues. Retractors of several sizes, right and left tenotomes, and incus hooks, several knives, a number of artery forceps and a mallet complete the necessary instruments. Chloroform is used for anesthesia as in most of the German clinics. With all its advantages it is dangerous, and I have several times—not only in Schwartzte's but in other clinics, seen the course of an operation suddenly interrupted because the patient had ceased to breathe properly and the pulse had almost stopped. Artificial respiration is commenced, the windows opened, and when the breathing and the circulation again becomes natural the operation is resumed.

During some ten weeks attendance on Professor Schwartzte's clinic I saw but one death, and that a case of tuberculous caries of both mastoids in a child of five years, after removal by operation of nearly the whole mastoid and the laying bare of a large area of the dura on each side. I do not think the operation hastened death, which occurred some three weeks after from exhaustion; the lungs were also tuberculous.

In general Schwartzte's operations impress one by their thoroughness, the careful attention to every detail, the absolute antisepsis, both as regards operation and operator, the extreme care used, and the entire absence of hurry; mastoid operations lasting frequently an hour and even longer. I was there in the summer semester, and most of the operations were on account of caries or cholesteatomata, that is, chronic cases, though there were some acute mastoid cases. The wards were usually full of operative cases. As soon as convalescence after mastoid operation is established and healing well along, a metal spring one-half

inch wide, provided at one end with an ear-shaped expansion and passing from one auricle over the head to the wound, is employed to hold the dressing in place.

While the basis of the preceding article consists of my notes, I have, in addition, availed myself of the section on Operations in Schwartzte's "*Handbuch der Ohrenheilkunde*," where an exhaustive account of the present state of operative otology may be found.

Clinical Department.

A CASE OF PANCREATIC CYST TREATED BY DRAINAGE; RECOVERY.¹

BY MAURICE H. RICHARDSON, M.D.,

Surgeon to the Massachusetts General Hospital; Assistant Professor of Anatomy, Harvard Medical School.

N. D., an Italian laborer of twenty-six, I saw at the State Almshouse on November 22, 1894, with Dr. Howard. He had always been well and strong up to his present illness. He first noticed a painless swelling in the pit of the stomach six weeks before operation. This swelling gradually grew larger, and became so painful that he could not sleep at night. There was no interference with digestion or bowels. The appetite was good. The pulse and temperature were normal, the urine contained nothing abnormal. There had been some loss of flesh. The general appearance was poor, and the face cachectic. I found a non-resonant, fluctuating tumor, as large as an adult head, in the epigastrium, a little to the left of the median line. The tumor was so large as to interfere seriously with his comfort, embarrassing respiration and distending tensely the upper half of the abdomen. I made a diagnosis of cyst of the pancreas, from the position of the tumor and from the history of the case. Immediate operation was decided upon; for though the patient's condition was not serious, it clearly indicated the necessity of interference.

A cut was made between the umbilicus and the ensiform cartilage. The stomach and transverse colon presented themselves on opening the peritoneum. The omentum having been carefully separated, the tumor was brought into view, and its contents aspirated. "The fluid was viscid and of a dirty-gray color. The reaction was alkaline, and the specific gravity 1.008. There was about one per cent. of albumin, and a considerable amount of mucin. There was a little sediment which showed an occasional fatty degenerated cell. The fluid did not emulsify fat, and had no diastatic action. It had no digestive properties."

[Report of Dr. W. F. Whitney.]

About two pints of fluid were withdrawn by aspiration. The parts about the exposed portion of the tumor were then walled off with gauze, and a free opening was made by which about two quarts of fluid escaped. Exploration with the finger showed a large cavity situated in the retro-peritoneal space usually occupied by the tail of the pancreas. The bodies of the lumbar vertebræ could be felt, as well as the pulsations of the abdominal aorta. No stone could be detected.

Separation of the tumor was attempted; but, on getting into the deeper parts, the adherence to the surrounding structures was so intimate, and the blood vessels were so numerous, that no further efforts at

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enucleation were made. The cyst wall was stitched to the abdominal wound, and a large drainage-tube was inserted. The subsequent history was marked by rapid diminution in the amount of fluid discharged. Three weeks after the operation a specimen was sent to Dr. Whitney which possessed all the characteristics of pancreatic fluid.

In the surgical treatment of pancreatic cysts the important question to be decided is between drainage and radical removal of the sac. In two previous cases reported by the writer, drainage in the manner described above proved effectual. In one² the discharge grew gradually less, and the wound became perfectly healed in a few months. A second³ healed perfectly; but a year or two later the cyst reappeared, and proved fatal. A second laparotomy was performed⁴ for symptoms of acute intestinal obstruction due to pressure upon the duodenum by the re-filled sac. At the autopsy a large opening was found between the cyst and the stomach. The cause of death was acute obstruction. A third case, referred to me by Dr. F. C. Shattuck,⁵ though of doubtful pancreatic origin, was cured by complete extirpation of the cyst. The patient, a child of thirteen months, referred to Dr. Shattuck by Dr. Bowers of Clinton, had had a tumor in the abdomen since birth at seven months. The tumor rapidly increased in size, and embarrassed both circulation and respiration. The whole abdomen was filled by a fluctuating tumor, apparently arising from the left, supposed to be a hydronephrosis. The tumor was dissected from its attachments back of the peritoneum in the pancreatic space. There were numerous large vessels supplying it, and it was crossed by the splenic vein. The tail of the pancreas was spread out over the anterior wall of the tumor. Seven pounds of fluid were removed. Drs. Fitz and Whitney reported the tumor to be of retroperitoneal origin, and congenital. More detailed examination showed true pancreatic tissue in the cyst wall. My own observations convinced me that the pancreas was involved only by pressure from behind. The child made a good recovery, and has grown up into a very robust boy.

In this case enucleation was rapid and easy. By avoiding the splenic vein and by tying the pedicle *en masse*, no hemorrhage ensued.

In the fourth case, reported above, attempts were made to remove entirely the cyst wall. The difficulties met with early in the attempt led to its abandonment, and the usual practice among those who have operated for this condition was followed.

Recently a case has been reported⁶ in which the whole cyst was successfully enucleated. That such a method is preferable, if safe, is doubtless true. Yet if the cyst is a dilatation of the canal of Wirsung, it is evident from the excessive discharges during the first few days after drainage that the digestive processes will lose permanently a large amount of pancreatic fluid by the method of total extirpation. Numerous observations show that complete healing takes place

after drainage in most cases, and that the danger from this method of treatment is slight. It seems, therefore, well to follow this method generally. If the cyst can be easily separated from its attachments and thoroughly extirpated without excessive hemorrhage, it seems best to attempt such a procedure, in view of the possible re-accumulation of fluid, with its remote dangers, as in the second case cited. The attempt at enucleation should be abandoned, however, as soon as it is evident that the cyst is so thoroughly incorporated with the surrounding pancreatic tissues that it can be separated only by cutting.

In the case reported above the diminution of discharge has been rapid, and the general improvement has been marked. Nine weeks after operation I found the cavity of the cyst obliterated, nothing remaining but a sinus through which a probe could be passed nearly to the bodies of the lumbar vertebræ.

FRACTURE OF THE HUMERUS FROM AN UNUSUAL CAUSE.¹

BY G. H. MONKS, M.D.

A WELL-BUILT and apparently healthy man, aged twenty-seven, entered the Boston City Hospital August 8, 1894, having sustained a transverse fracture of the right humerus, just below the insertion of the deltoid. The patient had first been seen by Dr. John Gillespie of Roxbury, who recommended him for admission to the hospital.



The following is the history of the injury. The patient, C. C., and a friend of his were testing their strength of arm by that well-known method of grasping right hands, palm to palm, over a table, and while the elbows rest upon the table each tries to push his opponent's hand down. I do not know of any English name for this sport, but Hamilton says that the French call it "tourner poignet," or the game of turning wrists. The illustration shows the position taken by the contestants in this sport. The elbows should, however, perhaps be a little nearer together than is shown in the photograph, so that the forearms may be more nearly parallel.

C. C. and his opponent were both exerting considerable force, and for a time neither seemed to gain any advantage, until, finally, C. C. began to push his adversary's hand down. At this moment the adversary

¹ This paper will appear in the Boston City Hospital Medical and Surgical Reports, Sixth Series.

² Boston Medical and Surgical Journal, January, 1892, p. 86.

³ Ibid., January, 1891, p. 111.

⁴ Ibid., May, 1892, p. 441.

⁵ Published in the Transactions of the American Surgical Association for 1882, p. 211.

⁶ Sharkey and Clutton: St. Thomas Hospital Reports, xxi, p. 271, 1893.

made a sudden effort to regain his position, using all his force, when with a snap, so loud that it could be heard all over the room, C. C.'s humerus broke, and his arm fell helpless upon the table.

As to the subsequent history of the case there is nothing noteworthy. The arm was immobilized in the usual fashion in coaptation splints, shoulder-cap, etc., and in the course of six weeks the fragments were firmly united without deformity, and soon after this the arm appeared to be as strong and useful as before the accident.

Several cases of fracture of the humerus during the carrying out of the above form of sport have been recorded, but so few are they as to justify the publication of each new case. Hamilton states that he has seen one case of the kind, and refers to six or seven others which he has found recorded. Stimson ("Treatise on Fractures") mentions the fact that Gurlt gives eleven cases of the sort. It is probable that some of Gurlt's cases are included among those mentioned by Hamilton.

The mechanism of a fracture of the humerus from the above cause is interesting. Apparently the break is occasioned mainly by a twist, or torsion of the shaft of the bone. While the muscles of the upper end of the bone are attempting to rotate the bone inward, the adversary's force (transmitted through the bones of the forearm to the lower end of the humerus) tends to rotate it outwards. The upper end of the bone is therefore forcibly rotated inwards and the lower end is rotated outwards. It is thus evident that when these two opposing forces are great enough, and the other parts do not give way, the bone must break by extreme torsion somewhere between the two extremities. This must be especially true when the fracture occurs while the forearm is flexed at a right angle on the upper arm. When, however, the shoulder is brought much nearer to the hand, as is often the case during the greatest efforts, and a fracture occurs, another element probably comes somewhat into play, and the bone breaks by a combination of torsion and outward bending. Torsion still remains, however, the principal mechanical factor in causing the break.

While the etiology of this fracture is undoubtedly muscular action, it seems to be a rather unusual form of it, and the break might be described as one due to torsion of the shaft of the humerus, caused by prolonged muscular action against resistance suddenly and unexpectedly increased.

In closing, I wish to say that careful investigation was made respecting the existence of syphilis in this case, with negative result. There was also no evidence of the presence of fragilitas ossium.

Medical Progress.

RECENT PROGRESS IN PATHOLOGY.

BY W. T. COUNCILMAN, M.D.

(Concluded from No. 11, p. 258.)

WOODHEAD in a lecture on the present state of our knowledge of the etiology of carcinoma, gives a critical review of the most prominent articles on the subject. He comes to the conclusion that in many of the rapidly growing carcinomas, coccidia may be present in great numbers. In others growing more slowly they are less numerous. There is no proof that these organ-

isms are the actual cause of the disease, and it is possible that infection with the parasites is favored by weakening of the life energy of some of the epithelial cells, so that they cannot oppose the entry of the parasite into them.

Ruffer, in a number of publications, gives a study of the cell inclusions in carcinoma. In his investigations he usually used Biondi stain. Ruffer and Plimmer investigated principally the carcinoma of the breast, in which the parasites were found to be more frequent than in the same tumors originating elsewhere. They think that the parasites of other species of carcinoma present a striking similarity to those of the breast, and that they may be varieties of the same species. The more rapid the growth of the carcinoma the more abundant were the parasites. The bodies described by Ruffer as parasites have much similarity with the descriptions of other authors, particularly with Foa. They regard the structures as described by Darier and Wickham as altered epithelial cells, leucocytes, etc. Pfeiffer has also studied the parasites of carcinoma. He thinks that many cells, which have up to the present been regarded as tissue cells, should be considered as parasites. Where there was a growth of carcinoma into striated muscle, he thinks that the cells found within the muscular fibre were neither due to proliferation of the muscle cells nor were cancer cells which had entered into the muscle, but should be regarded as parasites. He assumes that the parasites at a certain stage can take on forms which are very similar to the tissue cells and which he regards as forms of zoospores. In the warm stage slow ameboid movements can be recognized in them. In sections he found nuclear figures in these supposed parasites of the same character as those found in the carcinoma cells. He thinks that the supposed small-cell infiltration of the stroma surrounding the carcinoma alveoli is due to the wandering of new zoospores in the tissue. Adamkiewicz has the same view. He thinks as Pfeiffer, that the carcinoma cell is not a cell of epithelial origin, but a parasite. He implanted small masses of carcinoma in the brain of rabbits, and found that the animal soon died, from which he concludes that the carcinoma has a specially poisonous character which is due to a toxine produced by a parasite. As is well known, he made various attempts to heal carcinomas with a material derived from them, which he called cancriodin. The animals experimented on died of meningitis and encephalitis.

Geissler and Kopstein repeated the experiments of Adamkiewicz in a careful aseptic manner, and found that pieces of tumor could be implanted in the brain without producing any results. Korotneff describes structures in the carcinoma as parasites, which are entirely different from the structures described by other authors. He distinguishes two stages of development, in one of which the parasite appears as an actively moving ameba, and in the other this has divided into secondary spores.

Numerous authors have taken a different ground as to the nature of these bodies. Malassez, who was one of the first to believe in the presence of the sporozoa in carcinoma, in a later publication takes a very reserved position. Delépine, although he thinks there is much similarity between certain forms of the supposed carcinoma parasites, and the young coccidia in the liver of rabbits, finds on the other side such great differences between them that there can be no thought

of identity. Coates thinks that many of these supposed parasitic bodies in the carcinoma may be referred to endogenous cell division. He compares the carcinoma in its development with the infectious granulation tumors, and concludes that if a parasitic organism is found in them it has nothing to do with their etiology. He finds many features of carcinoma which are opposed to the assumption of its parasitic character. The manifold forms under which the tumor may appear would make it probable that every carcinoma must have a separate parasite, and further there remains unexplained the peculiar preference of carcinoma to develop in the later years of life. Kasin, after an investigation of about 60 carcinomas, concludes that the existence of coccidia in them cannot be proven. The structures described as coccidia he thinks may be produced by irregular divisions of the nucleus by a peculiar form of intra-cellular multiplications. Stroebe describes in the carcinoma inclusion-cells which have been regarded as parasites. He thinks there may be some possible connection between these intra-cellular bodies and the condition of the nucleus described by Klebs as hyperchromatosis. He thinks that the parasitic etiology cannot be explained in some forms of carcinoma. And from what we know of carcinoma in general it is not impossible that a parasite belonging to the class of sporozoa may be shown to be the etiological factor; but no proof has been given for such an assumption, and no proof has ever been offered that any of the supposed bodies described really have a parasitic character. Cornil thinks that enclosed leucocytes may be responsible for those structures in the cells which have been regarded as parasites. Kosinsky shows that degenerative processes can so alter the ordinary structure of the carcinoma-cell that the appearance of cellular inclusions may be given. Rebbert regards the much-discussed cell-inclusions as nothing but degenerated epithelial cells or their nuclei. The degenerations are most marked in the cells which are concerned in the formation of epithelial pearls. One cell can be completely enclosed by the surrounding cells, or a portion of one can project in the protoplasm of another and become enclosed in this. Then a section through the cell would give the appearance of a free body within the cell. These enclosed cells or portions of cells can undergo various metamorphoses which can affect both the protoplasm and the nucleus, and different pictures similar to parasitic inclusion could arise. The radiated striation at the edge of the enclosed bodies, on which so much stress has been laid by Foa and others, he thinks is probably due to the striated border of the enclosed epithelial cells. Unna describes a hyaline degeneration of the epithelial cells of the carcinoma which he thinks may give rise to the conditions described as parasites. The hyaline formation may appear as a diffuse, uniform hyaline infiltration, or as sharply circumscribed structures within the cell. The circumscribed hyaline degeneration may produce structures of the most manifold forms which may be limited to a single cell, or may affect the cells in the periphery. He describes eight different forms of this hyaline degeneration, many of which are very similar to certain animal parasites in the encapsulated condition. Klein has found that structures similar to the fuchsine staining bodies described by Russel were produced in the tissue cells in the course of different pathological processes. He thinks that the Russel bodies have the same origin as those described by Alt-

man and which are due to cell-granulation, which have become enlarged with assimilation of fat. Reem found in eight carcinomas by using Altman's methods, the round granules described by Altman in the cell protoplasm. Ohlmacher has found in certain substances the power of precipitating saffrauin from solutions, and thinks that many of the supposed parasites are simply artifacts. Similar bodies to those described in carcinoma have been found in other pathological conditions, and even in normal tissues. The Darier bodies have been found in an angio-keratoma. Unna found them in cutaneous horns, and in most of the hyper-keratoses. Peterson saw similar bodies in condylomata and in the warty growths of the glans penis. Similar bodies have been found in the normal epithelium of the cornea and in skin tuberculosis. Virchow found similar structures in normal epithelial cells and in the pearly tumors. In the Hassels bodies from the thymus of the fetus and the newly born, and in the epithelial masses enclosed in the prepuce there are structures which are similar to the supposed sporozoa described in carcinoma. Kenner has found the inclusions described in carcinoma in simple inflammatory affections of the skin.

A number of papers on the same subject were read at the Eleventh International Congress. These consisted generally in a repetition of the statements embodied in this report. Foa again described the bodies which he found enclosed in cancer cells, and which he considers as parasitic in character. These bodies consist of a central mass of protoplasm surrounded by a double-contoured membrane. The protoplasm frequently shows radiating lines extending from the centre, which give the bodies the appearance of rosettes. These segments do not separate, as is the case in the malarial organism. The central body becomes enlarged, the protoplasm atrophic, and it then divides into small masses, which may be spores. Cell-multiplication takes place around the parasites but not in the immediate vicinity of them. They are found both in the primary focus and in the most recent metastatic nodules; and in doubtful cases of carcinoma the presence of these parasites may make the diagnosis easy.

Cornil read a paper on various modifications of the nuclei and cells in cancer which have been regarded as parasites. The nuclei of the cancer cells frequently divide into a number of secondary nuclei, many of which may remain in the protoplasm, complete division of the cell not taking place. Some of these nuclei can take the most varied forms, and may give rise to the appearances which have been considered as parasites. White blood-corpuscles may also be found in and between the cells, and these may give rise to similar appearances. He does not think that theoretically there is anything against the parasitic idea of carcinoma, but up to the present all of those who have most prominently advanced this view have limited themselves to the similarity of the morphology of the supposed structures to various forms of parasites. He thinks that all of the supposed parasites are probably nothing more than modifications of cells and nuclei. Morpurgo finds the position of these bodies in the cells has some relation with the poles of the ochromatic spindle, and are found where the so-called intermediate bodies of the nuclei are found. Their sizes and shapes vary. They may be round or egg-shaped, or have the shape of a cap or crescent. He thinks it is probable that they consist of free chromatic sub-

stances which have been given off from the nucleus. The observations of Kasin and Duplay on the same subject correspond with those of Cornil. They do not think that any proof has been offered that the bodies are parasitic.

Frankel has also studied these carcinoma bodies with a variety of stains and with different methods of preparation, and comes to the conclusion that they are intra-cellular structures of the most varied character and origin, and not parasites. Galleotti comes to the same conclusion.

In the general discussion of the subject Schrom says there are two chief questions to be considered: first, whether the objects described in the carcinoma are really parasites; and, second, if they should be proven to be such, whether there is any genetic connection between them and the carcinoma. He thinks that some of the bodies may be parasitic. Foa and Ruffer defend the parasitic view, and think that the parasitic nature can be shown by various modes of staining. Even in fresh tissues they have been able to stain the parasites by teasing the tissues in methylene blue.

A general consideration of the articles referred to here shows that the question is still undecided, but by far the weight of evidence is opposed to the parasitic idea.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, December 17, 1894,
DR. C. F. FOLSOM in the chair.

PATHOLOGICAL SPECIMENS.

DR. M. H. RICHARDSON: I have here two drawings of the appendix. The first appendix was removed on Saturday from a man in whom the probable diagnosis lay between some pancreatic affection and a pylophlebitis. He had a clear history of appendicitis antedating the operation some weeks. The symptoms finally pointed to the upper abdomen. We made the incision between the ensiform cartilage and the umbilicus. Nothing whatever was found there. The appendix was, however, clearly diseased, as demonstrated by digital exploration. It was delivered through the high incision without much difficulty. The patient was immediately cured of his symptoms, and has been well ever since. The other appendix, which I removed three days ago, shows the reason why some of these cases are so rapidly fatal. The opening was so close to the cecum that it discharged fecal matter with extreme rapidity. Although the operation was done within twenty-four hours from the appearance of the initial symptom, the peritonitis was already so extensive that there was practically no hope. The man died to-day. I think this case throws much light on the etiology of these rapidly fatal cases, their fulminating course being due not so much to the nature of the poison as to the size of the hole.

This kidney shows a perforating gunshot wound for which I performed nephrectomy four days ago. The renal vessels are extensively lacerated. The ball, after tearing the renal artery and vein, passed through the

substance of the kidney transversely. The course of the bullet was extremely curious and interesting. The missile entered the abdomen to the left of the median line, just above the umbilicus. It could be felt in the right lumbar region under the skin. A straight line between these points would be likely to pass through the transverse colon, the duodenum or stomach, pancreas, and right kidney. The aorta and inferior cava would also lie in its track.

Clinically there were only the signs of hemorrhage. No intestinal or gastric wound could be found even after the most thorough search. The retro-peritoneal tissues were extensively infiltrated with blood as far even as the left kidney. A tear could be felt in the right kidney.

After nephrectomy and control of the hemorrhage, it was found that the bullet had entered the left lobe of the liver, passing thence through the quadrate and right lobes to the kidney. This course is impossible in the prone position. Erect, the liver must have hung much lower, so as to bring the hole in the liver to a level corresponding with the wound of entrance. The patient died two days later. At the autopsy no peritonitis was found.

I have here another kidney, which I removed to-day. It is of great surgical interest. The patient was a boy, six or eight years of age, who came to the Massachusetts General Hospital during my service in the spring. I examined him carefully many times, and made a diagnosis of sarcoma of the kidney. Operation was advised. This was declined, and the boy left the hospital.

A few days ago he came to the Eliot Hospital, where I decided to perform nephrectomy. The tumor was very large, filling the whole left side of the abdomen and projecting beyond the median line to the right. It was irregular along the right border.

On opening the abdomen I found the descending colon lying across the tumor. The mesentery of the descending colon lay directly in front of the right half of the growth. The intestine and mesentery were separated with the greatest care from the anterior wall of the tumor. After this the kidney was delivered without much difficulty. It was necessary, however, to scoop out the softened centre of the mass, in order to make the whole small enough to be delivered through the wound in the parietes, although this incision extended from the rib to the crest of the ilium in the left linea semilunaris. After breaking up the central portion of the tumor, there was little or no difficulty in separating the rest of the growth from its capsule.

The greatest danger in the operation upon these cases is from hemorrhage. There was no difficulty in this case, however, in controlling the vessels. The tumor is soft and friable. A large portion is wanting. This was removed by breaking up the centre of the softened mass in order to deliver the whole tumor. The wound by this procedure was extensively infected by malignant cells. It was hoped that no evil result would follow, for the parts were cleansed as thoroughly as possible before closing the abdominal wound. The renal vein shows a portion of the growth projecting into the blood-current. The long duration of this growth, with its extensive and intimate attachments, makes the prognosis as to early recurrence very unfavorable.

February 13, 1895. The patient made a rapid recovery. Late in January I found a most extensive

recurrence. Some of the stitch-holes in the skin were infected. The boy died early in February. The rapid and extensive local reappearance of this disease seems to point unmistakably to an auto-infection at the time of operation.

DR. S. J. MIXTER: This is a tumor of the orbit that I removed Saturday from a woman of thirty, who had noticed that the eye had been protruding five years. The eyeball had become very much pushed out downward and forward. It was a question whether the mass was a cyst of some kind, perhaps a suppuration spreading from the frontal sinus, or a solid tumor. She had been told by one physician that it was a bony tumor of the orbit. It proved to be this soft solid, which was enucleated very easily; and when removed, the eye fell back into its normal place. The incision was made through the eyebrow. The tumor, which is the size and shape of a pullet's egg, extended well back to the sphenoidal fissure. The lachrymal gland was also removed, as it was adherent to the mass, though it proved to be free from disease. Dr. Whitney reports that the growth is an endothelioma.

DR. W. J. OTIS read a paper on

THE CLINICAL FEATURES AND TREATMENT OF EXTERNAL PILES.¹

DR. S. J. MIXTER: The reader has covered the ground so thoroughly that there is very little left to add. The description he has given of the anatomy of the parts is most useful, especially in cases where one has to operate on internal hemorrhoids associated with this edematous external hemorrhoidal condition which he has mentioned. It is, of course, much better to stop at this fold and not burn deeply into the skin, as is sometimes done, and in that way give the patient pain from the superficial burn.

In regard to the thrombosed pile, Dr. Otis spoke of the danger of making tabs or tags from incision. The relief is so immediate and so great that I think, if there is pain, incision is always the best treatment, as it can be so simply and easily done with the injection of a little cocaine. I find that cocaine of one-fourth per cent. is as effective as the two-per-cent. solution; and I believe some of the fatal cases of cocaine-poisoning have been from the injection of the two-per-cent. solution about the rectum going directly into the vein. So, in this region, I think it is advisable to use weak solutions.

There is one method of treating the hypertrophic or eczematous pile which I have used with great success in cases where thorough local treatment with black-wash and ointments has failed, and which has not been mentioned by the reader or any other authority on this subject, so far as I am aware: that is, excision of the redundant folds of skin. The hypertrophied radiating folds rub against each other, and are macerated with the retained secretion. By removing the most prominent of the folds by elliptical incision, and sewing up the wounds with fine silk or catgut, all the folds are flattened out, and there remains a smooth surface that in a short time becomes perfectly free from the eczematous process. In this way I have cured, not only the eczema about the anus, but also secondary eczema of the scrotum that had resisted all local applications.

As Dr. Otis has stated, one of his photographs was taken from a patient of mine who had ulcerating as well as hypertrophic piles. I removed the whole

mass by dissection, and united healthy skin to healthy mucous membrane, and the patient is perfectly cured.

DR. J. C. WHITE: There is only one point on which I would say something, and that is with regard to this last variety of conditions described by the reader—simple eczema around the anus arising ordinarily from pure and simple pruritus, often entirely independent of any hypertrophy of the region; and it applies as well to those cases in which eczema is present from other causes. The care of the parts after stool, is, I think, one of the most important measures in the treatment of these distressing cases; and often a simple remedy will be sufficient to prevent future attacks of any severity at all, namely, the use of wetted paper at the water-closet. I always direct a certain quality to be obtained, very smooth satin-finish. Take three sheets, fold upon themselves so that it makes them square and dip them in water just before using. Take successive portions to cleanse the parts. In that way no friction is set up. Wet paper cleanses the parts thoroughly and keeps them clean until the next stool. Very often the omission of this for three or four days is sufficient to bring back the eczema. That I insist upon as of chief importance in the treatment of pruritus of these parts. Then, I think you get an advantage in having the parts smeared at night with some simple ointment like the mixture of camphorated and carbolated cosmoline, smeared on gently. With these two measures I think we get our best success in the treatment of this condition.

DR. RICHARDSON: I have listened to this paper with a great deal of interest, and learned very much from it as I did from the paper a year ago from Dr. Otis. We are obliged at our clinics to treat these forms of anal disease, though perhaps we have not any special experience with them except such as we gain there from observation. I was surprised to know you could cure a fissure of the anus by anything but etherization and stretching. I must say that is one of the most gratifying of surgical operations I know of, and I can see no injury from it. I think I should prefer the rapid cure to prolonged treatment, but I am glad to know it can be cured by such a method.

Recent Literature.

Laboratory Guide for the Bacteriologist. By LANGDON FROTHINGHAM, M.D.V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders, 1895.

This book consists essentially of a collection of the more common technical methods used in the bacteriological laboratory, outlined in the simplest possible form, and is designed as a work of reference for the beginner. The directions for the preparation of the ordinary nutrient media are not the best with which we are acquainted, but are in some respects needlessly long and complicated. We are glad to note, however, that the rapid method of making blood-serum culture tubes has been included. A serious omission is the absence of any directions for the staining of the flagella, or locomotor organs of motile bacteria.

There are other books on bacteriological technique in English which better serve the purpose for which this one is intended.

¹ See page 269 of the Journal.

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DEGENERACY IN LITERATURE.

The recent epidemic of Yellow Books, Green Carnations, and New Women in England has led Mr. Charles Dudley Warner to descant, in his own charming way, upon the "yellows" in literature, and to recommend scientists, alienists, and psychological investigators to study it, believing that it signifies disease. A study of the sort was made some years ago, before the works above mentioned appeared, by Max Nordau, whose work,¹ an English translation of which has just appeared, has naturally given rise to much criticism.

Nordau was well equipped for the task. In the first place he had been a literary critic for many years, and was thoroughly familiar with modern literature; and, in the second place, he was a disciple of Lombroso, to whom he dedicates his book, and, although not a physician, he had studied neurology and psychiatry very thoroughly, and he was familiar with the morbid mental phenomena of hysteria, insanity, degeneracy and crime. With such a mental equipment, then, which few mere critics could possess, he gives himself to the investigation of certain modern tendencies in art and literature, and to a careful diagnosis of the mental condition of some of the writers who are looked upon by many as leaders in modern thought. As a result he finds that these tendencies have their sources in the degeneracy of their authors, and that the enthusiasm of their admirers is for manifestations of more or less pronounced moral insanity, imbecility, and dementia.

Such a study has a special interest for the physician. It might seem at first that the interest would be pathological rather than therapeutic, for it is hard to believe that Mr. Aubrey Beardsley or Mme. Sarah Grand, for instance, would wish to be cured of the morbid manifestations which are their chief title to fame. Nevertheless, if books or works of art inculcate absurd and anti-social doctrines, they exert a disturb-

ing and corrupting influence on the minds of many people, especially the weak-minded and hysterical, and those who adopt every new doctrine which they think is fashionable. We have seen within a few months how much mischief a degenerate labor agitator can do if chance puts him into a position of power. The neurotic are often rendered much more unstable and sometimes actually insane by dwelling too much upon the teachings of the degenerate, whether it be in the field of anarchy, socialism, theosophy, Christian science, or spiritualism. It therefore becomes the duty of the physician, as a matter of public mental health, clearly to recognize the mental stigmata of degeneracy, and to point out to the public the true nature of such conditions and the leading facts in mental therapeutics. Unhealthy books may do as much harm to the mind as certain disease-germs do to the body, and it is not against the so-called pornographic writers alone that the public should be warned. The physician too often gives precise directions about the preparation and ingestion of food for the body, while he too seldom considers what food is offered to his patient's mind, and yet a course of Ibsen or Tolstoi or Maeterlinck may do as much harm to some persons as devilled kidneys, Welch rabbits, or mince pie. Only by a careful study of the mental stigmata of degeneracy can the physician prescribe what Nordau calls the effective treatment of the disease of the age: "Characterization of the leading degenerates as mentally diseased; unmasking and stigmatizing of their imitators as enemies to society; cautioning the public against the lies of these parasites."

The physical stigmata of degeneracy have been fully enumerated by Morel, Lombroso, and others, and they are beginning to be mentioned in the modern treatises on nervous diseases. Nordau enters into an elaborate study of the mental stigmata, which are also well recognized by alienists and neurologists. The sensory apparatus of the degenerate may either be so irritable that a slight stimulus will give rise to a very marked response, as when a color, a bar of music, or an ordinary verse of poetry fills him with a strange thrill or shudder; or it may be so sluggish as to be aroused only by the horrible or the disgusting. In the one case he may be proud of his excitability, and consider it proof of deep appreciation; in the other he may, with equal pride, consider himself above the ordinary prejudices of humanity. With it all he is selfish, conceited, and extremely emotional. A sensation ordinarily excites many different cells in the cortex, giving rise to many associated ideas, but the healthy mind disregards the unimportant ideas thus aroused and concentrates its attention only on those which are essential. The degenerate is weak of will and incapable of fixed and prolonged attention; the unimportant ideas thus called into activity are not ignored, but fill his mind with a jumble of vague and obscure notions, which suggest strange relations. A word may thus call up other words of similar sound but with no related significance, and we have the phenomena known as echolalia. With vague and obscure ideas and unusual associations,

¹ Max Nordau, Entartung, Berlin, 1893; Degeneration, New York, 1895.

the degenerate is incapable of clear thought and often becomes a mystic, finding hidden significances and inexplicable relations in all things. In other cases, with a prevalence of insistent ideas, his own personality becomes the dominant factor in his world. In cases where the sensory apparatus requires powerful stimuli, or where sexual or other animal instincts give rise to insistent ideas, he may show evidences of sexual perversion or denounce the ordinary laws of decency and custom, and be classed as an anarchist. In other cases he may be filled with vague and impractical ideas for the regeneration of society, and preach social reform. In most cases, unhappily for society, he has a morbid desire either to talk or write, and indulges that desire constantly.

Having thus set forth the leading mental characteristics of degeneracy, which, it is needless to say, are in the main accepted, Nordau carefully studies the works of various writers and brings forward the evidence that they are degenerate. Rossetti, Swinburne, Paul Verlaine, Mallarmé, Tolstoi, Wagner, Péladan, Maeterlinck, Walt Whitman, Baudelaire, the French symbolists and *décadents*, Oscar Wilde, Ibsen, Zola, Nietzsche, and many others; all are weighed in the balance and pronounced degenerate. In many cases there can be no question as to the justice of his criticism; apart from their writings the known facts in the lives of such men as Poe, Verlaine, Maupassant, Nietzsche, and Tolstoi prove his assertions. In the main, too, although his criticism is savage, and his pleading at times special, the facts which he adduces more than substantiate his assertions.

It cannot be denied that in some cases the degenerate may possess great abilities in some directions; but he will be, as Lowell said of Poe, "three-fifths of him genius and two-fifths sheer fudge." He lacks harmony and balance; his mental development is unequal, and his influence does not advance the world, but it is always unhealthy; like Carlyle, "he leads men into the wilderness — and leaves them there."

It is the tendency of the degenerate to associate with his kind, the criminal in the Mafia, the mystic in a religion, the esthete in a cult. Around those groups cluster many neurotic persons, who suffer from "the restless seeking of the modern soul for a new ideal," who are also incapable of clear thought, and who call that deep which is only obscure, incomprehensible and absurd. When the sect is once formed, many others join simply to keep in the fashion or to seem "advanced," and with them come the social strugglers who are always eager to win money or notoriety by adopting every new fashion. Degeneracy is not necessarily, as Nordau thinks, a disease of our age, but its stigmata may be found throughout literature, in the mysticisms of the Neo-Platonists, the sentimentalism of Rousseau, or the indecencies of the Marquis de Sade. It is, however, to-day, with the dearth of great writers, much more in evidence, and it becomes the physician's duty to show that these idols of the present are false gods.

THE TREATMENT OF TETANUS BY ANTITOXIN.

A SUCCESSFUL case of tetanus treated by antitoxin is reported by John Marriott, M.B., in the *British Medical Journal* for January 19th. The symptoms began six days after the injury, — a wound in the jaw caused by a missile from a catapult — with inability to open the mouth and difficulty in swallowing.

On the ninth day, when the patient was first seen by Marriott, the muscles of the neck and back were stiff and prominent, and there was well-marked trismus. Disinfection of the primary focus, administration of chloral, as much as could be swallowed, and physostigmine (one-one-hundredth grain) hypodermically during the next two days did not relieve the symptoms, which became gradually more aggravated, until on the fifth and sixth days there was slight opisthotonos. Two and one-half grammes of Tizzoni's antitoxin were now given hypodermically, the necessary punctures causing strong opisthotonic spasms. On the next day, the thirteenth of the disease, the patient was able to swallow a little. One gramme of antitoxin was given. The following day swallowing was easier. Speech was unintelligible, but the patient could make himself understood by writing in large jerky scrawls; one-half gramme of antitoxin was given. During the following days gradual improvement was noted; one-half to one gramme of antitoxin being given daily until the twenty-first of the disease, when none was administered. The jaws at this time were still clenched. On the twenty-second day of the disease, early in the morning during sound sleep, the jaws opened sufficiently to allow the tongue to protrude and when the patient woke the tongue was caught and firmly held. The irritation caused renewed spasms, embarrassment of respiration, cyanosis. Attempts to administer chloroform only made matters worse. Although the patient appeared to be dying, one-half grain of morphia with one-fiftieth of physostigmine was given with success in causing relaxation of the spasm and release of the tongue. Recovery from the morphia was followed by a return of the spasms, which were successfully combated by antitoxin. The case progressed to recovery, and the patient was able to sit up on the thirty-fourth day.

The second case, which terminated fatally, was one of tetanus neonatorum, treated by antitoxin. The child had been delivered by a midwife, and the disease appeared on the eighth day of life. On the fourth day of the disease it was first seen by Dr. T. Lacy Firth, who reports the case.

On the fifth day of the disease there was jaundice, the eyes were tightly closed so that the lids could not be opened. The jaws were set and the neck and spine rigid. The child could be held in a vertical position by holding the legs only. A part only of the milk introduced into the mouth was swallowed, and the attempt produced cyanosis and short feeble cries. Nutrient enemata, chloral and bromide constituted the treatment.

On the seventh day an alarming collapse took place, but passed off. Similar attacks followed on succeeding days. On the tenth day there were eight of these attacks and the child died in the evening of this day.

On the eighth day of the disease four-tenths of a gramme of antitoxin was given subcutaneously, and during the ninth day two injections of the same amount were given.

On the tenth day eight-tenths gramme was given at one dose. The total given thus was two grammes.

In the *Quarterly Medical Journal* two cases of traumatic tetanus in adults are reported, both successfully treated by antitoxin. The antitoxin treatment was begun on the ninth and third days of the disease, respectively. In both these cases repeated doses of the antitoxin were required, and improvement in the symptoms followed each dose.

It is interesting to note that in the last case, a child of six, a rash resembling measles with fever and swell-

ing of the cervical lymphatic glands appeared on the twelfth day after the discontinuance of the antitoxin.

That a similar rash has been often noticed after the antitoxin treatment of diphtheria is interesting, and points to the fact that the rash may be due to the serum itself and not to the particular antitoxin it contains. The failure of the serum in the case of tetanus neonatorum cannot be considered as indicating its unreliability, when we consider that the eighth day of the disease in a new-born child is a much later period with reference to effective treatment than it is in an adult. The possibility of complications, as suggested by the jaundice and attacks of collapse, which are not usually symptoms of tetanus, is present. Unfortunately no autopsy was allowed.

In the light of these cases, and in view of the widespread reports of the success of antitoxin in diphtheria, we think the time has come when public authorities should take into serious consideration the general problem of assuring to the profession and to the public reliable sources of supply of such antitoxins as are proved by sufficient and careful experience to be curative.

MEDICAL NOTES.

THE CHARCOT MONUMENT. — The secretary of the committee to solicit contributions to the Charcot monument fund states that the contributions up to the present time amount to six hundred and forty-two dollars.

INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS. — The next session of the Congress will be held at Geneva in September, 1895. It will discuss the subjects of Eclampsia, Displacements of the Uterus, Pelvic Contractions, Pelvic Suppurations, and Abdominal Sutures.

A STATUE OF DR. GROSS. — The House passed the Senate bill granting permission to the American Surgical Association and the Alumni Association of the Jefferson Medical College to erect a statue to the memory of Samuel D. Gross in Washington. The bill appropriates \$1,500 for a pedestal.

THE FOUR YEARS' COURSE AT THE UNIVERSITY OF PENNSYLVANIA. — According to the *University Medical Magazine*, the extension of the medical course to four years has resulted in only a trifling reduction in the number of students. There are now 815 students in the Medical Department, 369 of these being members of the third-year class.

MEDICAL PHONOGRAPHY. — A society of medical phonographers has recently been organized in London, and publishes, under the joint editorship of Drs. Gowers and Taylor, a monthly periodical, *The Phonographic Record of Clinical Teaching*, which is intended to familiarize readers with the best outlines used in medical phonography, and at the same time increase their medical knowledge.

A NEW SOURCE FOR CARLSBAD WATER. — The *Münchener med. Wochenschrift* notes that the report

published in several newspapers to the effect that a new thermal spring had been discovered in the Vindobona House in Carlsbad is false. The report had its origin in the fact that during the recent cold spell a water-pipe burst; the water flooded the cellar and was heated by a baking oven.

VOLUNTARY ADMISSION TO NEW YORK HOSPITALS FOR THE INSANE. — The following resolution relating to the voluntary admission of patients to hospitals for the insane was adopted at the session of the New York Medico-Legal Society of March 13, 1895. "*Resolved*, That in the opinion of this Society the adoption of a law permitting voluntary admission to hospitals for the insane of such persons as may desire treatment therein is eminently proper and desirable, and the highest interests of the insane demand the incorporation of such a law among the statutes of the State of New York."

THE MEDICAL PRACTICE ACT OF TENNESSEE. — The Medical Practice Act of Tennessee has been declared unconstitutional. The *Southern Practitioner* says it has no tears to shed over this decision, and thinks the best thing to be done is for the Legislature to repeal the whole thing and get it out of the way. Evidently the bill was badly drawn, and there should be a better one. A State without a good medical practice law in these days will be a dumping-ground for quacks and incompetents.

THE CENTENARY OF THE DISCOVERY OF VACCINATION. — The directors of the German Vaccine Institute, at Weimar, are arranging for a celebration, to be held in 1896, in commemoration of Jenner's discovery of vaccination. In connection therewith there is to be an exhibition of old and new vaccine instruments; of apparatus for the preservation of lymph, etc.; of original manuscripts on small-pox and vaccination; on the inoculation of sheep-pox and cattle-plague in pre-Jennerian days; of squibs on vaccination, of medals, portraits, and autographs of prominent inoculators, vaccinators and anti-vivisectionists, etc. — *Medical News*.

LUXURY IN THE BRITISH HOUSE OF PARLIAMENT. — An editorial of the London *Daily Telegraph* furnishes the following: "Now that Roman luxury, invading the once austere precincts of Parliament, has added baths for the use of members to the Palace of Westminster, a result which might fairly have been predicted has duly followed. The speaker's secretary has received a communication from a professional 'masseuse,' who suggests, enclosing her card, that arrangements should be made to provide members with facilities for obtaining the treatment of massage, which would, she says, be found 'a great recuperative agent to the nervous system after a great mental strain following on a long debate.'"

EUROPEAN BACTERIOLOGISTS VERY BUSY. — A Berlin correspondent writes as follows to the New York *Sun*: "This is no time for young bacteriologists to come to Europe for instruction. The men foremost

in that field of science are too busy with their investigations to give lectures. A young bacteriologist who has been hanging around the University of Berlin for a couple of months, catching up any scrap of information that his professors might be good enough to let drop, and looking through microscopes in the hope of discovering something that he didn't know before, went off to Paris to see if he could find some one there who would stop his investigations long enough to give him instruction. He found even a worse state of affairs there. The scientific men of to-day who are making investigations in bacteriology are as feverish as were the prospectors for gold in California half a century ago."

TWO SIMPLE EXPEDIENTS.—Dr. Cocksedge, of Wales, places the following "tips" at the disposal of his brethren (*Medical Press*): If you have a fatiguingly deaf patient to talk to, place the ear-pieces of your binaural stethoscope in the patient's ears, and talk into the chest-piece, and you have an excellent ear-trumpet. If you leave your spectacles at home, being old and a presbyopic, make a hole with a pin in the corner of your visiting card, and you can read your clinical thermometer or anything else.

INTRAVENOUS SALINE INFUSIONS.—At a recent meeting of the New York Surgical Society, reported in the *Annals of Surgery*, Dr. Dawbarn stated his opinion that the amount of fluid usually recommended for intravenous infusion in hemorrhage was ridiculously small. A smaller amount than a quart will seldom be of much use, and in bad cases this should be repeated several hours later, as indicated. It is a bad rule to replace the blood lost at an operation only by an equal amount of salt water. The inward bleeding from shock, especially into the patient's own veins should not be forgotten. The chief advantage of infusion is the effect of the bulk of the fluid, which makes possible effective action of the heart.

ANTITOXIN IN OCULAR DIPHTHERIA.—Dastot (*Annales d'Oculistique*, January, 1895), apropos of a second case of ocular diphtheria successfully treated by antitoxin, writes as follows: "It is superfluous to dwell longer on the important rôle played by sero-therapy in the treatment of ocular diphtheria. Thanks to the injections of antitoxin, we are henceforth in a fair way to check the invading progress of pseudo-membranous exudates. Better still, the last two stages of the malady may be suppressed, with all the dangers that accompany them. In short, with this new treatment, when the false membrane has once disappeared the disease itself is conquered. If treatment is begun at the proper time it will not be forty-eight hours before all the menacing symptoms have disappeared, and the physician will be gratified by the rapid and complete recovery."

THE NEWEST THING IN MEDICAL TITLES.—The British nurses who are seeking to obtain official recognition and registration on the same lines as medical practitioners, are meeting half-way the legislation for that purpose which they so much desire by adopting a

distinctive title, says the *Medical Press*. M.R.B.N.A. is the affix which they append to their names, and is to be interpreted as Member of the Royal British Nurses' Association. The day is soon coming when clinical reports will read something as follows: A case of — reported by A. Jones Smith, M.A., M.D. (Oxon.), F.R.C.P., and B. Jenks Robinson, M.A., M.D. (Cantab.), F.R.C.S., in which the successful result was largely due to the faithful and untiring efforts of the nurse, Miss Sarah J. Gamp, M.R.B.N.A., etc.

ABUSE OF MEDICAL CHARITY.—A remedy for the abuse of medical charity is offered by a "Young Subscriber" in a letter to the *Medical Record*. He suggests that the victim of such abuse "the next time, and whenever he has need of a consultation or has a patient to send to a specialist, avoid the man who daily robs him by indiscriminate dispensary work and pick out instead one who regards the rights of his fellows. There are men at the heads of dispensary classes throughout the city enjoying large special practices who boast that they have no care for the financial standing of their dispensary cases so long as they furnish the required material for clinical purposes; and as for the complaining doctors they say, 'let them go and be blanked.' So long as they can do this and keep the support of the general practitioner they will hold the same views. The moment they find it affecting their pockets they may at least cease to pride themselves upon their dirty treatment of their professional brethren. Let the non-dispensary men look to their rights and they will soon have less wrongs."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, March 20, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 70, scarlet fever 56, measles 92, typhoid fever 4.

A NEW HOSPITAL FOR CONTAGIOUS DISEASES AT BROOKLINE, MASS.—A hospital for contagious diseases has been built by the Brookline Board of Health at an expense of \$5,000. The hospital stands on high ground, and has plenty of open space about it. The buildings are of wood, single-story, pavilion style, each having three small wards, with a hallway through the middle of the building, a kitchen, cellar and attic, and can together accommodate from twenty-five to thirty patients and attendants. The walls are plastered with Windsor cement, to permit of easy and thorough cleansing, and all the rooms except the kitchen have open fireplaces. The smaller building is for diphtheria patients and the other for scarlet fever. There is also provided a probationary ward.

ANTITOXIN IN CONNECTICUT.—The Secretary of the State Board of Health of Connecticut announces that a bill has been submitted to the legislature looking to the protection of the public, from imposition by the sale of spurious or inefficient antitoxin products,

that may be offered by unscrupulous dealers. It is the purpose of the bill to provide some guarantee for the quality of whatever may be found in our markets.

NEW YORK.

CORONERS IN NEW YORK.—The select committee of the Medico-Legal Society of New York to whom was referred the Senate Bill No. 81, "An Act to amend title four hundred and ten of the Law of 1882, entitled an Act to consolidate into one Act and to declare the Special and Local Laws affecting Public Interests in the City of New York," so far as the same relates to coroners, have reported to the legislature as follows: (1) That they approve of the bill, and recommend its passage; (2) That they recommend that the coroner so to be hereafter chosen should be a counsellor-at-law of at least ten years' practice; (3) That they recommend that the medical examiners shall be skilled in medico-legal science and selected with regard to their professional fitness and without reference to political considerations; (4) That they recommend that line 20, section 1779, of the proposed bill be amended by changing the words "Police Justice" to the words "Justice of the Supreme Court," as the office of Coroner in their judgment under the law should rank with that of a Justice of the Supreme Court.

MEDICAL EXAMINATION BY PROXY.—During the past week the examination was held by the Board of Regents of the University of the State of New York of such first-year students of medicine as had not been graduated from a registered college or satisfactorily completed not less than a three years' academic course in a registered academy or high school. This is in accordance with the new law regarding the conferring of the degree of bachelor or doctor of medicine, and the studies comprised in the examination are: arithmetic, elementary English, geography, spelling, United States history, English composition, and physics. On March 18th it was discovered that two of the applicants had appeared under assumed names; one representing a student of Bellevue Hospital Medical College and the other a student of the College of Physicians and Surgeons. It is said that those concerned in the fraud will be black-listed in all the medical colleges of the State and that they may perhaps be criminally prosecuted by the Medical Society of the County of New York.

A TETANUS ANTITOXIN.—At a meeting of the Medico-Legal Society held March 13th, Dr. Paul Gibier, of the New York Pasteur Institute, read a paper in which he claimed to have discovered an antitoxin, prepared from the cultivation of the bacilli of this disease, which had proved successful in both the cure and prevention of traumatic tetanus. He exhibited specimens of the bacilli of tetanus under the microscope, and expressed the opinion that these germs were indigenous in all parts of the world inhabited by man or beast. The horse, he stated, more than any other animal, even man, was susceptible to this disease,

and this could readily be accounted for from the fact that the filth of the stable offered the most favorable conditions for the development and multiplication of the tetanus bacilli.

PROGRESS OF THE TENEMENT-HOUSE COMMISSION'S BILLS.—It is gratifying to learn that one of the bills drawn up by the Tenement-House Commission appointed by Governor Flower has been passed by the legislature, and that the others, after some amendments by the committees to which they were referred, have been favorably reported in both branches of that body. The one already passed provides for the payment of the remaining moneys due on the three small parks in the tenement-house districts recently set apart under the Small Parks Act of 1887. Among the other bills is one providing for playgrounds about the public-school buildings. Another is for the better protection of tenement houses against fire, and the enforcement of stricter measures for the protection of their inmates from disease. A fourth bill provides for additional small parks during the next three years in the most crowded parts of the city.

Miscellany.

DOGS, WOMEN, MEN, HUMANITY.

PROF. W. W. KEEN, of Philadelphia, recently wanted a dog, from which to exsect a nerve for the purpose of grafting it into a gap in the sciatic of a patient, in the Jefferson College Hospital. He sent to the city pound for a dog for this purpose, but his request was refused by Mrs. Caroline Earle White, the president of the woman's branch of the S. P. C. A., which society it appears, has charge of the pound. The operation had to be postponed. A correspondence followed between Mrs. White and Dr. Keen, which is published in full in the *Philadelphia Record* of March 14th. We cannot forbear giving a short extract from one of Mrs. White's letters, and the whole of Professor Keen's reply.

Mrs. White to Professor Keen:

"In answer to your note I will say that although I should always approve of sacrificing a dog's life in order to save that of a man, unless the latter was a curse to the world and the former a boon and a blessing (which is sometimes the case), I think that I am justified in refusing to give you one of the dogs at our pound for an experiment which may prove of benefit to one of your patients, or may not, the latter being the most likely alternative."

Professor Keen to Mrs. White:

"Aside from myself there are three parties who are to be considered in this matter. First, the dog; second, the man, and third, mankind.

"First, the dog; I stated to you that the dog would not suffer; that he would be treated with the same care as the man, and that after the operation I should continue the anesthetic until the dog was dead. Yet you refuse me the dog because, forsooth, somebody else may be cruel to some other dog.

"Secondly, the man. This man knows what I am going to do, and is anxious to have it done. His leg is paralyzed. If by an ordinary surgical procedure I can re-establish the continuity of the nerve, I may be able to cure his paralysis. In that case I should not have recourse to the dog.

If, on the contrary, the gap between the two ends of the nerve is so great that I cannot bring them together, either the man must be condemned to paralysis for life or some other means must be tried to re-establish the nerve and so restore to him a useful leg. This might be done by the process of nerve grafting.

"Yet you refuse me a dog on the ground that it is an 'experiment.' Granting that it is, it is at the most, a perfectly harmless experiment, for it would not be more painful than any ordinary operation; and even if it absolutely fails, it leaves the patient not a whit the worse off. If it succeeds, it will be the greatest possible service to him.

"Thirdly, mankind. The only way in which surgery can make any progress is by testing new methods of treatment which have at least a reasonable possibility of success. Just such persistence and continued trials have encircled the globe with ocean cables. But you assume the rôle of a judge, who decides that such a new method of treatment shall not be tested. You, who I presume would admit that you know nothing of surgery, put your judgment against that of one who has spent thirty-five years in the earnest study, active practice and continuous teaching of surgery. You will excuse me if I think you are not a competent judge.

"If you had your way there would be no Pasteur Institutes in any part of the world to save so many lives from hydrophobia; there would be no antitoxin treatment of diphtheria, which already has borne such wonderful results; there would be no inoculation against cholera, which in the hands of Haffkine bids fair to rescue thousands of lives; there would be no cerebral surgery, since you would not allow us to investigate the functions of the brain; there would be little or no antiseptic surgery, the greatest stride forward of this century.

"In your misguided zeal for dogs you are guilty, in my opinion, of cruelty to this man, and cruelty to all mankind, because you thwart scientific progress under the guise of love for animals. You would condemn to the torture and disabilities of accident and disease, people who have happily been rescued by the more humane scientists in my profession.

"You will pardon me if I write earnestly. It is because I feel deeply the injury you are trying to inflict upon the human race. Happily, the common sense of the community does not allow you to have your way, as they prefer the devotion of my own profession to the welfare of mankind, to your devotion to dogs in preference to men."

THE TRIUMPH OF M. PÉAN.

THE session of the Académie de Médecine of Paris held January 15th, was made remarkable by the presentation of a patient by M. Péan.

This patient had had a carcinoma of the larynx, and to relieve it, it was necessary for M. Péan to make entire extirpation of the larynx, the superior portion of the esophagus and the inferior portion of the pharynx. Not only did the patient support the mutilation, but by means of a prothetic apparatus constructed by M. Michalès, under the direction of M. Péan, the organs were replaced so that the patient could breathe, eat and drink. Not only that, but the apparatus allowed the patient to make articulate sounds, so that speech could be understood. It is two years since the patient was operated upon, and the crowning glory of the operation has been the phenomenal, nay, the brilliant success of the artificial larynx. In former times the saving of the life of a patient so afflicted would in itself have been a triumph of surgery, but to replace lost parts with apparatus of such delicacy and usefulness seems to represent an art almost superhuman.—*Journal of the American Medical Association.*

ACTINOMYCOSIS IN FRANCE.

PONCET, at the meeting of the French Academy of Medicine, of January 22d, reported that he had seen at Lyons during the past year six cases of actinomycosis: one involving the lungs; one the upper jaw, with extension to the base of the skull (ending in meningitis); one the larynx, attended by deep cervical lymphangitis; the three others presenting the common form, actinomycosis of the face and jaw. The first two cases had a fatal termination, and in the third the same result was expected.

Poncet thinks that, considering the fact that without taking special pains to that end, he had seen six cases within so short a time, actinomycosis is common in France as in other countries, Brandenburg and Austria excepted. Although up to the present time only twenty-two cases have been reported in France, he thinks that errors in diagnosis have in all probability resulted in many patients who were in reality suffering from this disease being treated for syphilis. The efficacy of iodide of potassium in the treatment of actinomycosis probably renders this mistake a frequent one. In many acute cases in which there is lymphangitis about the lower jaw, the disease is regarded as resulting from the development of a wisdom tooth; in other more chronic cases, a carcinoma of the tongue, the jaw, or the floor of the mouth is simulated. Microscopic examination and culture of the fungus can alone establish the diagnosis; if careful examinations were made in all suppurative processes, reported cases of actinomycosis would markedly increase in number.

THERAPEUTIC NOTES.

DISINFECTION OF CATHETERS. — Dr. John Ward Cousins, in the *British Medical Journal*, January 19, 1895, recommends a steam apparatus for the disinfection of metallic and other catheters. It is well known that boiling is not a good way to cleanse soft catheters, and that the insides of metallic catheters cannot be satisfactorily cleaned by the ordinary method. Dr. Cousins's apparatus consists of a boiler having a capacity of about three pints and capable of bearing a pressure of eighty pounds to the square inch. It can be heated by a spirit or gas jet in about fifteen minutes. The steam pipe is connected with a circular tube fitted with projecting terminals, and these are adapted to hold a complete set of catheters. An old-fashioned spray apparatus can have the circular tube attached to them if required. After the steaming a polishing stilette is introduced and the instrument carefully dried.

HOW TO COMPUTE THE DOSE FOR CHILDREN.¹ — Dr. P. Bolognini contends that the formulæ in general use for computing the doses of remedies suitable for different ages are unsatisfactory. He has computed the average weight of children for each month of the first year, and for each year thereafter up to the eighteenth, and upon this basis has formulated the following rules: (1) From birth to the end of the first year: let d stand for dose and m for the age of the infant in months. Then the fraction of the adult dose will be represented by $d = \frac{1}{20 - m}$. (2) For a child from two to eighteen years of age the formula is $d = \frac{2 + a}{25}$; d = dose, and a = age of the child in years.

¹ Archives of Pediatrics.

METEOROLOGICAL RECORD,

For the week ending March 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	
S... 3	29.85	30	35	25	68	72	70	N.W.	S.W.	10	12	O.	C.
M... 4	29.89	31	37	25	61	98	80	N.	N.W.	10	7	O.	O.
T... 5	30.11	22	29	16	43	59	51	W.	W.	20	12	C.	C.
W... 6	30.44	27	36	18	54	100	77	W.	S.E.	7	8	C.	N.
Th... 7	30.16	34	38	29	80	100	90	N.	N.	5	8	F.	R.
F... 8	29.58	39	44	34	93	96	94	N.W.	E.	7	7	R.	O.
S... 9	29.56	41	48	34	95	55	75	N.E.	W.	7	16	G.	C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 9, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal Diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,956,000	864	332	11.64	23.76	1.32	4.68	1.80	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	—	—	—	—	—	—	—	
Brooklyn	1,045,000	418	153	15.12	24.00	.96	9.60	1.44	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	235	71	6.45	21.50	.86	3.01	1.29	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	126	33	3.16	20.54	.79	.79	—	
Cincinnati	325,000	123	29	3.24	27.54	1.62	.81	—	
Cleveland	325,000	109	37	6.44	18.40	—	.92	2.76	
Pittsburg	272,000	102	38	6.86	27.44	—	2.94	3.92	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,764	36	7	5.56	19.46	—	2.94	2.94	
Charleston	65,165	36	12	2.78	16.68	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	34	7	5.88	26.46	—	2.94	—	
Fall River	92,233	49	25	8.16	40.80	4.16	2.04	2.04	
Lowell	90,613	28	8	7.14	28.56	—	3.57	—	
Cambridge	79,607	34	7	2.94	14.70	—	—	—	
Lynn	65,123	28	5	7.14	17.85	—	3.57	—	
Springfield	50,284	27	6	11.11	37.00	—	—	3.70	
Lawrence	49,900	20	7	10.00	35.00	—	—	—	
New Bedford	47,741	24	7	8.32	20.80	4.16	4.16	—	
Holyoke	43,348	14	4	35.70	21.42	14.28	—	—	
Brookton	33,939	17	6	5.88	23.52	—	—	5.88	
Salem	33,165	15	1	—	33.33	—	—	—	
Haverhill	32,925	4	2	—	—	—	—	—	
Malden	30,209	12	2	—	—	—	—	—	
Chelsea	29,806	11	2	9.09	—	—	—	9.09	
Fitchburg	29,383	7	1	—	—	—	—	—	
Newton	28,837	17	1	—	35.28	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,964	18	—	—	—	—	—	—	
Waltham	22,058	7	3	—	42.84	—	—	—	
Quincy	19,642	8	5	—	25.00	—	—	—	
Pittsfield	18,802	4	1	—	75.00	—	—	—	
Everett	16,585	—	—	—	—	—	—	—	
Northampton	16,331	5	2	—	20.00	—	—	—	
Newburyport	14,073	6	1	—	30.00	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,556; under five years of age 852; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 254, acute lung diseases 596, consumption 308, diphtheria and croup 100, scarlet fever 37, diarrheal diseases 26, measles 20, typhoid fever 18, whooping-cough 14, cerebro-spinal meningitis 11, erysipelas 8.

From measles New York 13, Brooklyn 3, Providence 2, Boston and Springfield 1 each. From typhoid fever Cleveland and Pittsburg 3 each, New York 2, Boston, Washington, Cincinnati, Charleston, Worcester, Lowell, Cambridge, Springfield and Clinton 1 each. From whooping-cough Brooklyn 7, New York 6, Boston 1. From cerebro-spinal meningitis New York 5, Holyoke 3, Lawrence 2, Lynn 1. From erysipelas New York 5, Brooklyn 2, Providence 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending

March 2d, the death-rate was 32.9. Deaths reported 6,683: acute diseases of the respiratory organs (London) 1,449, whooping-cough 113, measles 67, diphtheria 47, diarrhea 36, fever 35, scarlet fever 30, small-pox (London and Liverpool 1 each) 2.

The death-rates ranged from 15.1 in Derby to 55.5 in Liverpool; Birkenhead 27.7, Birmingham 23.1, Bradford 25.3, Brighton 32.3, Cardiff 34.5, Halifax 43.4, Leeds 23.7, Leicester 19.1, London 38.5, Manchester 28.7, Nottingham 49.2, Plymouth 39.2, Preston 36.1, Salford 30.5, Swansea 28.5, West Ham 28.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 8, 1895, TO MARCH 15, 1895.

Leave of absence for one month, to take effect about March 10, 1895, is granted MAJOR CHARLES L. HEIZMAN, surgeon, U. S. A., Fort Douglas, Utah.

The leave of absence for seven days granted CAPTAIN PAUL CLENDENIN, assistant surgeon, is extended twenty-one days.

The attending surgeon at Boston, Mass., will attend the sick at Fort Warren, Mass., during the absence of CAPTAIN CLENDENIN.

FIRST-LIEUT. GEORGE D. DESHON, assistant surgeon, is relieved from duty at Fort Logan, Colorado, and ordered to duty at Fort Douglas, Utah.

CAPTAIN FREEMAN V. WALKER, assistant surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at Fort Trumbull, Conn.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 16, 1895.

L. L. YOUNG, assistant surgeon, detached from the Naval Hospital, Norfolk, Va., and wait orders.

AMMEN FARENHOLT, assistant surgeon, ordered to the U. S. S. "Baltimore."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MARCH 15, 1895.

GODFREY, JOHN, surgeon. Detailed as chairman board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

IRWIN, FAIRFAX, surgeon. To inspect Cape Charles Quarantine Station. March 9, 1895.

MEAD, F. W., surgeon. Detailed as chairman board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

GLENNAN, A. H., passed assistant surgeon. To report at Bureau for temporary duty. March 12, 1895.

GARDNER, C. H., assistant surgeon. To proceed to Angel Island Quarantine Station for temporary duty. March 4, 1895. Detailed as recorder for board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

STEWART, W. J. S., assistant surgeon. Detailed as recorder board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

OAKLEY, J. H., assistant surgeon. Detailed for duty on Revenue Steamer "Rush." March 13, 1895.

CUMMING, H. S., assistant surgeon. To proceed to Boston, Mass., for temporary duty. March 6, 1895.

SOCIETY NOTICE.

NORFOLK DISTRICT MEDICAL SOCIETY.—The Fellows of the Norfolk District Medical Society resident in Dorchester and vicinity, will entertain the Society at the Old Dorchester Club House, on Tuesday, March 26, 1895, at 7.45 P. M.

Communication: "The Relation of the Massachusetts Medical Society to the Medical Profession in Massachusetts," W. S. Everett, M.D.

It is expected that some of the officers of the Massachusetts Medical Society will be present and take part in the discussion. Collation at 9.30 P. M.

The Club House is located on Pleasant Street near Stoughton Street. The Field's Corner or Ashmont cars pass the door.

J. C. D. PIGEON, M.D., Secretary.

BOOKS AND PAMPHLETS RECEIVED

A Practical Theory and Treatment of Pulmonary Tuberculosis. By Frank S. Parsons, M.D., Philadelphia.

A Review of Six Interesting Pathologic Cases. By E. R. Axtell, M.D., of Denver, Col. Reprint. 1895.

Original Articles.

A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF AUTOPSIES.¹

BY J. H. WRIGHT, M.D.,

Assistant in Pathology, Harvard Medical School;

AND WM. R. STOKES, M.D.,

Resident Assistant Pathologist, Boston City Hospital.

(Continued from No. 12, p. 275.)

ACUTE ENDOCARDITIS.

THE evidence in favor of the bacterial origin of acute endocarditis is both experimental and pathological.

The possibility of inducing an experimental acute endocarditis, due to bacteria, was first suggested by Rosenbach, in 1878, who showed that by injuring the heart-valves of an animal by means of a sound passed into the carotid, in certain cases vegetations were produced on the valve in which micro-organisms could be demonstrated. These micro-organisms were carried into the circulation accidentally by the operation, and Rosenbach considered that a certain proportion of the heart-lesions resulting were due to their presence and was independent of the mechanical injury produced by the sound. These experiments of Rosenbach opened the way for the later work of Wyssokowitsch and Orth in 1885, who proved that by the injection of the pyogenes cocci into the circulation of animals, after previous mechanical injury to the valves of the heart by Rosenbach's method, a true acute endocarditis could be induced. These investigators maintained that the previous lesion of the valves was necessary, for the mere injection of the pyogenic cocci into the circulation was not followed by the appearance of valvular vegetations, nor did such vegetations appear after the mechanical injury of the valves, if no bacteria were introduced into the blood. The experimental production of acute endocarditis has also been studied by Netter, Ribbert, Fränkel and Sänger, Prudden, Weichselbaum, Stern and Hirschler, and Viti. The combined results of the work of these writers has shown that true endocarditis can readily be produced in animals by the intravenous injection of any of a number of species of bacteria, provided that there is some previous lesion of the heart-valves, although the necessity of this previous lesion is denied by Netter and Ribbert.

The pathological evidence of the infectious nature of acute endocarditis is also convincing. In 1885 Wyssokowitsch reported finding the staphylococcus pyogenes aureus in a case of ulcerative endocarditis, but failed to find any bacteria in 11 cases of the verrucose form. In the same year Weichselbaum published the results of his study of one case of the verrucose form and three cases of the ulcerative form, in all of which he found either the staphylococcus pyogenes aureus or the streptococcus, or both. The first extensive study, however, of the etiology of acute endocarditis in man, is that of Fränkel and Sänger, published in 1886. These investigators studied 11 cases of the verrucose form and one case of the ulcerative form, and found in nine cases bacteria in the cardiac lesions, the staphylococcus pyogenes aureus being present in six. This publication was important because it was a strong confirmation of the view, which is now generally held, that all forms of acute endo-

carditis are to be regarded as of infectious origin. An important work also is that of Netter, who observed the micrococcus lanceolatus in seven or nine cases of acute endocarditis associated with acute lobar pneumonia.

Weichselbaum has, however, contributed more to our knowledge of this disease than any other single investigator. From a study of 15 cases of ulcerative endocarditis, 13 cases of verrucose endocarditis and one case of endocarditis of the left auricle, Weichselbaum concluded that there is no essential difference between the various forms of endocarditis, either histologically or bacteriologically; that no one species of bacteria are concerned in the production of the disease; that in cases in which no bacteria are found, the bacteria have died or there is some defect in the method of examination for their presence; and that chronic endocarditis is the result of the acute form of the disease. Of the 29 cases of Weichselbaum, the micrococcus lanceolatus was found in seven (six of the ulcerative form and one of the verrucose form); the streptococcus in six (four ulcerative and two verrucose); the staphylococcus pyogenes aureus in two (verrucose); and in six cases various unusual bacteria. In eight cases the examination for the presence of bacteria was negative.

Other observations of bacteria in acute endocarditis are those of Banti (20 cases), Viti (eight cases), Girode (six cases), Senger, Lanceraux, Stern and Hirschler, Meyer, Vinay, Steinberg, Malvolz, Tombolan and Fava, Perret and Rodet, Gilbert and Lion, Paulus, Lanceraux and Besançon, Oulmont and Barbier, Lafitte, Josser and Roux, Barbacci, Glusincki, Leyden, Howard and Councilman. The cases studied by these writers prove conclusively that a great variety of bacteria are to be found associated with the acute forms of the disease, in which not only the ordinary pyogenic cocci, the micrococcus lanceolatus and other less known species may be present, but also the gonococcus, (Councilman and others) and the bacillus diphtheriæ (Howard) as well.

In 10 cases of acute endocarditis examinations of the valvular vegetations or ulcerating tissue of the heart have been made; and in seven of the 10 cases the micrococcus lanceolatus has been found, in one case accompanied by the bacillus diphtheriæ. Of the three remaining cases in which the micrococcus lanceolatus was not found, the staphylococcus pyogenes aureus was present in one, the streptococcus and the staphylococcus pyogenes aureus in the second, and unknown bacteria in the third case. In all 19 cases of acute endocarditis, six or seven of which were of the ulcerative form, have been studied with reference to the occurrence of bacteria in the internal organs. The micrococcus lanceolatus has been found in the heart-blood or in some or all of the parenchymatous viscera in seven cases. Combining the results of these cultures with the results of the examination of the heart-lesions, mentioned above, it may be said that evidence of the association of the micrococcus lanceolatus with acute endocarditis has been obtained in nine out of the 19 cases. Of the remaining cases, in two there was a well-marked general infection with the staphylococcus pyogenes aureus; in two others, both in puerperal females, a general infection with the streptococcus; and in six no definite conclusion was to be drawn from the results of the cultures. The staphylococcus pyogenes aureus was also present with the

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

streptococcus in the blood of the liver as well as in the valvular vegetation in one of these puerperal cases. It is worthy of note that in a third puerperal case, with acute endocarditis, the micrococcus lanceolatus was found in the blood of the heart and in the embolic pneumonia, while the streptococcus was found in the uterus and kidney.

GENERAL INFECTIONS WITH THE MICROCOCCUS LANCEOLATUS.

In addition to the foregoing cases of general infection with the micrococcus lanceolatus in acute lobar pneumonia and acute endocarditis, a number of other cases have been met with in which this organism has been found in some or all of the large viscera. These cases are essentially as follows:

CASE I. Acute fibrinous pericarditis with effusion. Acute fibrinous pleuritis, acute splenic tumor. Acute degeneration of liver and kidneys. Micrococcus lanceolatus in pericardium, lung, liver and kidney. Spleen sterile.

CASE II. Ulcus ventriculi; abscess of adjacent fat tissue with perforation into peritoneal cavity. Fibrinous peritonitis and pleuritis. Micrococcus lanceolatus in fibrinous exudate on peritoneum and pleura, in spleen, kidney and wall of heart. Bacillus coli communis in liver and in some of the other organs also.

CASE III. Hysterectomy. Occlusion of ureters by ligature, leakage of urine into peritoneal cavity, congestion of lungs, acute splenic tumor. Micrococcus lanceolatus in peritoneum and spleen. Blood of heart negative. Various bacteria were also present in peritoneum.

CASE IV. Acute adenitis of inguinal and peritoneal lymph-glands, acute splenic tumor, edema and congestion of lungs. No infection-atrium demonstrated. Micrococcus lanceolatus in inguinal lymph-gland, kidney and liver. Spleen and femoral lymph-gland sterile. Bacillus coli communis in liver.

CASE V. Fracture of base of skull, extending through the petrous portion of the left temporal bone. Acute purulent otitis media (left), purulent leptomeningitis, thrombosis of left lateral sinus, acute splenic tumor, acute degeneration of liver and kidneys. The otitis was apparently subsequent to the fracture. Micrococcus lanceolatus in pus of internal ear and of meninges, blood of heart, liver, spleen, kidney and lung. Staphylococcus pyogenes aureus also in lung. As elsewhere pointed out, the infection-atrium in this case was most probably the internal ear.

CASE VI. Subacute diffuse nephritis (large white kidney), anasarca, ascites, hydrothorax, subacute peritonitis. Micrococcus lanceolatus in peritoneal exudate, spleen, kidney, liver and blood of heart.

CASE VII. Disseminated general sarcomatosis. Broncho-pneumonia. Micrococcus lanceolatus in broncho-pneumonia, liver, kidney, and blood of heart. Staphylococcus pyogenes aureus also in kidney. Spleen sterile.

CASE VIII. Child, aged two and one half days. Acute pneumonia of both lungs. Hemorrhages beneath dura and peritoneum. Micrococcus lanceolatus by cover-slips (direct examination) in lung, liver, spleen, kidney and blood of heart. There was no evidence of infection from mother.

Additional cases of general infection with the micrococcus lanceolatus are considered under puerperal infection, diphtheria and scarlet fever.

MISCELLANEOUS GENERAL INFECTIONS WITH THE STREPTOCOCCUS.

In this group we have collected a variety of cases in which the bacteriological examination showed more or less of a general invasion of the viscera by the streptococcus. Some of these cases have been of a surgical character, but a number of others have been cases in which there was little or no reason for suspecting any pyogenic infection, either clinically or at the autopsy. With the exception of a single case, none of the cases with general infection with the streptococcus in diphtheria and scarlet fever are included in this group, but are considered elsewhere in connection with these diseases. The exceptional case was one of diphtheria and scarlet fever in which the streptococcus septicemia was apparently of surgical origin, and on that account it is included here.

CASE I. General arterio-sclerosis, hypertrophy and dilatation of the heart, thrombosis of right auricular appendix, multiple emboli of lungs with infarction, arterio-sclerotic kidney and liver, edema, ascites and hydrothorax. Streptococcus in liver, kidney, spleen, infarction of lung and blood of heart.

CASE II. Disseminated tuberculosis of lungs. Tuberculosis of epididymus, seminal vesicles and kidney, acute splenic tumor. Streptococcus in spleen and lungs; in lung, also, bacillus diphtheriae and staphylococcus pyogenes aureus. Kidney and liver sterile.

CASE III. General hematogenous miliary tuberculosis. Primary tubercular ulcer of intestine, tuberculosis of mesenteric glands and thoracic duct. Streptococcus in spleen, liver, kidney, lung, blood of heart and in superficial vein.

CASE IV. Cancer of rectum. Streptococcus in kidney, lung and blood of heart.

CASE V. Subcutaneous injections of bouillon cultures of the streptococcus derived from erysipelas, in a case of sarcoma of the thigh. Death after about ten days. At the autopsy there was found edema and congestion of the lungs, hemorrhages in parietal and visceral pleurae, enlargement and congestion of the inguinal glands on the side of the tumor, and of the posterior mesenteric and gastro-hepatic lymph-glands. Streptococcus in tumor, inguinal gland, spleen, liver and blood of heart. Bacillus pyocyaneus in tumor.

CASE VI. Broncho-pneumonia, purulent bronchitis, mucopurulent cystitis. Streptococcus in spleen, liver, kidney and blood of heart.

CASE VII. Operation for congenital hernia, followed by abscess formation. Diphtheria. This case is included among the diphtheria cases. Streptococcus in liver, spleen, lung and kidney. Bacillus diphtheriae in throat, lung and spleen. It seems probable that in this case the infection-atrium for the streptococcus was the operation wound.

CASE VIII. Empyema, thoracentesis, croupous pneumonia, acute splenic tumor, fatty degeneration of liver, chronic diffuse nephritis. Larynx and trachea not examined. No suspicion of diphtheria. Streptococcus in kidney, spleen, liver, lung and blood of heart. Bacillus diphtheriae and staphylococcus pyogenes aureus also in lung.

CASE IX. Operation for tuberculosis of hip-joint. Acute peri- and endocarditis. Chronic endocarditis with general chronic passive congestion. Streptococcus in operation wound, liver, spleen, kidney and heart-

muscle. *Staphylococcus pyogenes aureus* also in the operation wound.

CASE X. Ulcers and cellulitis of leg, purulent arthritis of knee. Broncho-pneumonia. Fatty degeneration of liver. Acute splenic tumor. Acute degeneration of kidney. Diphtheritic ulceration of large intestine. *Streptococcus* in knee-joint, kidney, spleen, blood of heart, broncho-pneumonia, and possibly in liver. It is possible that there was a general poly-infection to a certain extent with the *streptococcus* and the *micrococcus lanceolatus*, but this was not determined accurately.

CASE XI. Operation wound, removal of vermiform appendix, acute purulent peritonitis, broncho-pneumonia, acute parenchymatous degeneration of liver and kidneys. *Streptococcus* in peritoneal pus, liver and kidney.

PUERPERAL INFECTION.

The present state of our knowledge on the subject of puerperal infection has been recently reviewed by Williams, who concludes "that various, very diverse micro-organisms, especially the *streptococcus* and the *staphylococcus*," may be concerned in this condition, but "that most of the fatal cases of puerperal disease have been due to infection with the *streptococcus*." Among the first observations of the occurrence of the *streptococcus* in puerperal infection was that of Orth, in 1873, who described and figured a spherical organism, growing in chains in the purulent exudation of puerperal peritonitis. The first to cultivate this organism from autopsies on puerperal cases was Pasteur, in 1880, and since that time its frequent occurrence in puerperal infection has been demonstrated by Winkel, Pfannenstiel, Czerniewski, and others.

In this group of cases we have included all those cases of infection which seemed to have been of puerperal origin. It will be noted that some of them are well-marked poly-infections.

CASE I. Typical diphtheritic endometritis and vaginitis, abscesses in lungs, acute fibrinous pleuritis, acute splenic tumor. *Streptococcus* in pus of uterine lymphatics, blood of heart and spleen. *Streptococcus*, *staphylococcus pyogenes aureus* and *micrococcus lanceolatus* in lung (abscesses).

CASE II. Diphtheritic endometritis and vaginitis, abscesses in lung, acute pleuritis and parotiditis, acute splenic tumor. Criminal abortion at third month. *Staphylococcus pyogenes aureus* in parotid gland, blood of heart and lung; in the lung, also *streptococcus*. Liver and spleen sterile. Various unknown bacteria in uterus.

CASE III. Fever after childbirth, with intense jaundice. Acute nephritis. *Streptococcus* in liver, spleen, kidney and blood of heart.

CASE IV. Abortion and septic endometritis. *Streptococcus* in uterus, pus of Fallopian tube, and in spleen. Liver and kidney negative.

CASE V. Puerperal fever. *Streptococcus* in uterus, thrombosed uterine vein and kidney. Other organs not examined.

CASE VI. Acute puerperal diphtheritic vaginitis, thrombosis of vaginal veins and uterine lymph-vessels, purulent peritonitis, acute pleuritis, congestion and edema of lungs, acute parenchymatous degeneration of liver and kidney. Congenital defect in intra-ventricular septum, patency of foramen ovale, hypoplasia of aorta; chronic passive congestion of lungs. *Strepto-*

coccus in abdominal pus, pleural exudate and blood of heart. *Staphylococcus pyogenes aureus* in spleen. *Bacillus coli communis* in uterine lymph-sinus, vaginal veins, kidney and in some other situations.

CASE VII. Hemorrhagic pericarditis, uterine hemorrhage, abortion in progress. *Bacillus coli communis* in body of uterus, kidney, blood of heart and spleen. Liver sterile. Pericardium negative.

CASE VIII. Puerperal septicemia, partially retained placenta, acute splenic tumor, acute parenchymatous degeneration of liver and kidneys. *Streptococcus* in kidney. *Bacillus coli communis* in uterus, liver, spleen, kidney and blood of heart.

CASE IX. Croupous pneumonia following childbirth. *Streptococcus* in uterus and kidney. *Micrococcus lanceolatus* in lung and pleural exudate. *Bacillus coli communis* in all organs.

CASE X. Hypertrophy of uterus after early abortion. Endometritis, acute endocarditis, hemorrhagic infarction of lungs with embolic pneumonia, acute splenic tumor. *Micrococcus lanceolatus* in blood of heart and lung. *Streptococcus* in uterus and kidney. *Bacillus coli communis* in liver and in other organs.

CASE XI. Acute endometritis. Post-partum hypertrophy of uterus, acute endocarditis, septic infarction of spleen and kidneys, embolism of branches of superior mesenteric artery, subacute nephritis, slight chronic passive congestion of lung, liver and spleen. *Streptococcus* in endometrium, liver, kidney, spleen infarction. *Streptococcus* and *staphylococcus pyogenes aureus* in heart-lesion and blood of liver vein. Spleen sterile.

CASE XII. Clinical diagnosis: puerperal eclampsia. Post-partum hypertrophy of uterus, laceration of cervix with hemorrhage into ligamentum latum. Hydrothorax, hydro-pericardium, edema of lungs, acute splenic tumor. *Micrococcus lanceolatus* in endometrium, liver, lung, spleen and kidney.

The *streptococcus* has been found in one or more of the internal organs in nine of these twelve cases. This result is in harmony with the generally accepted view that this organism is by far the most common cause of puerperal infection.

ERYSIPELAS.

CASE I. Erysipelas of face, pulmonary apoplexy, acute splenic tumor. Old tuberculosis of apices of lungs, scattered foci of tuberculosis in the upper lobe of right lung, acute tubercular pleuritis left side. *Streptococcus* in tissue of face. *Staphylococcus pyogenes aureus* also in tissue of face and in spleen, kidney and lung and blood of heart. Liver negative.

CASE II. Erysipelas of face and neck. Acute nephritis. Cultures failed to demonstrate any specific infection.

CASE III. Erysipelas of face and scalp, congestion of lungs, acute splenic tumor. *Streptococcus* and other organisms in scalp. Liver and spleen sterile. Various bacteria in blood of heart and lateral sinus. *Staphylococcus pyogenes aureus* in lung.

CASE IV. Erysipelas of face and scalp. Diffuse visceral syphilis. *Streptococcus* in blood of heart, spleen and lung. *Bacillus coli communis* in kidney.

CASE V. Erysipelas of face. Contusion of forehead and buttock. Fatty degeneration and purulent infiltration of muscles of buttock. *Streptococcus* in muscles of buttock, spleen, kidney, liver, lung and blood of heart.

CASE VI. Erysipelas of leg; small ulcer on pos-

terior surface of leg. Inguinal glands on affected side enlarged and reddened, and in the adjacent tissue small purulent foci. Hypostatic congestion of lungs, acute splenic tumor. Streptococcus in the deep subcutaneous tissue of leg and inguinal gland. Micrococcus lanceolatus in lung. Bacillus coli communis in kidney and blood of heart.

CASE VII. Erysipelas of leg. Broncho-pneumonia. Tissues of leg and inguinal gland sterile. Streptococcus in liver. Staphylococcus pyogenes aureus in lung, kidney and spleen. Blood of heart sterile.

It will be seen that the streptococcus has been found associated with six of these cases, while in two there was a general infection with the staphylococcus pyogenes aureus in addition. We consider the general infection with the latter organism as a secondary one, following on the erysipelas, which was induced by the streptococcus. The failure to demonstrate the streptococcus in the local lesion in one of the cases in which that was examined, is not surprising, as it is well known that it does not long survive in the tissue after it has produced its effects.

We have examined four cases of extensive superficial burns which we will consider in one group. The bacteriological results are as follows:

CASE I. Streptococcus in spleen, kidney and blood of heart. Liver and mesenteric gland sterile.

CASE II. Streptococcus in suppurating tracheal gland, liver, spleen and kidney.

CASE III. Bacillus coli communis in spleen, kidney and lung. Liver and blood of heart sterile.

CASE IV. Various unknown bacteria found in the various organs.

A CASE OF ACTINOMYCOSIS.¹

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ACTINOMYCOSIS is a sufficiently rare disease in this part of the world to render a case coming to autopsy at the Boston City Hospital of enough importance to be reported. Unfortunately the nature of the disease was not recognized either clinically or at the post-mortem examination, so that many queries which were raised later could not be definitely settled owing to a lack of investigation at the proper time.

The patient, a native of Denmark, came from the West several months before his death. Further than that nothing is known of his previous history. He entered the Massachusetts General Hospital on the 2d of June, 1894. His temperature was then 99.1° F., his pulse 120 and his respiration 28. He complained of gradual failure of breath and of the development of a cough. About two weeks before entrance he had noticed a lump in his epigastrium.

"Physical Examination.—A weak, emaciated man with anxious expression. Heart-sounds heard loudly in chest, anemic murmur. Nothing found in lungs except dulness in upper left front. Liver dulness one-half inch below ribs. Skin on left epigastrium, over an area of several square inches, reddened and tense. Abdominal wall thickened all around and dull on percussion. Abscess opened and considerable foul material looking like broken-down tuberculous tissue escaped. Packed with iodoform gauze and poulticed. The wound was dressed daily, but remained thoroughly in-

dolent, so that on June 14th the patient was etherized and the granulations curetted, the curette laying bare the cartilage of the left ribs and the abdominal fascia. No dead bone was found."

No further notes were made on the case, but the patient left the hospital soon after the first of July.

On the 23d of August he was admitted to the Boston City Hospital. He was then "dull in mind" and "talked very thick," so that his words could not be understood. No history concerning him could be obtained.

"Physical Examination.—Poorly nourished and emaciated. Heart-sounds weak and rapid. Apex in mammary line, one and three-fourths inches below nipple. Râles and bronchial breathing over the apices of both lungs, front and back. Percussion subtypanitic on the left side. About one and one-half inches below xiphoid and running parallel with the costal border, is a wound about two inches long, which discharges foul-smelling, purulent, whitish fluid. Between the tenth and eleventh ribs, about three inches to outer side of wound spoken of above, is a small round wound discharging a similar fluid. On the left forearm over the pronator muscles, on the left shoulder-cap over the deltoid, and on the dorsum of the right forearm above the wrist, are fluctuant tumors, each the size of an egg. Plaster swatches were applied to the abdominal wounds and bandages to the tumors on the arms."

During the following three days the patient remained dull, and failed in strength. The pulse became weak and more rapid, and death occurred on the fourth day after entrance.

The temperature of the patient on the day of admission was 102° F. On the next day it was 104°, falling to normal by evening. The following morning it was 96.2°, and remained subnormal until death. The pulse was 100 on entrance, and rose gradually to 120. The respirations fell from 42 to 30.

At the autopsy no connection was found between the sinuses in the epigastrium and the thoracic or peritoneal cavity. The organs only of the case were seen by the pathologist to the hospital. The following is his description of them:

"Both lungs firmly adherent to costal pleura by old adhesions. Left lung denser than normal; does not contract on removal from thorax; the density most marked in the upper lobe. In the apex a circumscribed cavity with smooth walls filled with caseo-purulent contents; elsewhere in upper lobe there is slaty-gray consolidation with caseation. There are also small foci of a reddish color, consolidated, from which pus can be squeezed. In the lower lobe there is much cicatricial tissue and areas of broncho-pneumonia. In the right lung there is perfect cicatrization of lower lobe with slight dilatation of bronchi. From this an abundance of pus can be squeezed, leaving very smooth cavities. In the upper lobe considerable edema and numerous reddish foci of purulent infiltration.

"In both of the lungs there is a great deal of cicatricial tissue. Large vessels and bronchi at base free.

"Liver of ordinary size and strongly adherent to diaphragm. In the left lobe of the liver the capsule is greatly thickened, cicatricial; and apparently the entire lobe is converted into a mass of necrotic tissue infiltrated with pus. The tissue, on section, of a whitish color (no trace of liver substance apparent), and intimately united with the thickened cicatricial capsule.

¹ Read before the Boston Society for Medical Improvement, December 17, 1894.

The right lobe of dark-red color, congested, free from abscess.

"Kidneys large, cortex hyperemic, markings normal. In both there are several circumscribed abscesses from size of a pea to a cherry. The abscesses contain pus of rather firm consistency, and a small amount of necrotic tissue. The pus is apparently infiltrated in the necrotic tissue. The pus from all these abscesses is thick and yellowish.

"In the right side of the brain, in the frontal region, at a point about corresponding to the middle of the first frontal convolution and extending down into the region of the second, there is a sharply circumscribed abscess filled with thick, greenish pus.

"Anatomical diagnosis. Tuberculosis, bronchopneumonia and secondary abscesses of lungs, with interstitial pneumonia. Perihepatitis and abscess of liver. Abscesses of kidneys, abscess of brain."

At both hospitals the case was regarded clinically as tubercular.

Cultures showed many colon bacilli in the heart's blood and in the abscesses in the lungs and liver. Many colonies of the staphylococcus pyogenes aureus were present in the cultures from the abscesses of the brain, lungs and over the deltoid. A few were found in the blood and in the abscess of the liver. A culture from an abscess of the kidney remained sterile. Cover-slip preparations from some of the abscesses were reported to contain cocci and delicate bacilli.

Fortunately the abscesses of the brain and kidneys with the surrounding tissue, and considerable portions of the lungs and liver were hardened in alcohol for microscopic purposes. Examination later showed the pathological processes to be due largely or entirely to actinomycetes.

The first case of actinomycosis in man was observed by Langenbeck in 1845; but it was not until 1878 that the case, together with the original drawings, was published by J. Israel. There is also no doubt Lebert saw the organism in man in 1857 and pictured it accurately. It was not, however, until 1878 that J. Israel described a case of actinomycosis thoroughly, and showed the relation of the peculiar organism to the pathological lesions.

Actinomycetes were discovered in the tongue of a cow by Hahn in 1870, and in 1877 Ballinger showed them to be present constantly in certain tumor-masses about the jaws and in the tongues of cattle. The organism was studied botanically by Harz and termed "actinomycosis bovis," or ray fungus. The identity of actinomycetes in man and cattle was demonstrated by Ponfick in 1882. Since then the occurrence of the disease in man has been established by numerous observations all over the world.

In the lesions produced the actinomycetes grow in characteristic colonies, which are often large enough to be recognized by the naked eye. They measure 0.18 mm. to 0.6 mm. in diameter. Occasionally they are conglomerate, and may measure as much as 2 mm., or even more, in diameter. To the naked eye the single colonies appear spherical, oval or slightly curved; the larger colonies are more irregular. According to Bostroem, whose monograph on this subject has become a classic, the largest colonies are found where the tissue shows the greatest inflammatory reaction.

When the growth of the colonies is not interfered with, they develop, according to him, a certain typical structure which is shaped like a hollow ball with an

opening at some point, out of which streams into the surrounding tissue a network of fibres which he calls the root. The mantle of the hollow ball consists of a basement layer composed of a very thick tangle of filaments which branch dichotomously, and of collections of small round bodies. The centre of the ball consists of a few branching irregularly-arranged threads. From the basement layer arise, first, small bush-like masses of threads but little branched; later, however, they are larger and the threads show numerous branches. On the outside lies the layer of the clubs.

The colonies are distinguished by color which depends on their age. The younger colonies appear gray and gelatinous like bits of mucus, and consist of only a loose tangle of branching filaments. In the next stage they are denser but still small and look grayish white or opaque white. The denser the network of threads, the whiter and more opaque the colonies become, until finally the color passes into yellow or even brown. The clubs have a metallic lustre which may become yellowish-green or bright green if they are large and numerous.

The examination of cover-slip preparations from actively growing colonies shows often a great variety of forms so that one is inclined to suspect a mixed infection due to several organisms. Side by side will be found coccus-like bodies, short and long bacilli, and single and branched threads, of which some stain uniformly while others consist of longer or shorter joints each of which corresponds to a coccus or to a bacillus. Besides these there are the transparent club-shaped bodies in which can be found bacilli and cocci similar to those in the threads.

All these different forms are now pretty generally looked upon as belonging to one and the same organism, which is classed among the polymorphous bacteria. On account of the branching, Bostroem places it in the class Cladothrix.

The club-shaped formations have always excited the greatest interest and form one of the most characteristic features of this bacterium. According to Bostroem whose views are now generally accepted, these clubs are due to a peculiar degeneration of the membrane or sheath of the organism. This degeneration may occur along the course of the filaments but is found especially at the ends. The filaments can often be traced directly into them. The swollen, degenerated sheaths get denser with age; they often crack and form curious, irregular and branching figures.

Cultures of actinomycetes have been obtained by Bostroem and by a number of other investigators. Inasmuch, however, as only those obtained by M. Wolff and J. Israel produced typical lesions when introduced into animals, it seems best to consider only their results in that direction. They succeeded in growing pure cultures from two separate cases in man, from a retro-maxillary tumor and from the lung. They found that the most important characteristics of the growth on agar were that the organism was anerobic (although not strictly so), that it showed a marked inclination to form small knots which rarely appeared before the third to the fifth day and that these knots had a tendency to remain separate even after months. The surface growth was remarkably dry, non-elevated, and sent roots into the culture medium beneath. The older colonies were not infrequently of a pale-yellow color. Microscopically the commonest form of the

growth on agar was found to be a short, straight or curved rod of which the length and breadth varied considerably. In some cultures very short thick rods were present; in others they were long, and thin or thick with often one end swollen. Occasionally threads were found which were usually wavy or spiral.

In the cultures in eggs, although rods were present, a tangle of threads was the commonest form. The filaments were straight, wavy or spiral and often dichotomously divided. The filaments on the periphery of the tangled masses showed a more or less radiating pattern. The single threads were not of the same thickness; some were slender, others thick. Many of the threads could be differentiated into rows of longer or shorter rods, or into round bodies like cocci. Wolff and Israel do not agree with Bostrom in regarding the small round bodies which look like cocci as spores, for the reason that they stain readily by Gram, a property which other spores do not possess, and they suggest that these apparent cocci may be due to division of the short rods.

No club-shaped formations could be found in the cultures. The swollen ends of the rods often seen stained intensely with Gram, and could not therefore be due to degeneration of the sheath, for the degenerated bodies formed in this way stain only with diffuse stains.

Wolff and Israel introduced portions of their cultures into the peritoneal cavities of guinea-pigs and rabbits, and produced small tumors from the size of a millet-seed to a plum in which were found typical colonies of actinomycetes with club-shaped bodies around the periphery. The larger tumors were nodular, of a pink color speckled with yellow, and showed on section a connective-tissue capsule from which extended many anastomosing septa between the soft, dough-like masses in which the colonies were situated.

There remains still to speak of the pathological lesion produced by actinomycetes. This could best be studied by introducing pure cultures of the organism into animals and killing them after different periods of time. Then the direct effect of the polymorphous bacterium on the surrounding tissues could be accurately determined. This work, however, still remains to be done.

In cattle, according to Thoma, actinomycetes, as a rule, give rise to circumscribed tumors in which the colonies are surrounded usually by a circular area of young, newly-formed connective tissue very rich in lymphoid and epithelioid cells. These areas, rich in cells, with the organism in the centre, are surrounded by more or less strong, at times very extensive bands of dense fibrillar scar tissue. These tumors may resemble sarcomas. In other cases the newly-formed tissue undergoes a mucous, pus-like softening. There arise then more or less richly branched canals or fistulæ filled with mucus and purulent fluids which may permeate the organs extensively. The walls of these fistulous canals are formed by the degenerating masses of the very cellular, newly-formed tissue. This latter form of the disease is much more common in man than is the formation of tumors.

The microscopic examination of the case cited at the beginning of this paper proved extremely interesting. The denser portions of the lungs and the whole of the abscess-like mass in the liver consisted of fibrous tissue riddled with pockets of various sizes, filled with pus in

which were many colonies of actinomycetes. The more normal portions of the lungs showed numerous areas of broncho-pneumonia caused by the actinomycetes, colonies of which were often found in the bronchi and bronchioles. The epithelium was usually stripped from the walls, and the bronchus and adjoining alveoli were filled with polynuclear leucocytes. Often only the masses of cartilage could be found to mark the site of a bronchus.

In the abscesses in the brain and kidneys the disease showed a much more acute process than elsewhere. There was little formation of connective tissue beyond the young connective-tissue cells in the walls of the softened areas.

Through the kindness of Dr. A. K. Stone I was able to compare the character of the lesions produced in this case and the appearance of the colonies with those in a case of bovine actinomycosis. In the latter the softened areas were rather small and the production of young connective tissue abundant. The colonies were large, irregular and showed a great many clubs all around the periphery. Even in the very small colonies the swollen sheaths around the ends of the filaments could often be demonstrated. In the human actinomycosis the areas of softening were much larger, the zone of young connective tissue thin or even in places lacking, and large colonies rather the exception. On the other hand, the production of clubs was much less marked, while the filaments often radiated out in every direction from the colonies. These filaments were found everywhere between the leucocytes, and were characterized by their wavy, spiral course, their frequently jointed appearance and their branching. Small actively growing colonies were very abundant.

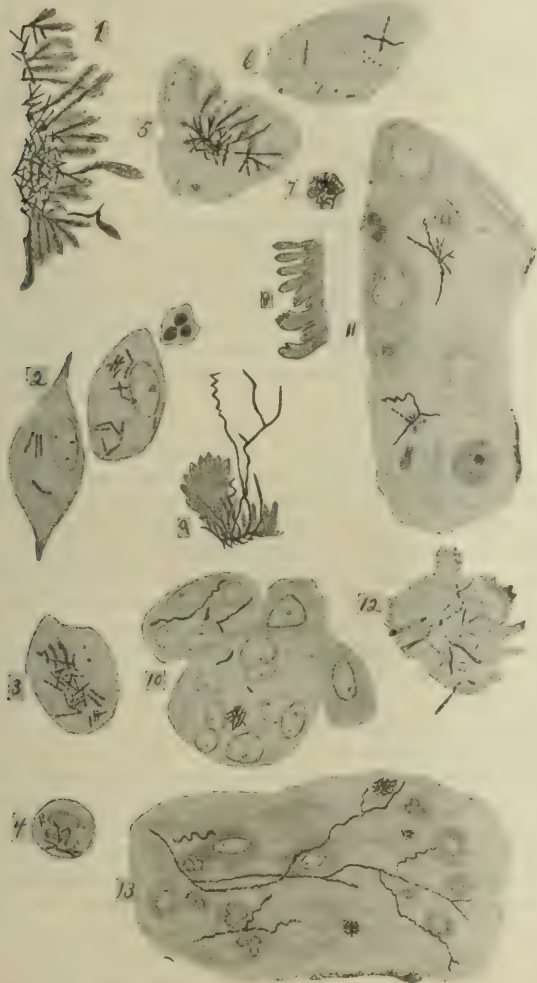
It would seem as though, in the study of the peculiar and characteristic colonies formed by actinomycetes in tissues, the presence of the organism in any other form had been for the most part lost sight of. Bostrom speaks of finding rod-shaped forms in pus cells and suggests that they may in that way be carried to the neighboring tissues and thus infect them. Thoma calls attention to the wavy, spiral threads extending out from the colonies and thinks that they may cause infection of the surrounding parts.

Careful study of the walls of the softened areas present both in the human and in the bovine actinomycosis threw much light on this subject. In many of the young connective-tissue cells of the bovine actinomycosis rod-shaped forms were found singly and in clumps, lying in the protoplasm outside of the nucleus. They were frequently beaded and showed much resemblance to the bacilli of tuberculosis and leprosy in cells. Some of them seemed to degenerate and die off. Others developed into small colonies with branching filaments and gradually extended to the adjoining cells. The nuclei seemed to withdraw as far as possible from the approaching organism. Finally, the cells underwent necrosis and the nuclei disappeared. As the colonies enlarged the necrosis extended and polynuclear leucocytes began to make their appearance.

The rods were also found occasionally in the denser fibrous tissue outside of the young connective-tissue cells. In the areas of softening the same form was often found in numbers in and between the leucocytes and other cells. Branching filaments were rare.

In the human actinomycosis the process was much more rapid. There was less young connective tissue and it broke down quickly. The actinomycetes showed

much less tendency to form colonies. Instead they grew luxuriantly in loose filamentous tangles and as clumps of bacilli and possibly of cocci. In the young connective tissue were frequently giant cells which also contained the organism as rods and threads. In the brain rod and filamentous forms were found in and between the cells outside of the area of softening. In the softened areas rods and wavy, spiral-branching filaments were found in great numbers in and between the cells, and small, loosely-woven colonies were very numerous.



EXPLANATION OF FIGURES IN PLATE.

- FIGS. 1 to 5 are from a case of bovine actinomycosis.
 FIGS. 6 to 13, from the case reported in the paper.
 FIG. 2 shows the rod forms in the young connective-tissue cells around an area of softening.
 FIGS. 3 and 5 show the development of a young colony in the epithelioid cells of the young connective tissue.
 FIG. 4, a leucocyte containing rod forms.
 FIG. 1, the edge of a young colony showing the swollen sheaths around the ends of the filaments. The same condition is seen in Figures 3 and 5.
 FIGS. 6 and 10, giant cells from the wall of the abscess of the brain with rods and filaments.
 FIG. 11, brain tissue just outside of the wall of the abscess showing branching filaments and two degenerating rods.
 FIG. 9, edge of a colony in the liver showing the filaments extending out beyond the clubs.
 FIG. 7, leucocyte from lung filled with rods.
 FIG. 13, branching filaments and small clumps of bacilli and perhaps of cocci in softened area of liver.
 FIG. 8, small mass of clubs, some of which are fissured, left after death of colony; from liver.
 FIG. 12, section through surface of old colony of liver showing a fused mass of clubs and a few degenerating rods and filaments.
 The drawings were all made with a Zeiss one-twelfth oil immersion and No. 4 ocular.

As a colony gets larger the centre undergoes necrosis and in this way arise the hollow-ball formations which Bostroem regards as the highest structural development of a colony. The fact that there is often an opening through the mantle is probably due also to degeneration of the filaments at one or more points, especially on a side near another colony where the supply of nourishment would undoubtedly be less.

For staining actinomycetes no method equals Gram or its modifications. The nuclei of the cells should first be stained with lithium or alum carmine. Then every form of the organism except the clubs stands out in sharpest contrast to the rest of the tissue. It is important that the tissues be thoroughly imbedded in celloidin so that the softened areas and the colonies will not drop out of the sections. If the Gram or Gram-Günther method be employed, the sections after being decolorized and dehydrated in 95 per cent. alcohol can be cleared in oil of bergamot. After mounting on the slide every trace of the oil should be removed by xylol before adding the xylol balsam. Personally I prefer Weigert's modification, because by staining on the slide the section can usually be kept flatter.

For staining the clubs in connection with the filaments in sections, the following method will be found to give quite constant results. It is Weigert's stain followed by a saturated solution of fuchsin in aniline oil:

- (1) Aniline oil gentian violet, at least ten minutes.
- (2) Iodine solution, 1-2-100 one to two minutes.
- (3) Fuchsin (saturated solution in aniline oil), two to five minutes or more.
- (4) Aniline oil. Change several times; watch the process of decolorization with low power; when sufficient, wash off the aniline oil with xylol.
- (5) Xylol balsam.

The section should be dried with filter paper between each step. The nuclei will appear sharper if the sections are first lightly stained with alum cochineal, which gives the best contrast. The filaments within the swollen sheaths can be best seen in the young colonies of bovine actinomycosis.

Infection in man with actinomycetes occurs in four ways: by the mouth and pharynx, by the respiratory tract, by the gastro-intestinal tract, and much more rarely through the skin. In a number of cases, both in man and in cattle, the source of the infection has been demonstrated to be some portion of an ear of grain on the surface of which the actinomycetes could be shown to be present.

The case here reported would seem to have been infected through the respiratory tract. From there the process extended to the left lobe of the liver. The other organs and probably the arms were infected through the blood. Although not demonstrated, it is probable that the process extended from the lungs to the abdominal wall, and that in this manner the abscess in the epigastrium arose, for it is characteristic of actinomycosis of the lungs that it has a tendency to extend to the chest wall and then to appear beneath the skin.

Actinomycosis of the brain is quite a rare lesion. Martin has just published, from Chiari's laboratory, two cases which he studied there. He was able to find record of but four others.

It has been claimed that there are a great many varieties of actinomycetes. Gasperini enumerates eighteen. This is a question which together with several

other disputed points in regard to actinomycosis will have to be left to the future to decide.

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TWO CASES OF ACTINOMYCOSIS HOMINIS, WITH REMARKS FROM A CLINICAL STAND-POINT.¹

BY HOWARD A. LOTHROP, A.M., M.D.

THE rarity of reported cases of actinomycosis in this country, due in a measure to unfamiliarity with the disease, has led me to report two cases observed in Vienna, and to make a few remarks as regards its clinical history and treatment.

CASE I was that of a man about thirty years of age, and a farmer by occupation. His family history was negative, and he stated that he had always enjoyed good health until the onset of his present illness. Somewhat over a year ago a cough set in, which became more or less troublesome and was so obstinate that he sought medical advice. He was pale and had lost considerable weight, and, in spite of treatment the lung symptoms increased, so that he was led to believe that his case was one of pulmonary tuberculosis, and that he had not long to live.

He states that six months later an abscess appeared somewhat below and to the inner side of the right nipple; this ruptured of itself, and some weeks later two smaller ones appeared near this. Meanwhile the patient continued to lose weight and strength, while there was daily considerable expectoration and free discharge of pus from these sinuses. At periods he was confined to his bed, and was subject to chills and fever especially during the last month. Sharp pains referred to the right chest had been the cause of great suffering particularly before the abscess formation. No abdominal symptoms.

Condition on Entering Hospital.—Patient well developed, but extremely emaciated and very anemic. Inspection of thorax showed a limitation of respiratory motion on the right side as compared with the left, as well as a considerable degree of retraction. In the right para-sternal line, about one inch below the nipple, was the opening of a sinus; while about an inch to the outer side of this opening were two smaller ones. Pus escaped from all of them. Right apex dull on percussion, and this area of dullness extended down along the sternum to merge with that of the heart and liver. Vocal fremitus and voice sounds increased over this area. Fine moist râles to be heard over whole right lung, while at the apex the signs were suggestive of cavity formation, and the expiratory murmur was prolonged. Over the left lung was an occasional râle, but examination was otherwise negative. Heart sounds normal. Abdomen retracted, slight epigastric tenderness. Respiration 26; pulse 86; temperature 100° F.

Although repeated examinations failed to reveal tubercle bacilli in the sputum, nevertheless the case was considered one of pulmonary tuberculosis with empyema.

The further history of this case until death, two weeks later, presented nothing remarkable.

Autopsy, twelve hours after death. Rigor mortis present. In the chest were openings of three sinuses, as described above, which admitted large probes for several inches and out of which exuded pus which was very slimy and tenacious in character. Careful examination of this pus with the naked eye revealed numerous small sulphur-colored bodies smaller than the head of a pin; and the suspicion of this being a case of actinomycosis was verified later with the microscope. On opening the chest, the heart was found to be normal, the left lung collapsed, but the right one remained firmly held on all sides by thick, fibrous, pleuritic adhesions. Section of right lung showed areas of broncho-pneumonia scattered throughout the upper and middle lobes, and many of the bronchi filled with a purulent secretion, while these lobes anteriorly were firm, elastic and honeycombed with sinuses and cavities, none of which were larger than a walnut. The same characteristic pus was seen throughout these lobes. The anterior mediastinum was involved in the process; the costal cartilages and sternum about the sinuses were eroded. The adjacent parts of the pericardium and diaphragm were considerably indurated. In the left lung there was nothing abnormal except a slight secretion in some of the smaller bronchi. No excess of peritoneal fluid in the abdomen. Liver and diaphragm united by old fibrous adhesions anteriorly. In the left kidney was a metastatic abscess, size of a pea, containing pus in which were found the actinomycetes bodies. Mucous membranes of the mouth intact; no carious teeth. Result of autopsy otherwise negative. Careful microscopic examination revealed the tissue changes and bacterial developments characteristic of actinomycosis, a description which does not come within the scope of this paper.

CASE II. Female, aged nineteen years, employed at housework. Family history negative. Had never been very strong, but remembered having had no serious sickness during childhood. Two years ago she began to have abdominal pain, worse during the menstrual period, located at first deep within the pelvis, but later it became more indefinite and diffuse over whole lower abdomen. Soon there appeared a tender area on the left side just above Poupart's ligament which developed into an abscess. Patient stated that she had considerable fever at this time and was confined to her bed; also that considerable pus escaped on opening this abscess, and there had remained a discharging sinus ever since. During the last year her menses had been very scanty and irregular; the urine had been very turbid and foul while emaciation and loss of strength had steadily progressed. She had never had any cough and her bowels had been easily regulated. She had been confined to her bed for the last four months.

On entering the hospital, her condition was as follows: She complained of some pain in the lower abdomen, and of frequent micturition with considerable vesical tenesmus. There was loss of appetite, and patient was too weak to help herself in any way. There was considerable diarrhea, but no mucus or pus was found in the stools. No symptoms referable to the thorax.

On inspection she was seen to be fairly developed, but very poorly nourished and anemic in the extreme. The chest presented nothing abnormal. The abdomen

¹ Read before the Harvard '87 Medical Club, February 12, 1895.

was not distended. On a line about one-third of the distance from the centre of Poupart's ligament to the umbilicus, was the opening of a sinus from which there was a profuse discharge of pus, tenacious and slimy in character, and close inspection revealed the presence of the minute sulphur-colored bodies characteristic of actinomycosis. This region was tender; the skin edematous, red and indurated. Percussion and deep palpation revealed a tumor about the size of a large cocoanut corresponding to the left ovarian region. Vaginal examination showed that all the pelvic organs were glued together in one firm, resistant mass. The urine contained a few hyaline and granular casts, otherwise was that seen in a case of chronic purulent cystitis. Actinomyces colonies were found in the urine.

Patient died two days after entrance.

Autopsy, sixteen hours after death. Rigor mortis present. Extreme emaciation. Heart and lungs presented nothing abnormal. The abdomen was somewhat prominent; sinus on the left, as noted above. A small amount of turbid fluid escaped on opening the cavity. Corresponding to the tumor described above, the intestines, omentum, left ovary, uterus and bladder were glued together in one mass by fibrous and fibrinous adhesions. Many small abscesses were scattered throughout this mass, connected by small, tortuous sinuses, some of which led to the opening in the abdominal wall, others to the opening into the bladder. The left ovary was about twice the normal size, indurated and honeycombed with minute abscesses and sinuses. Right ovary normal on section. Both tubes filled with pus, some of which had escaped into the uterus, which was otherwise normal. Bladder wall near entrance of left ureter perforated and thickened so as nearly to occlude this ureter. Liver, kidneys and spleen showed the reaction for amyloid degeneration. Pyelonephritis of both kidneys, with pyonephrosis on the left. Careful examination of intestinal mucous membrane revealed in the sigmoid flexure an indurated pigmented scar about one-half an inch in diameter, and this was considered to be the primary source of infection. Some retroperitoneal glands hypertrophied. Buccal mucous membrane and teeth in good condition. The diagnosis of actinomycosis was verified later by careful microscopic examinations and culture experiments.

HISTORY.

The occurrence of actinomycosis is undoubtedly more frequent than statistics would lead us to infer, as shown by the number of cases diagnosed for the first time on the autopsy table. Being a disease of comparatively recent discovery, failure of the clinician to make a diagnosis may be due either to omission in differentiating the possibilities suggested by any given case, or to unfamiliarity with the disease in question. Consequently, as the histological and developmental phases have been carefully presented in a recent article by Dr. F. B. Mallory, a few remarks from a clinical standpoint may not be amiss.

In 1879 actinomycosis had been discovered in man, and found to be identical with bovine actinomycosis. In 1886 there were about seventy-five well authenticated and published cases, and at the present time there are reports of about four hundred and seventy-five. This would suggest that the disease was on the increase, but the more probable explanation is that the

profession is more alert to make such a diagnosis according as opportunity presents.

As yet, notwithstanding most careful and scientific investigations, the etiology, morphology and exact tissue changes are still somewhat obscure. It is most probable, however, that actinomycosis is caused by one of the higher orders of bacteria resembling cladothrix and that in nature its habitat is to be found on certain cereals. That the disease is contagious and due to a specific germ, is proved by the fact that these germs have been isolated, made to flourish in culture media, and have been inoculated from beast to beast, and from man to beast. Most of the recorded cases come from Germany, Austria and Russia; but neither age nor occupation seems to be of value as regards occurrence. Males are about three times as liable as females to become victims.

CLINICAL HISTORY AND DIAGNOSIS.

Actinomycosis is essentially a chronic disease, but the clinical pictures are at extreme variance according to the seat of origin and the presence or absence of the cocci of septic infection. The actinomyces colonies of themselves do not lead to pus formation. When once a colony is established in any given organ, it spreads either by direct extension (contact), or by means of the blood system, never by lymph-channels, for in non-septic cases the lymph-glands remain normal. When sepsis has become a complication in any given case, than the corresponding glands swell, but, nevertheless, are free from actinomyces colonies unless the diseased parts and the glands are in direct contact. In uncomplicated cases the subjective symptoms are generally trivial; the entrance of pyogenic organisms, however, may be of serious moment and lead to most disastrous results.

As regards certain general considerations applicable to all cases, a careful inspection of the pus is the most important, for by this means alone most cases can be recognized, and this should be a routine procedure in all cases of chronic suppuration. In actinomycosis the pus is more translucent, slimy and tenacious, varying according to the degree of septic infection. A small amount should be spread in a thin layer over any dark colored surface, with the idea of searching for small yellow bodies about half the size of the head of a pin. Some are quite translucent and very pale, others opaque and sulphur-colored. If such bodies are present their nature should be determined by the microscope. Given a suspicious case where none of the colonies can be detected with the naked eye, the microscope should invariably be resorted to. It is beyond the scope of this paper to deal with the histological appearances and requisite staining processes.

The appearance of an abscess is very often the first symptom to which our attention is called. If sinuses have formed the clinician can hardly fail to observe the relatively large amount of induration. Rather than one large abscess cavity, we more often find a series of small abscesses connected by tortuous sinuses. The pus from these small, freshly-opened abscesses is particularly characteristic.

In order to understand more fully the diversity of symptoms and appearances produced by actinomyces invasion, we shall consider separately the four primary sources of infection:

I. Head, including face, neck, tongue, teeth and gums.

II. Lungs.

III. Intestinal tract.

IV. Skin.

I. Head. More than 60 per cent. of the recorded cases come under this class. The germ may find its primary nidus in the pulp of a carious tooth, the tartar at its base, in any abrasion of the buccal mucous membrane, or even on the tongue. Its presence may escape detection until we are called upon to open an abscess pointing externally, commonly about the inferior maxilla. It may spread to any part of the face and neck, or seek deep regions and find its way into the cranial cavity. In many cases bone tissue may be eroded and occasionally necrosed.

A list of diseases for eliminative diagnosis may be of service in suggesting the variety of pathological appearances which could be brought about by actinomycosis invasion.

- (1) Malignant disease.
- (2) Primary syphilitic lesions.
- (3) Gummata.
- (4) Simple periostitis (cocci infection) and necrosis of facial bones.
- (5) Dentigerous cysts.
- (6) Epulis.
- (7) Tubercular processes.
- (8) Actinomycosis.
- (9) Ulcerative stomatitis (non specific).

II. Lungs. Here the germs are inspired, either directly from the exterior or from colonies already established somewhere in the buccal cavity. The early symptoms are apt to be very obscure and baffle the skill of the most careful and experienced diagnostician. There is generally the history of cough, but only in the later stages do we find a sputum containing colonies, and even this may fail. Most of these cases run a course very similar to fatal cases of pulmonary tuberculosis, complicated or not by empyema. Actinomycosis, however, shows a great tendency to invade the mediastina and reach the surface of the body; and sooner or later we find an abscess formation, commonly on either side of the sternum and near its lower costal attachments. Unless there has been a characteristic sputum, this may be the first opportunity to establish a diagnosis. Areas of consolidation and fluid accumulation give the usual signs on auscultation and percussion. Occasionally a case may run its course without lung symptoms, and an abscess formation is the first intimation we have of disease; this would seem to be the most hopeful class of lung actinomycosis, there being two recoveries on record.

DIFFERENTIAL DIAGNOSIS.

1. Pulmonary tuberculosis.
2. Empyema.
3. Broncho-pneumonia.
4. Fibroid phthisis.
5. Chronic pleurisy.
6. Pulmonary syphilis.
7. Echinococcus.
8. Gummata in chest wall and mediastinum.
9. Caries rib, — simple, tubercular, syphilitic.
10. Malignant disease.
11. Retro-mammary abscess.
12. Abscess pulmonum.
13. Actinomycosis.

III. Intestinal tract. Includes approximately 20 per cent. of all cases. Germ probably enters with the ingesta. Nature of clinical symptoms open to great variation, as suggested by the table for differential diagnosis. For the sake of classification, we may consider the two following fairly well-marked groups of cases:

(a) Where the lesions are confined to the pelvic organs and retro-peritoneal tissues, and give rise to obscure symptoms according to their exact location, and finally reach the surface at a late period, after the patient's general condition has been seriously impaired. The diagnosis in these cases must often be a matter of conjecture until too late to hope for recovery.

(b) Where there may be no symptoms attributable to any of the abdominal viscera and our attention is first attracted to an area in the abdominal wall which may be red, swollen, indurated, tender and painful. This may develop into an abscess if left to itself, but after the first discharge of pus there remains the characteristic induration, tortuous sinuses and recurrent small abscess formations. These cases have been permanently relieved by total excision, before abscess formation, with the idea that they were malignant tumors, some calling for partial resection of intestine.

Extensive septic infection in abdominal actinomycosis is often a serious complication, and such cases are liable to run a very acute course.

DIFFERENTIAL DIAGNOSIS.

1. Malignant disease in abdominal wall.
2. Gummata.
3. Chronic pelvic inflammatory processes.
4. Inflammation and tumors about the cecum and appendix. { Tubercular, syphilitic, malignant, streptococcus or staphylococcus invasion; concretions and foreign bodies in appendix.
5. Actinomycosis.
6. Chronic tubercular peritonitis.
7. Perinephritis abscesses.
8. Chronic suppurative affections about the liver.
9. All abdominal fistulae, not readily accounted for, should lead to a careful inspection of the discharge.

IV. Skin. Primary actinomycosis of the skin has been but recently discovered, and is characterized by a chronic ulcerative process. Pus is generally characteristic, and the diagnosis is readily made if the actinomyces colonies are looked for.

DIFFERENTIAL DIAGNOSIS.

1. Syphilis.
2. Cutaneous tuberculosis (scrofuloderma, lupus, tuberculosis of skin).
3. Epithelioma.
4. Actinomycosis.

PROGNOSIS.

Until recently actinomycosis has been looked upon as a very serious disease, but the latest statistics from large clinics are very encouraging. If the lesions are superficial and accessible to surgical treatment, we have much to hope for; if the lesions are deep seated and situated where interference means serious risk to life, then the prognosis is not encouraging, and up to the present time such cases end their miserable existence as victims of a long, wasting disease.

Of the head cases more than 50 per cent. recover; but two lung cases are reported as having recovered, it being six years since their wounds were healed and no recurrence has taken place. Abdominal cases are hopeful where the pathological process is confined to the abdominal wall or near it, but it is a very serious matter when the retro-peritoneal tissues and organs become involved.

Skin cases ought invariably to recover if treatment has not been too long deferred.

TREATMENT.

A. Prophylactic.

- (1) Legislation which would lead to the extermination of bovine actinomycosis.
- (2) Avoiding uncooked cereals in suspicious localities.

(3) Suitable precautions during the treatment of existing cases.

(4) Proper care of teeth and mouth.

B. Curative.

Many cases tend to recover if left alone, as shown by scars and the study of tissue changes where the lesions are superficial. The colonies thrive best when removed from oxygen, as shown by laboratory experiments, thus we can understand why deep-seated lesions make such rapid progress and so often terminate fatally. This fact can be taken advantage of in the treatment, as will be mentioned below.

(1) Internal medication. Only very recently has this mode of treatment received serious consideration. From several reliable sources come reports of the almost specific value of the iodide of potash, administered in doses of thirty to forty grains three times a day. Its use cannot be considered harmful, and all such cases should have the benefit of a trial. It is our only refuge in cases unsuitable for surgical treatment.

(2) External medication. The important antiseptic solutions used to-day will destroy the colonies with which they come in contact; the most valuable for irrigation and washes are corrosive sublimate, carbolic acid and peroxide of hydrogen. Iodoform gauze packings are very efficient as well as applications of solid nitrate of silver.

(3) Operative procedures. These are far less bold than formerly. Excisions of the maxillæ are now rarely necessary. We are guided by the fact that the actinomyces colonies thrive far less luxuriantly when exposed to oxygen. All abscesses should be freely opened and their walls thoroughly curetted. Pockets for pus should be obliterated and sinuses carefully followed up and laid open. General principles, applicable to all cases of septic infection, should be resorted to according to indications. Daily irrigations with antiseptics above mentioned should be used, suspicious spots touched with silver nitrate from time to time, and then iodoform dressings applied.

If possible, small isolated foci should be excised, and, if thoroughly done, there need be no fear of recurrence. In lung and deep abdominal cases, surgical methods are of less avail, and one is forced to rely upon the iodide of potash, with the hope that recent claims as regards the value of this drug in actinomycosis will reach our expectations.

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ACTINOMYCOSIS OF THE ABDOMINAL WALL.

BY S. J. MIXTER, M.D.

THE patient was an old man, between sixty and seventy, who had never had anything to do with cattle. He came to the hospital on account of a little bunch just below the umbilicus directly in the median line, which gave him some pain. I etherized him, and started to remove this mass which I thought might be malignant, perhaps of the abdominal wall or perhaps starting from the urachus. It was in the position where you sometimes find the abscesses or tumors starting from the urachus or umbilicus. There seemed to be no clearly defined outline, and finally I went through the abdominal wall on all sides, cutting clear round through the peritoneum expecting it would then be free. I found, however, omentum and intestine attached to it. These were drawn out through the wound, everything freed from the abdominal wall, and the mass was gradually dissected away from the intestine, going down to its submucous coat. Thinking it might be malignant I was intending to excise the intestinal loop. Just then Dr. Whitney came in, having examined the supposed pus, and said it was actinomycosis; so the wounded intestine was folded in by stitches beyond the torn edges, and the wound was united, the whole thing being thoroughly removed as far as could be seen. The fish-bones were not found for some days or weeks afterwards, but at the time of the operation, before I had separated it from the intestine, I cut into it to see if this mass were inflammatory or malignant and found this pus. I said at the time that this was very much like a skewer abscess in the dog. I have seen quite a number of times abscesses which formed in dogs from swallowing the wooden skewers that come in meat. These get into the stomach or intestine and perforate their walls which become adherent to the abdominal parietes, and an abscess forms on the outside, bursts, and the pus and skewer are discharged. It was practically such a process here, because these fish-bones were right in this mass and were the cause of the trouble. They must, I suppose, have carried the infection.

It will be interesting to follow this patient, and see if it is a cure. There was no sign of anything in any other part of the body, and the mass was not very large and was removed with very wide border. The umbilicus was removed; and I should say the incision was something like four or five inches long when sewed up, and part of the rectus muscle on each side having been excised it took a good deal of force to bring the edges of the wound together. It united perfectly, and he had no further symptoms.

The specimen removed consisted of an irregularly oval mass of fibrous-looking tissue to which the umbilicus and skin were adherent on one side and a little fatty tissue on the other. The section exposed a pale, slightly dull surface in which were several small cavities containing a little puriform fluid in which were

numerous minute opaque granules. Imbedded in the tissue were two spindle-shaped fish-bones the size of a hair-pin and about three-fourths of an inch in length.

Microscopic examination of the granules showed them to be made up of masses of minute clubbed and branching bodies radiating from the centre. These were in every way similar to the polymorphous bacillus found in the disease of actinomycosis. The mass was made of rather elongated, and in places round cells, recalling more the structure of a sarcoma than the simple fibrous tissue found surrounding ordinary inflammatory processes.

In this case there is no doubt but that the perforation of the wall of the intestine by the bone was the primary lesion and in the track of this that the actinomycosis had developed.

DOES ETHERIZATION EVER CAUSE ACUTE LOBAR PNEUMONIA?¹

BY W. H. PRESCOTT, M.D.

A CASE of pneumonia following an etherization made for the purpose of diagnosis, and occurring in the service of Dr. W. N. Bullard was the cause of this inquiry.

The dangers of and sequelæ to etherization are of sufficient importance to justify any research.

I have been able to find no reference to ether as a cause of pneumonia. I mean the exciting cause; for most authorities agree that acute lobar pneumonia is due to the pneumococcus, although some cases have been attributed to the bacillus of Friedlander and other organisms.

Scattered through the mass of papers yearly written, or in the proceedings of the societies, there are probably many cases where a pneumonia has complicated to a greater or less degree the recovery from an etherization; but it would be impossible to collect all the cases from such sources. I have found, or had sent to me, the record of four; three being in gynecological cases, and one being after etherization for the extraction of a tooth. There is nothing of importance in these records, as they are limited to the fact that during the convalescence the patients had an attack of pneumonia.

There are many cases of broncho-pneumonia and inhalation-pneumonia and cases with pulmonary symptoms, no definite diagnosis being possible, as among the drunkards who have been etherized for the purpose of dressing a compound fracture; but these, while interesting, do not bear upon the subject. A number of physicians, whom I have asked about this matter, have thought they remembered cases of pneumonia, but upon looking them up have found them to be cases of broncho-pneumonia or of inhalation-pneumonia.

In looking up the subject I have been permitted to examine the records of the Massachusetts General Hospital, the Boston City Hospital, the Carney Hospital and the Free Hospital for Women; and I wish to express my obligations to the officers and staffs of these institutions.

At the Free Hospital for Women there was only one case which was suspicious, but there was nothing in the records (there was no autopsy) which would point to the case as being one of acute lobar pneumonia. Dr. F. H. Davenport, under whose care the patient

was, and who was kind enough to call my attention to it, said he thought it was a case of pneumonia, although he never could find any physical signs to bear out his opinion. The facts were these: C. H., age forty-three, married, was etherized November 10th (after having been in the hospital six weeks), and colporrhaphy and perineorrhaphy performed. That night the temperature was 105.2°, and nothing was found at any time to explain the condition. Death occurred November 16th, both operation wounds being in good condition.

At the City Hospital I could find no account of a case, although I searched through all the autopsy records (and many of the clinical records) previous to January, 1893. (Dr. Abner Post told me he remembered one case, but I could not find it in the records.)

In looking through the records at the Massachusetts General Hospital, I was aided very much by the excellent paper by Townsend and Coolidge. At this hospital I found one case (Case II), although about the same time there were a number of cases with severe bronchitis.

In the records of the Carney Hospital I found one case (Case I), and another case with severe bronchitis.¹

Dr. E. W. Cushing has kindly given me notes of the only case occurring in his practice, both private and hospital.

I have no means of accurately judging of the number of etherizations during the time covered by my researches, but there were probably more than forty thousand.

CASE I. B. C., forty, a widow, native of Ireland. Entered the Carney Hospital January 29, 1891, in the service of Dr. Bullard. Family history negative. Well up to one year ago, except for rheumatism nine years ago. Catamenia began at fifteen, and has always been regular until a year ago. During the last year she has been very irregular, and has not menstruated at all for four months. Married fifteen years; no children; no miscarriages. Had frequent micturition at first of her present sickness, but at present had no trouble. Feet swell some at night. Constipation. Appetite fair. Heart and lungs negative. Hepatic dulness diminished. Abdomen distended, somewhat tense, rather dull over central portion, normal in flanks, no fluid detected. Vaginal examination unsatisfactory, but reveals nothing abnormal.

February 8th. Abdomen no longer tender. Large swelling felt, occupying front part of abdomen; somewhat movable, suggesting a pregnant uterus. Fetal heart not distinctly heard; some movement apparently seen and felt in first part of examination. There was a prominence in left epigastric region, which disappeared.

February 10th. Examined again to-day. Not as suggestive of pregnancy. Tumor can be distinctly felt, and is a firm, somewhat irregularly rounded mass, freely movable. Some tenderness in left hypochondrium.

February 14th. Examination under ether. Drs. Gavin, Bullard, Johnson and Conant present. Tumor found occupying a large part of the abdomen; firm, somewhat irregular, quite freely movable. Uterus of about normal size. Vagina and cervix soft and velvety. Result of consultation: operation for removal of tumor advised.

February 16th. Patient refused operation. Last evening was taken with a severe chill. Cough, bloody

¹ Read before the Boston Society for Medical Improvement, December 10, 1894.

² Dr. W. N. Bullard has told me since this paper was prepared that this case was also one of pneumonia, but the records confirmed nothing to make such a diagnosis probable.

sputa, and pain in right lower back; considerable dyspnea and some cyanosis. Dulness in right back below angle of scapula; bronchial breathing; few sub-crepitant râles.

February 20th. Has been in about the same condition since last entry until last night about twelve, when during a coughing spell there was a gush of water from the vagina, and since then she has been having pains at intervals in lower abdomen. Presentation, breech. Baby born at 2.45 P. M., apparently an eight months' fetus. After much labor the baby was made to breathe, and lived about five hours. At 9 P. M. patient comfortable and apparently in good condition.

February 21st. At 2 A. M. the patient was found unconscious, with dyspnea and cyanosis; pulse not very rapid but feeble. In spite of stimulation, she sank, and died about 6 A. M.

The autopsy showed the right lung, with exception of the very apex, completely solidified.

In this case the symptoms just preceding death would suggest pulmonary embolism as the immediate cause of death, but there is no mention of any having been found.

CASE II. B. C., fifty-three, widow. Admitted to the Massachusetts General Hospital, October 7, 1891, in the service of Drs. Porter and Cabot, and gave the following history: No catamenia for seven years. Has had nine children, being badly torn at the time of her first labor. Discharge from the vagina since last spring, not much before. No bearing down; much backache; some smarting in the vagina. Is now quite weak and has been in bed most of the time during the four weeks preceding entrance.

Examination showed marked irritation of the vagina, with some glairy discharge; cervix lacerated bilaterally; sides of os eroded to a distance of one-half inch beyond the cervical canal; perineum ruptured almost through the sphincter. Temperature 99.6°, pulse 106, respiration 21. Urine pale, specific gravity 1.015; albumin absent.

Corrosive sublimate douche (1 to 10,000) morning and night, cervix painted every other day with glycerite of tannin.

November 6th. Has been doing very well, and the os is looking so well that it is not necessary to operate upon it. Ether. Edges, sides and base of perineum dissected away with scissors as far as the loose tissue, and then brought together with five wire and two cat-gut sutures.

November 10th. Patient complains of some considerable pain in lower right chest, and on examination by Dr. W. W. Gannett is found to have pneumonia of the right lower lobe. No cough; no expectoration.

November 15th. Patient's local condition about the same.

November 17th. Stitches out. Perineum in good condition.

November 24th. Patient evidently much worse, although the pneumonia is resolving. Heart shows systolic murmur. It is a question whether the heart trouble is new or old.

November 25th. Patient has been slowly failing for the last twenty-four hours; and, in spite of stimulation, she died at 1.20. No autopsy.

CASE III occurred at the private hospital of Dr. E. W. Cushing.

A. B., sixty, was operated upon two days after severe

exposure, during which there was a slight chill. Three days after operation her temperature arose to 105°, and she had an attack of acute lobar pneumonia, which complicated her convalescence, but she eventually recovered.

It seems fair, in conclusion, to say, considering the large number of etherizations and the small number of pneumonias reported, that ether rarely acts as the exciting cause of acute lobar pneumonia, and that the few cases found may have been simple coincidences, as Dr. Cushing's case evidently was.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D.

ADENO-CARCINOMA OF THE SKIN, ORIGINATING IN THE COIL-GLANDS.

AN example of this rare affection is reported by Dr. Fordyce in the *Journal of Cutaneous and Genito-Urinary Diseases* for February, 1895. He begins by speaking of the different forms assumed by epithelioma of the skin histologically and of the different forms of epithelial cells represented. The tubular form of skin cancer which includes rodent ulcer, may be derived from the epidermis, from the outer root sheath of the hair follicles, and possibly from the glands of the skin. It is to be noted that clinically identical epitheliomata may have various points of origin. Fordyce has examined small benign "pearly" tumors of the face, which are found to be due to epithelial down-growths which have undergone a hyaline degeneration. Sometimes these growths may ulcerate in the centre and spread peripherally. They are much like the benign cystic epithelioma, the histology of which has been carefully studied by Dr. Fordyce.

Adenoma of the sweat-glands is a very rare affection, and few cases with this title have ever been reported. Pathologists are not agreed as to the part played by the sweat-glands in tubular epithelioma. Many have erroneously concluded that when tubular epithelial structures resembling sweat-glands were found, the growth had started from these glands. The location of these growths, away from mucous orifices, where the vascular supply and sources for irritation are less, seems to be the reason for their benign nature rather than their structure or origin. Tubular epithelioma is probably the same pathologically as rodent ulcer. Some writers consider that it arises from the sweat-glands.

The case reported by Dr. Fordyce was that of a man thirty-five years old, from the anterior surface of whose leg the tumor was excised. It was soft, lobulated, about one-half the size of a small egg, and was covered by a small open ulcer. Histologically it consisted of bands and masses of epithelial cells, which strikingly suggested a glandular structure. Cavities containing a colloid substance were found in the epithelial masses. Sweat-ducts enlarged and proliferating were seen, where the lumen and peri-glandular connective tissue were filled with epithelial cells. In the outer parts of the tumor the gland-like structure is not seen, but we have the appearances of an alveolar carcinoma. No participation of the other parts of the skin was found and there were no epidermic globes.

The difference between this tumor and the small-celled cancer which starts from the epidermis, was that in the latter the cells are larger, have no distinct basement membrane, and the tubules do not copy so closely the glandular structure. Fordyce says truly that it is often impossible when a tumor has been in part destroyed by ulceration, to say in what structures the growth started, as those very portions may have been involved in the ulceration. In this case there could be no question of the glandular structure. Karyokinesis of the glandular cells was well seen.

PARASITES OF MOLLUSCUM CONTAGIOSUM.¹

At the Fourth German Dermatological Congress Neisser again enunciated his well-known views of the coccidial nature of the contents of the molluscum bodies, and brought forward some new evidence. With regard to the question of psorosperms found in cancer, his own numerous investigations had afforded no sure proof of the existence of cancer parasites. Yet so many remarkable appearances have been discovered that he is stimulated to new investigation.

With regard to molluscum contagiosum, a point of great importance is that specimens hardened in alcohol, while giving a striking histological picture, do not throw light upon the question of parasites. The best specimens are obtained from fresh sections cut with the freezing microtome, best examined in common water. In such sections the transition from normal to altered epithelium is seen. Granular-looking masses sharply bounded are seen in the cells, which gradually are developed into well-defined bodies which are either still somewhat granular, or are smooth and homogeneous. The highest point of development shows a number of large cells, in which, when the nucleus is visible, bodies of variable size, glistening and homogeneous, surrounded by a distinct membrane are seen. These appearances are so striking that they cannot be passed by with the answer "degeneration." The question is asked if a similar degeneration has ever been seen in any other organ. It corresponds to none of the known forms of degeneration, colloid, hyaline, horny, or any other. It is true that the homogeneous bodies seen in these preparations, which he considers to be spores of a spore-cyst, do not fulfil all the requirements of the typical spore-cysts of other protozoa. But it must not be forgotten that the parasites develop here under quite abnormal conditions, being inclosed in epithelial cells which are undergoing a corneous degeneration.

We have, at least, a great many points of analogy between each individual stage and the known developmental stages of other sporozoa; we have the fact that these cell forms without analogy in human pathology, are found in a contagious and inoculable new formation; and that they are included in the epithelial new growths. Numerous attempts have been continually made by Neisser to obtain a further stage of development of the appearances in question, but without any definite results. The most convincing pictures were obtained from fresh sections of mollusca which had been kept in a moist chamber.

As regards the pathological histology of molluscum, the view that it is a degeneration of the sebaceous glands has been abandoned, even Kaposi at present describing it as a benign epithelial growth. Neisser believes that it is developed from the epithelium of

the rete, without any participation of the epithelium of the follicle as has been maintained, although he does not deny the possibility that the follicle may be the starting point.

LOCALIZED ERYTHEMATOUS PIGMENTED ERUPTION DUE TO ANTIPIRYNE.²

At the meeting of the Société de Dermatologie et de Syphiligraphie of March 8, 1894, Brocq offered the following communication on antipyrine eruptions:

In 1891 he was consulted by a woman of twenty-five years, who presented at her menstrual periods a reddish plaque with pretty sharply defined borders, disappearing only partially on pressure, with infiltration most marked at the centre, diminishing toward the edges, which was the seat of an acute burning sensation. After some days the redness would begin to fade, and the infiltration to diminish, but a pigmentation always remained until the next menstrual period, when the plaque reappeared as intensely as before, and in the same place. It was situated on the anterior surface of the left wrist, together with a smaller one of like nature on the side of the neck. The eruption continued to appear regularly at each menstrual period, becoming rather more marked.

Soon afterward another patient was seen, a young girl, who exhibited a like lesion on the back of the right hand, which left a pigmented spot in the intervals, and it was for this that she sought advice. Meanwhile the first patient had presented herself again, this time with an eruption of the plaque at a time when she was not menstruating, and it was then discovered that the night before this last attack she had taken a dose of antipyrine for a headache, and further inquiry revealed the fact that she was in the habit of taking a dose of antipyrine to quiet the pain, at the approach of her periods.

Other cases are cited. A woman of fifty had been affected for six months with similar plaques on the arm, shoulder, and in the lumbar region. They appeared in irregular outbreaks, and left pigmented spots. Sarcoma of the skin had been suggested by a physician, which caused great alarm. On inquiry it was found that she had never taken antipyrine, but confessed that she had frequently taken analgesine, and the appearance of the plaques coincided with the time when the drug was ingested. A man of thirty had been in the habit of taking antipyrine for severe headaches. Large oval plaques would make their appearance on the arms, back and thighs, pigmented, and leaving brown stains. Three hours after taking the antipyrine, burning and itching sensations were experienced, and the following morning the eruption would appear. In this case the effect of the drug was actually proved by trial.

Somewhat similar cases have, it is true, been recorded, but none exactly like those described here. Brocq insists particularly on the small number and circumscribed boundaries of the cutaneous eruptions, upon their pigmentation, and upon their curious tendency to recur always at the same place. The latter tendency is observed in other dermatoses, but usually in particular regions, as the ears, eyelids, genital regions, etc., while here it may occur at any part.

These eruptions are kindred to the rare bullous form that may be produced by antipyrine. A young man of twenty-three could never take the drug without

¹ Verhandl. der IV Deutschen Dermatol.-Congresses.

² Annales de Derm. et de Syph., March, 1894.

having an erythematous and bullous eruption of the prepuce and scrotum accompanied by much edema. The localization was always the same.

At the same meeting of the society Wickham showed for Professor Fournier an erythematous eruption simulating closely a syphilitic roseola. At first sight only syphilis would be thought of, although the macules were perhaps of a rather brighter red than in syphilis. No trace of syphilis could be discovered, whereas it was found that the eruption had quickly followed the ingestion of two grammes of antipyrine taken during two successive days. Fournier remarked that he had at first made a diagnosis of syphilis, but that the patient's energetic denials had forced him to a farther study of the case. Antipyrine eruptions could also closely simulate measles.

LICHEN SCROFULOSORUM.³

Since the introduction of the modern methods of microscopical examination, this affection has received new attention. Jakobi, Hallopeau and Sack have declared their belief in its tuberculous character, on the ground of a similarity in its histological features with true tuberculous tissue. Lukasiewicz's observations included 43 cases of the affection, of whom 35 were men and eight were women, seen at the Vienna clinic. They were characteristic cases of the type described by Hebra, namely, small grouped or partly discrete nodules, seated mostly upon the trunk, light or dark red, tipped with a thin, fatty scale, or sometimes a diminutive pustule. In some cases the extremities also were affected. Frequently the peculiar eczema of the pubic and inguinal region was present together with acne cachecticorum of the lower extremities. In 21 cases the eruption was seated upon the trunk alone; in 11 cases on the extremities also; in one upon the lower extremities solely. In 36 of the cases there was a circinate arrangement. It was almost always possible to distinguish the individual nodules of which a plaque was composed.

The most severe cases were made to disappear in from two to eight weeks, under simple strengthening treatment, although external applications, such as cod-liver oil, zinc paste, and ichthyol were used in order to hasten the cure. Two patients suffered a relapse two months after leaving the hospital. A patient with extensive lupus of the extremities, had four attacks of lichen scrofulosorum on the trunk in three years, without any apparent effect upon the lupus. These relapses usually occurred in patients who were outside the hospital in unfavorable hygienic conditions. Most of the cases were in patients between the ages of two and twenty-five. In seven cases there was glandular enlargement, in three scrofuloderma, in six lupus. One patient died of internal tuberculosis. In eight there was a history of hereditary tuberculosis.

Pieces of skin from 12 cases were examined histologically. In the youngest papules, granulation tissue, consisting mostly of epithelioid cells, was found about the follicles. In a more advanced stage giant cells with nuclei arranged about the centre appear, and they become more numerous as the process advances. The infiltration is grouped about the vessels and lymph-spaces also. The sweat-glands are seen to be affected at all stages of the process. At first they are surrounded by a round-celled infiltration, later their place is found to be occupied by a granulation tissue con-

sisting of epithelioid and large, round, giant cells. The latter are sharply bounded, with peripherally arranged nuclei. No evidence of necrosis was seen in any of the preparations. From these histological appearances, the process could not be considered a true tuberculosis, as there was an abundance of vascular supply, and the infiltration was arranged in bands, and never simulated the sharply-bounded, non-vascular nodules of tuberculosis. There is also an absence of cheesy degeneration and the consequent softening and ulceration in lichen scrofulosorum.

The clinical, comparatively benign course of the affection also speaks against its tuberculous nature; no known form of cutaneous tuberculosis is developed and disappears in so short a time. Tubercle bacilli were searched for in vain. Inoculation experiments upon guinea-pigs yielded no result. The writer regards this process as an inflammation which is the expression of a disturbance of nutrition. It is usually met with in tuberculous subjects, not however, in direct connection with the tuberculosis, but in consequence of the cachexia. He does not, like Richl, regard the giant cells as the result of the action of foreign bodies. They are not only found about the hair follicles, but in much greater numbers in the place of the coil-glands. He regards the epithelium of the sweat-glands as playing an important part in the formation of these giant cells.

PIGMENTATION FROM THE USE OF ARSENIC.⁴

Hebra declared long ago that patients affected with psoriasis who had been treated with arsenic, were especially liable to pigmentation of the skin. His belief was that there was a causal connection between the arsenic medication and the discoloration of the skin. He therefore counselled leaving off the arsenic treatment on the appearance of brown stains upon the skin. Devergie and Bazin also speak of taches arsenicales. Later, observations were published showing that pigmentation of the skin occurred after the use of arsenic for internal disorders, in cases where it could not be ascribed to the disease itself. This pigmentation has acquired the name of arsenic melanosis.

According to Förster, Hafter and Wyss, the pigmentation from arsenic begins with a yellowish-brown color on the face, trunk, or extremities, and is usually in isolated patches, which may later become confluent. By a persistent use of the drug large portions of the body can become uniformly dark brown. The mucous membranes that are visible remain free from coloration. In its localization on the skin, the pigment from the use of arsenic does not differ from that of Addison's disease. A radical difference, however, lies in the pigmentation of the mucous membranes in Addison's disease, which does not occur in arsenic melanosis. There is no evidence to show that those who have a predisposition to physiological increase of pigment, are the ones usually affected by the arsenic melanosis.

The writer then relates a case of this description, which had been under his own observation. A man of twenty-three years, was treated for psoriasis at first with a ten-per-cent. chrysarobin-traumaticin solution locally. After fourteen days, when the stain from this medication had totally disappeared, he was put upon arsenious acid internally. Two weeks later, when about three-tenths of a gramme of arsenious acid had

³ Archiv. f. Derm. u. Syph., Heft. 1, 1894.

⁴ Müller: Archiv. f. Derm. u. Syph., 1893.

been taken, numerous pigment spots began to appear on his body. They were partly in places that had been covered by psoriasis, were partly independent of these. Face, head and neck, hands and feet, were the only parts not affected by the pigmentation. A microscopical examination of a bit of skin showed the pigment present in the epithelium and in the corium. In the epithelium it was most abundant in the basal cells. It was also to be seen outside of the cells, in the form of small, brown, anastomosing lines. In the corium the greatest collection of pigment was in the papillæ, which contained eight to fifteen pigment masses each, of irregular shape. Granular bands of pigment were also seen here. Whether these pigment masses were really pigmented cells or only free clumps of coloring matter, could not be definitely determined, although it was evident that a portion of them, at least, represented cells. In accord with the investigations of other pigmented conditions, the writer was able to trace the pigmented masses from the cutis upward to the cells of the rete. As to the origin of the pigment in this melanosis, Stierling found in prolonged treatment with arsenic internally, that there was a sudden and pronounced diminution in the red corpuscles and hemoglobin of the blood. Wyss believes that the coloring matter set free from the blood is taken up by the lymph-channels and thus carried to the skin. As to the treatment of this condition, not much is to be said, except that the drug should be at once suspended. Baths and massage have been suggested, but are of doubtful efficacy. Fortunately the condition is rapidly removed by nature, so that a permanent pigmentation rarely results.

TINCTURE OF COAL-TAR.⁵

Duhring states that the tinctures of coal-tar are not well understood pharmaceutically. The preparations that one obtains are often of no value, sometimes harmful. Experiments were therefore undertaken by Duhring and a druggist, for the purpose of obtaining a reliable preparation for external use. The formulæ for coal-tar tinctures that have been published may be divided into two groups, those made with alkalies, and those made with tincture of quillaia bark or tincture of elm bark. The object was to find a good pharmaceutical preparation, having the virtues of coal-tar, and especially a product miscible with water. Coal-tar, ten parts, in alcohol twenty-four parts, forms, when diluted, one to eight, with water, a cloudy-yellowish fluid, with an oily substance floating upon its surface. It is therefore not a homogeneous preparation, and is liable to produce a dermatitis. Caustic soda and potash will emulsify coal-tar, but strong solutions are necessary. The mixture is made cloudy by the addition of water and the coal-tar separates. Numerous formulæ were experimented with, but they were not found, on the whole, satisfactory, as there was usually a precipitate formed on the addition of water.

Le Bœuf, about 1860, first made use of tincture of quillaia with coal-tar, calling it "coal-tar saponiné." The formulæ for the preparation of the tincture of quillaia vary somewhat, but it was found that a strong tincture, one part to four of 95 per-cent. alcohol was the best. The advantage of using tincture of quillaia with the coal-tar is that a homogeneous emulsion is formed upon the addition of water in any proportion. Tincture of elm bark acts similarly, but the emulsifi-

cation is not so complete. The preparation called liquor carbonis detergens, manufactured in England as a proprietary article, is probably also made with tincture of quillaia. It has the same properties as the preparation recommended below.

His conclusions are: (1) The best tincture of coal-tar is made with tincture of quillaia. (2) The strength of the tincture of quillaia should be one to four with 95-per-cent. alcohol. (3) The coal-tar, one part, should be digested with the tincture of quillaia six parts, with frequent agitation for not less than eight days, and preferably for a longer period and finally filtered. (4) The resultant product is a brown-black, clear tincture, which upon the addition of water forms a cleanly yellowish emulsion, the color and certain other characters varying with the kind of coal-tar employed. (5) The tincture is stimulating, and is usually prescribed largely diluted with from ten to sixty parts of water as a wash, and is useful where tar is indicated, as in certain forms of eczema, psoriasis, pruritus and in other inflammatory diseases of the skin. It is often more useful when employed weak than strong. (6) This preparation, which may be called "compound tincture of coal-tar," takes the place of several similarly composed proprietary preparations known as "liquor carbonis detergens" and "coal-tar saponiné."

Leistikow⁶ considers that coal-tar produces more lasting effects in pruritic affections than wood-tar, oil of cade, etc. Dry eczemas of scalp, neck, abdomen, genitals and extremities, as well as prurigo and psoriasis, have been especially benefitted by its use. He cautions against its use over large surfaces on account of the danger of poisoning, or of setting up a dermatitis. It should not be used on the face. He uses this formula which he paints on with a camel's hair brush.

R	Coal-tar	.	.	.	.	.	.	.	3	ss
	Alcohol, 95%	.	.	.	.	.	.	.	3	i
	Ether	.	.	.	.	.	.	.	3	ss

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JOHN T. BOWEN, M.D., SECRETARY.

REGULAR Meeting, Monday, December 10, 1894, DR. C. F. FOLSOM in the chair.

DR. W. H. PRESCOTT read a paper entitled

IS ACUTE LOBAR PNEUMONIA EVER CAUSED BY ETHERIZATION?¹

DR. W. N. BULLARD: The first case which Dr. Prescott reported was in my service, and she was in the hospital for a very considerable time — some four or five weeks previous to examination under ether. She was examined twice under ether; and finally she was transferred to the surgical side after the second examination, with a view to operation. The surgeon considered it wiser to postpone the operation. He advised her to return in three or four months. She was to go the second or third day after the etherization, but she was suddenly attacked with high fever and retransferred to the medical side and with the result mentioned. Shortly afterwards the child was de-

¹ See page 304 of the Journal.

⁵ American Journal of the Medical Sciences, May, 1894.

⁶ La Semaine Médicale, No. 59, 1894.

livered by Dr. Farlow, and the recovery from that was perfect; but the woman developed all the symptoms of acute pneumonia and died a few days later. The pneumonia must have developed in the hospital; and the question arose whether ether had anything to do with the pneumonia. One reason why I suggested this subject some time ago was because after this case I had a second one in which the lung was also consolidated, but the patient recovered fully. Very shortly after that I had a third case of lung trouble following etherization. All these cases were gynecological, and it occurred to me whether there was any more danger of pulmonary trouble in cases where there was abdominal disease than in others. Since that time I have not seen any cases of special trouble of the lungs following ether, and I should entirely agree with Dr. Prescott in the light of our present knowledge that it is extremely improbable that *acute lobar pneumonia* would be produced by etherization.

DR. G. B. SHATTUCK: In regard to Dr. Cushing's case, as I understood the report it said the patient had been exposed. That might have been regarded as an etiological factor in that case.

DR. PRESCOTT: I so regarded it. I did not get all the facts from Dr. Cushing, but he told me that two days before the operation his patient, on going to the carriage in her slippers, with nothing over her head, to say good-by to her niece, found, when she went back, the door locked, and had to go round the house, and a slight chill followed this exposure.

REGULAR Meeting, Monday, December 17, 1894, DR. C. F. FOLSOM in the chair.

DR. F. B. MALLORY described

A CASE OF ACTINOMYCOSIS.²

DR. H. L. SMITH: My interest in this subject was aroused by a young man who presented himself at the City Hospital in the summer of 1892, showing upon his face some very peculiar nodules. He had come for treatment for some other affection, and unfortunately disappeared before the diagnosis of actinomycosis, which seemed to me almost certain, could be verified. I should have had no idea as to the character of the lesions had I not seen a similar case in Vienna. I remember well the astonishment of the instructor on being told that none of the American students present had ever seen a similar case.

The case just mentioned, and two or three others, in which I suspected the presence of actinomycosis, led me to look into the matter, and I read what had been written up to that time. It appeared that nearly all the points as to the characters of the germ, which Dr. Mallory has alluded to, had been either demonstrated or foreshadowed, but a number of them were not so completely worked out as they appear to be at the present time.

The clinical features seem to be pretty well established. The diagnosis, in certain cases, appears very difficult, especially where there has been the formation of sinuses, and in that case it seems to be impossible, in many instances, to tell, clinically, whether one may not be dealing with a case of tuberculosis, or any of the other chronic forms of infective disease, especially in those cases where there is secondary pyogenic infection. But in the case of primary disease of the

skin or subcutaneous tissues, especially about the face, it does not seem difficult to make the diagnosis. The nodules are quite characteristic, as will readily be seen by comparing these three lantern slides, which were made by me to illustrate a paper on this subject, read before a dental society two years ago.

To the surgeon the most important element is the question of treatment; and, so far as I can learn, this resolves itself into the question of whether it is possible or not to remove entirely the infected area. One German writer speaks in this way: "The disease should be attacked by fire and sword." In four cases, however, recovery is recorded as having resulted from treatment other than excision. One method was the use of the solid pencil of nitrate of silver, or solutions of that substance, so that it has been suggested that in some of the deeper infected areas the seat of disease might be reached by injecting the silver solution into the sinuses, and with some hope of good results.

In one case recovery followed puncture with the needle and passage of an electric current through a solution of iodide of potassium which had previously been injected into the diseased tissue. It should be said that in beginning the treatment the current had been passed without the solution, but without results. This method of breaking up chemical compounds within the tissues, by the electric current, for the purpose of getting the curative effect of an element in its most active state, at the exact spot where its power is most needed, which has been largely developed by M. Gautier, and is called, I believe, "interstitial electrolysis," opens a very promising field for further study. In the present instance the disease had involved a large area in the cheek of a young lady, and it would have been quite impossible to remove it by the knife without great disfigurement. By the method just described the resulting scar was hardly noticeable, according to the report.

DR. W. F. WHITNEY: Dr. Richardson asked me to show this fluid, which came from a cyst over the xiphoid cartilage in the median line, and I have here the reaction showing quite surely that it is of pancreatic origin. The fluid is watery, slightly turbid, when fresh practically odorless, specific gravity 1.011, very faint alkaline reaction, and contains a slight amount of albumin. The characteristic reactions for the pancreatic fluid as distinguished from other abdominal fluids are, first, its diastatic property by which it transforms starch into glucose or grape-sugar as shown by the reduction copper (the ordinary test made for sugar in the urine). Here is such a test, and you see this dark-brown discoloration which has taken place. Second the property of emulsifying fat. This can be done with olive oil, but the oil should be rendered neutral by means of oxide of magnesia and filtered carefully so that a perfectly neutral oil is obtained, and in this specimen the reaction is shown to a slight extent. Lastly, the digestive properties are next to be studied with fibrin, and you see that the greater part of the fibrin has been acted upon by this fluid. Thus the tests agree with what we know of pancreatic fluids. In regard to the formed elements they consist of a few cells with occasional fatty degenerated ones, not essentially characteristic of any particular locality.

SIR JOSEPH LISTER has accepted the Presidency of the British Association during the meeting which will be held at Liverpool in 1896.

² See page 296 of the Journal.

Recent Literature.

Surgical Pathology and Therapeutics. By JOHN COLLINS WARREN, M.D., Professor of Surgery in Harvard University; Surgeon to the Massachusetts General Hospital. Large octavo, pp. 832. Illustrated. Philadelphia: W. B. Saunders. 1895.

It needs a professional career of only moderate length to recall the radical changes which surgical pathology has passed through. From Bichât to Koch there has been a transition in theories and in experimentation perhaps as striking as any department of science has undergone in a century.

It is almost a truism to say that the microscope has re-made pathology. Even the ideas of Rokitansky and of Paget have been changed. The cellular structures of Virchow, the wandering cells of Cohnheim, the fermentation of Pasteur, the bacteriology of Koch, mark the stages of a sure and definite advance.

Accordingly bacteriology and the changes bacteria impose on the blood must form the leading features of any new work on surgical pathology; and they properly occupy all the primary chapters of Dr. Warren's book. Only in morbid growths do we find the cell changes described by Virchow untouched by the newer germ theories. Here, all must admit, that hitherto no causal connection has been established between a spore, a germ or a bacillus, and the occurrence of a morbid neoplasm. Misplaced cells illustrate the anatomical tissues of tumors, but fail to explain the reason of their growth; and reversion to the embryonic type must be a vagary of vital force. Vitiation of the blood by fungi; fermentation of the vital fluids by their multiplication and decay; preventive inoculation by the products of bacterial culture, all play the chief part in pathological changes.

It must not be forgotten, however, that two other great circulatory forces also exist in the currents of the lymphatics, and in the transmission of nervous power. The latter, the greatest and the least understood of all, is the primal cause which governs the expansion and the contraction of blood-vessels and lymphatics; rules the sensitiveness and the absorbent tendency to poisons; and resists their deleterious influences, through vital force.

Certain normal secretions, as the saliva, the gastric juice and the serous fluids, decompose and render innocuous poisonous germs. Nay, there is even an internecine combat of cells: some destroy germs, defeat their generation, or alter their composition. Chemicovital forces, then, under the leadership of nervous energy, resist decay; restore health; maintain the individual in the vast and chaotic struggle for survival and supremacy. The ductless glands play an important and little understood rôle in restoring health to the blood; ciliated epithelium dusts out the air-passages; cough expels bacilli and their products; diarrhea sweeps away the ptomaines; sweat floods the surface of the body with the diluted results of decaying cells. All these are sanitary.

To favor secretion and to increase excretion are still, as they have always been, sanitary laws. Rational treatment remains but little changed, with the exception of *preventive* medicine. Antipyretics have taken the place of antiphlogistics in the treatment of inflammation, perhaps without much real gain. For fever is often sanitary in destroying hostile germs;

and is merely the alarm signal of a mischief which has already occurred.

The presence of a given form of bacteria in a certain disease may be causal, coincident or consequent. The strongest argument for its being causal is in the fairly well-proved claim that the injection of the toxine of this germ aborts its growth, checks its spread, and cuts short the disease. If time shall establish as a fact that, in other diseases, these toxine products of morbid germs are as efficient as they bid fair to be in diphtheria and in rabies, then, indeed, may we congratulate mankind that a discovery has been made in treatment, as certain and as invariable, as was the vaccina of Jenner.

Here is the true road for research; here the great hope of bacterial pathology.

Meanwhile, the results of asepsis in surgery may be justly said to have proved that the prevention of the entrance of these low-grade fungi into the blood and absorbents in wounds, *pro tanto*, prevents fermentation, suppuration and putrefaction. No asepsis being perfect, the occasional failure of primary healing must depend on the susceptibility of the individual; the receptivity of the subject to small doses of the poison, insensibly received.

The practitioner, the investigator, the advanced inquirer will enjoy and profit by this conscientious and broad survey of modern pathology, in which the author has brought discoveries well down to the present moment, and presented everything new, freshly and fully. We older practitioners admire the universal seeking for truth, the balancing of theories, the endless, if sometimes contradictory, experiments, which are admirably collected and verified by the author. For our students we wish he could furnish an abstract and a condensation: for what the beginner needs is not an array of varying opinions, but a summary and digest of all.

We know of no presentation of bacteriology so painstaking and pleasing as that which occupies the first eighty pages of Dr. Warren's book. The colored illustrations and stainings are exquisite, and reflect credit on the liberality of the publisher, as they certainly do on the patient care of the investigator and author.

The writer's classical experiments and illustrations of the microscopic anatomy of repair are all to be found here.

The description of gangrene and sepsis and their chromo-lithographic plates are unusually fine. We are glad to find that we can have more hope in amputating in gangrene than former experience had justified. We confess also to a satisfaction in the author's assent to what we feel sure we have seen ourselves, that pyemia can occur without a wound (for example, in simple fractures); and that suppuration *can* occur without bacteria. In repair, we wish to call particular attention to his experimental proofs that healing by first intention takes *three weeks* to be complete. What a commentary and what a just restraint on the practice of letting laparotomies sit up short of this time. Hernia is well known to follow laparotomy; and even after Alexander's operation on the round ligaments, is now becoming not infrequent.

Fever is treated at length and thoroughly.

The chapters on erysipelas, anthrax, and especially on surgical tuberculosis, are worthy of careful reading; and the latter may be said to be exhaustive.

Bone diseases, also, are thoroughly treated in the light of modern pathology. The chapters on tumors contain the author's investigations on rodent ulcer, and on cancer.

Aseptic and antiseptic surgery are well differentiated, and their merits and proper sphere defined.

There is a valuable appendix on the toxins, on cultures, on staining and preparing, on the examination of tumors. There are two indices; a wealth of illustrations, but not one we could spare. The book is printed in fine, readable style. We congratulate, equally, the medical school with which he is connected, and the author, on a work which brings surgical pathology and therapeutics down to the present day.

"Felix qui potuit rerum cognoscere causas." Amid this sea of inquiries and generalizations, wave after wave of theory rolls in, depositing finally grains of truth, to form a solid land. D. W. C.

An International System of Electro-therapeutics. For Students, General Practitioners and Specialists. By HORATIO R. BIGELOW, M.D., and thirty-eight associate editors. Royal octavo; pp. xxxii, 1147; with 299 illustrations and four plates. Philadelphia: The F. A. Davis Co. 1894.

Even without accepting the electro-therapeutic nihilism of Möbius and Starr, we may well be pardoned for wondering whether electricity is such an important factor in the treatment of disease as to deserve a volume of such bulk. The grandiloquent preface, which tells us that "disease is a difference of potential somewhere; to establish a just equilibrium we must correct the abnormal electric conditions," naturally prejudices the reader. Nevertheless, the work contains much that is of value, and some contributions characterized by careful original work and sound sense. As is to be expected in every composite work the articles vary much in value, and some of them are distinctly the product of enthusiasts who accept electricity as a panacea. In some parts, too, the work is needlessly diffuse; there is something too much of repetition of the history of the development of electrical science, and too much space is given to a presentation of untried hypotheses, concerning which the authors express themselves incapable of pronouncing judgment. After a short article by Herdman urging the need of special education in electro-therapeutics, the scientific side of electricity is discussed, for three hundred pages, by Duff, Wesley Mills, McClure, Engelmann, and Bleyer. Of these articles Engelmann's, on faradism, easily leads. His article is a clear and able discussion of faradic electricity, enriched by much valuable original research. Brubaker writes tolerably on electrophysiology, and Robinson gives a clear, but quite inadequate article on electro-diagnosis, — a field where new and original investigation is much needed. Singularly enough in a work of this sort no diagrams of the motor points are given. Peterson contributes an admirable article on cataphoresis, which has been put upon an exact scientific basis largely by his careful research. Larat tries to prove the value of electrical treatment of intestinal occlusion, Rockwell writes of the treatment of diseases of the alimentary tract, liver and kidneys, and of gout and rheumatism, and N. S. Davis, Jr., of the treatment of thoracic diseases, in rather an unsatisfactory way. Nearly two hundred and fifty pages are devoted to the electro-therapeutics of diseases of the female pelvic organs, with articles

by Massey, Grand and Famarque, Kellogg, Goelet, Tripiet, Laphorn Smith, F. H. Martin, Cole and Jarman, and Parsons. Apostoli's methods are fully described, and the virtues of electricity are set forth with somewhat undue enthusiasm, and with a disposition to attribute to ignorance the failures of men who have carefully followed Apostoli's published methods. Henrietta Johnson and Hayes discuss the electro-therapeutics of skin diseases; Sajous of diseases of the throat, and Alleman of diseases of the eye. Riggs contributes a superficial paper on diseases of the brain, giving much space to untried hypotheses. Prince contributes an excellent paper on the neuroses, based on careful work, and exhibiting a critical judgment as to the true value of electricity which is found in but few of the articles. Morton writes as an enthusiast concerning the electro-therapeutics of diseases of the spinal cord, but we fear that few neurologists have so firm a faith in the benefits of electricity as he shows. Leszynsky's article on the treatment of diseases of the peripheral nerves is clear and judicial. Byrne treats of electro-thermal surgery. Newman extols electrolysis in the treatment of urethral stricture, — a faith in which he has few followers. Walling writes of a variety of diseases, from abscess to ulcerations, in which electricity may be useful. Robinson writes of the treatment of various genito-urinary affections, McGinniss of the use of electricity in obstetrics, and Baldy of the use of electricity in pelvic inflammations. Why the electro-therapeutics of the various disorders of childhood are not sufficiently considered under the above headings we cannot say, but Mary Putnam Jacobi contributes a fifty-page article under that heading, which does little more than repeat what others have already said before.

It is perhaps inevitable that in a work of this sort, where of necessity some mention must be made of the use of electricity in every form of disease, the tendency should be to extol electricity as a panacea. This we are convinced tends to prejudice the physician against the real virtues of electricity as a therapeutic agent; for, after all, electricity, although of real value, is applicable only to a limited number of diseases. The present volume contains much that is of value, as we have said; and the physician can find in it useful information in regard to all branches of electro-therapeutics; but the work is too large, and it contains much that is needless and considerable that, to say the least, is still hypothetical. The mechanical execution of the work is poor; several of the illustrations being quite unintelligible.

Clinical Medicine. A Manual for the use of Students and Junior Practitioners. By JUDSON S. BERRY, M.D. (Lond.), Senior Assistant-Physician to the Manchester Royal Infirmary, etc. With numerous illustrations and plate in colors. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott & Co. 1894.

The author's aim in this manual is to assist the student and junior practitioners in the examination of medical cases. It is really a treatise on Symptomatology. Etiology and treatment are only incidentally considered. In this way the whole subject is condensed into an octavo of four hundred and seventy pages. The illustrations are numerous; some are taken from photographs or drawings of cases under the author's own care, and the rest from various sources.

A System of Legal Medicine. By ALLAN McLANE HAMILTON, M.D., Consulting Physician of the Insane Asylum of New York City, etc.; and LAWRENCE GODKIN, Esq., of the New York Bar; with a corps of Collaborators. Illustrated. Vol. II. New York: E. B. Treat. 1894.

The second and final volume of this composite work is not inferior to its predecessor; in some respects it is more attractive. It would be impossible that a book should be dull or unprofitable whose chief chapters were written by such a quartette of authors as Hamilton, Mills, Dana and Knapp. Nearly two-thirds of the text are devoted to the medico-legal relations of mental and nervous diseases; including long chapters on insanity, aphasia, traumatic neuroses and feigned diseases. Other chapters discuss abortion and infanticide (Jewett); birth, sex, pregnancy and delivery (Currier); genito-urinary and venereal diseases (Sturgis); sexual crimes (Craddock). Members of the New York Bar have contributed articles on "Expert Testimony," "The Legal Accountability of the Insane in Civil and Criminal Practice," and "The Measure of Damages in Accident Cases." Judge Baldwin, of the Connecticut Supreme Court, has a short chapter on "Marriage and Divorce," dealing solely with the legal phases of the subject.

This volume, like the first, shows the want of a well-defined plan, and suggests that the printers began their work before all the manuscript was in the editor's hands. There is a hint of hurrying in preparation which more careful editing might have eliminated. But the two volumes, taken together, constitute a treatise of which neither editor nor publisher need be ashamed and to whose general acceptability the critical reader will stand ready to testify.

The Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., F.R.C.P., etc., Professor of Materia Medica and Therapeutics and of Clinical Medicine, at University College, London, etc. Ninth Edition. Philadelphia: P. Blakiston, Son & Co. 1894.

Dr. Roberts's "Theory and Practice of Medicine" is so well known from the previous numerous editions that it requires no detailed notice. The present edition has been revised throughout, and parts of it have been rewritten. The order of subjects has in some respects been rearranged. New sections dealing with the general therapeutics of the principal systems and organs have been introduced, and should be found acceptable. The necessary consideration has been accorded to bacteriology in its general aspect and in its relation to special diseases. There never was a time when new editions of old text-books were more necessary to their keeping their place than now.

Twentieth-Century Practice. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Vol. I, Diseases of the Uropoietic System. New York: William Wood & Co. 1895.

This is a bold undertaking, both on the part of the editor and the publishers. Who shall say, after the changes which the last ten or fifteen years have witnessed in medical science, what will be the modern medical science when the twentieth volume of this encyclopædia shall be issued? The editor feels that the

science of medicine having been in great part recast, the time is now ripe for it to be rewritten; but with a prophetic instinct that the recasting is still in progress, he wisely reserves the consideration of the infectious diseases for the later volumes.

In the present volume of seven hundred and thirty-seven pages, with index, Dr. Francis Delafield, of New York, treats of Diseases of the Kidney; Mr. Reginald Harrison, of London, of Surgical Diseases of the Kidney, and of the Ureters; Dr. G. Frank Lydston, of Chicago, deals with Diseases of the Prostate; Mr. E. Hurry Fenwick, of London, with Diseases of the Urine; Dr. Howard A. Kelly, of Baltimore, with Diseases of the Female Bladder and Urethra.

The names of these gentlemen are a sufficient assurance of their competency to discuss the subjects assigned them. It would be an ungracious task to endeavor to point out details in which observation, theory and practice have already made some changes since these writers laid down their pens; and were such an endeavor in any measure successful it would not discredit these contributions, but would only strongly emphasize the fact that we are still in the midst of a period of intense activity in medical science and its application to medical and surgical practice.

Atlas of Clinical Medicine. By BYROM BRAMWELL, M.D., F.R.C.P. (Edin.), F.R.S. (Edin.), etc. Vol. III, Part I. Edinburgh: Printed by T. & A. Constable, at the University Press. 1894.

The first twenty-five pages of text of this Part I of the third volume are occupied by the well-known address on the "Thyroid Treatment of Skin Diseases" delivered by the author at the Congress of the Dermatological Society of Great Britain and Ireland in May, 1894. It is illustrated by fourteen plates. Two more plates illustrating the same subject will be issued with Part II.

The next fourteen pages of text are devoted to poliomyelitis anterior acuta, of which there are two illustrative plates. The last eight pages deal with a remarkable case of cancer of the breasts, spleen and other organs. A plate belonging with this case will be issued with the next part.

This third volume will be issued in three fasciculi.

Landmarks in Gynecology. By BYRON ROBINSON, M.D. Published by George S. Davis, Detroit, Mich.

These two small volumes are abstracts of some lectures delivered by Dr. Robinson at the Chicago Post-Graduate Medical School. There are six "Landmarks" which he considers of especial importance: Anatomy, Menstruation, Labor, Abortion, Gonorrhea, and Tumors, and his remarks on the diseases of women in connection with these six important subjects, make very interesting reading. He is original and suggestive, possibly at times a little fauciful, but in the main sound and practical. These books can be recommended as a pleasant variation from the ordinary text-book method of treating gynecological subjects, and will serve to while away some leisure hours very agreeably.

Syllabus of Gynecology. Based on the American Text-Book of Gynecology. By J. W. LONG, M.D., Philadelphia: W. B. Saunders. 1895.

An extract from the preface will best show the character of this book:

"The Syllabus of Gynecology' has been written

with a threefold object: first, to be used as lecture notes; second, to enable the student more intelligently to follow and remember the lectures; and, finally, as a convenient reference for practitioners."

This certainly represents a good deal of painstaking labor, as it is a very full synopsis of the work mentioned above, very conveniently prepared for use; but we think there is doubt whether it will practically prove of much value, either to the lecturer, student or practitioner. Of the three it seems to us more likely to prove of value to the student.

A Clinical Manual. A Guide to the Practical Examination of the Excretions, Secretions, and the Blood, for the Use of Physicians and Students. By ANDREW MCFARLANE, M.D., Instructor in Neurology and Diseases of the Chest in the Albany Medical College, etc., etc. New York: G. P. Putnam's Sons. 1894.

The author's object in this little book is to give in a concise manner the methods put at the disposal of the practitioner by the recent advances in physiological chemistry and clinical microscopy for the more accurate elucidation of the problems coming daily to his attention. Part I is devoted to the urine; Part II to the stomach contents; Part III to the feces; Part IV to the blood; Part V to pathological fluids; Part VI to the pathogenic micro-organisms. The illustrations are sufficient and well selected. It is a concise and handy book and will be found useful for the purposes which it aims to meet.

Manual of Practical Morbid Anatomy. Being a Handbook for the Post-mortem Room. By H. D. ROLLESTON, M.A., M.D., F.R.C.P., and A. A. KANTHACK, M.D., M.R.C.P. Cambridge: At the University Press, 1894. New York: Macmillan & Co.

This small volume consists of directions as to the manner of performing autopsies, together with brief allusions to the common pathological conditions which are to be met with in the various organs. The work is unsatisfactory because it is too large for a mere manual of autopsies, and too small for a treatise on morbid anatomy. The methods of examination of the body cavities are scattered through a mass of inadequate descriptions of gross lesions which can be of little or no value to the novice.

Diseases of the Skin. An outline of the Principles and Practice of Dermatology. By MALCOLM MORRIS. Philadelphia: Lea Brothers.

This little book is really a good compendium of dermatology, carefully prepared and thoroughly up to date. It is astonishing to find how much the author has been able to compress into the limited space at his command. The need of such treatises is not, it is true, apparent at the present time, so many of a like nature having been put upon the market during the last few years, but it must be admitted that this one is entitled to a strong word of praise, for the care that has been taken in its compilation. At the beginning he introduces eight chromo-lithographs depicting some of the more common types of cutaneous disease, and these are pretty accurate representations of their subjects. A very fair position is taken with regard to most of the unsettled questions, and the subject of treatment is well and clearly handled.

Syphilis in the Innocent. By L. DUNCAN BULKLEY, M.D. New York: Bailey & Fairchild.

This essay, of nearly four hundred pages, is the result of ten years' work. Bulkley considers that the innocent occurrence of syphilis, and the modes by which it may be innocently acquired have received too little attention hitherto, and no full presentation of the subject has ever been made. This essay is essentially a compilation of the literature upon the subject, carefully gathered from a great many and diverse sources. One hundred and sixteen original personal cases of extra-genital infection are recorded, a larger number, the writer remarks, than have ever before been published by an American observer. He then devotes much space to the different methods of acquiring the disease innocently, and while little of importance that was not already known is brought out, yet many curious instances are naturally related. A table of the epidemics of syphilis that have occurred from 1577 to the present time, together with accounts of various endemic diseases which are now regarded as syphilis are appended. One hundred and forty-six pages are devoted to an analytical bibliography of syphilis insontium which should be of value for reference.

Practical Lectures in Dermatology. By CONDUCT W. CUTLER, M.D. G. P. Putman's Sons.

Dr. Cutler was requested by the students in the Medical Department of the University of Vermont to publish his lectures on Disease of the Skin, and they are bound together in this book in the form of 15 lectures. They form a good introduction to the study of dermatology, suited to the needs of the student who has but a brief period to devote to this subject.

Sexual Neurasthenia [Nervous Exhaustion]; its Hygiene, Symptoms and Treatment. With a chapter on Diet for the Nervous. By GEORGE M. BEARD, A.M., M.D. Edited, with notes and additions, by A. D. ROCKWELL, A.M., M.D. Fourth edition, with formulas; 8vo, pp. xii, 294. New York: E. B. Treat. 1895.

To the fourth edition of this well-known work the editor has added a brief account of some of the forms of inordinate sexual desire which occasionally disturb neurasthenic patients, to which condition he gives the name of sexual erethism. With this exception this edition does not differ from the preceding.

Essentials of Diseases of the Skin. By HENRY W. STELWAGON, M.D. Saunders's Question Compend. Philadelphia: W. B. Saunders. 1894.

The third edition of Dr. Stelwagon's book has appeared, revised and enlarged, with 71 letter-press cuts and 15 half-tone illustrations. It is arranged in the form of questions and answers, and like the preceding books is intended for the use of the student of general medicine.

AN AID TO PRESCRIPTION WRITING. — *Doctor* (to fair patient): Put out your tongue. (Meanwhile he writes out a prescription.) There, that will do. — *Miss Chatterbox*: But, doctor, you did not even look at my tongue. — *Doctor*: No, I only wanted you to keep quiet while I wrote the prescription. — *Geillustreed Stuiversblad*.

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THE RELATION OF HEREDITY TO INSANITY
 AND IDIOCY.

IN an interesting discussion on heredity by the Philadelphia County Medical Society, January 25th, Dr. Chapin, Medical Superintendent of the Philadelphia Hospital for the Insane, read a paper on its relation to insanity and idiocy, in which he maintained that insanity is not inherited, that is to say, that it is not directly transmissible from parent to child, in a large proportion of cases.

Referring to personal observations, an examination of 347 patients admitted during two years in the Pennsylvania Hospital showed that the probable and direct cause of insanity in 188 cases was neurasthenia or nervous exhaustion from overwork, strain or worry, some form of general ill health, the puerperal state, septic conditions, etc.; and the element of inheritance did not appear or was not ascertained. The remainder were cases of paresis and other forms due to brain degeneration, senile failure, or organic disease, some with a history of marked heredity; of which 27, or 14 per cent. only, had a family history sufficiently marked to warrant the assumption that heredity was the probable cause of insanity.

Among Dr. Chapin's conclusions are three which we quote:

Insanity as a disease is not transmissible by inheritance, but may be acquired or evolved from a neurotic heredity as a basis.

A neurotic predisposition is transmissible by inheritance, but there is no absolute rule that it will be transmitted in any given case, or in any case.

In-breeding of neurotic temperaments is most conducive to the creation of a neurotic heredity.

Dr. Chase, Medical Superintendent of the Friends Asylum at Frankford, begins his paper with the statements that the most common cause of insanity is heredity, and that in no class of diseases is a transmission of a predisposition to ill health more potent or more evident than in insanity.

Dr. Barr, Chief Physician of the Pennsylvania Training School for Feeble-minded Children, in his paper on "The Influence of Heredity in Idiocy," regards it as a potent cause, quoting Mercier, Montaigne, Ireland, Moreau, Grabham, Shuttleworth, Beach, Langdon Down, Esquirol, Dahl and Dunlop, in support of his position. In his own experience, based on the careful examination into the family histories of 1,044 idiots, he found 397 families, or 38 per cent., with a history of insanity or imbecility, and 225, or about 21½ per cent., of various neuroses.

The authorities quoted by the readers regarded heredity as the cause of mental disease and defect in proportions of cases varying from 6 to 90 per cent. So wide divergencies of opinion can come only from different uses of terms and definitions or from greater or less accuracy and success in ascertaining facts. So great is the difficulty in obtaining exact information on these points that the Scotch Commission in Lunacy, in a supplement to their thirty-sixth report, entitled "Alleged Increasing Prevalence of Insanity in Scotland," say "We do not know of any way in which it would be possible to obtain information as to the origin of the insanity of the patients on our Register which would be of the smallest statistical or scientific value, and we have not therefore thought that any useful purpose could be served in dealing with the question from this point of view."

In the "consensus of the competent," that heredity is a remote or predisposing cause of insanity for the most part, and that the immediate or exciting causes are to a great degree preventable by avoiding injudicious marriages, by proper education of children and by sensible living, there is good reason to believe that insanity, as well as idiocy, may be controlled.

It is certainly satisfactory that the Scotch Commission can say, after most exhaustive investigations, "At present we can only repeat the conclusions arrived at in many of our former reports—a conclusion the soundness of which we do not think has been called in question by any authority in Scotland—that the facts and figures, so far as they have been already collected and studied, afford no ground for a belief that insanity is to-day more prevalent in Scotland than it was when we entered upon our functions over thirty-six years ago." The increase there, as elsewhere, has been, so far as can be seen, rather apparent than real; and this fact upholds Dr. Chapin's view, that insanity is not so directly transmissible by inheritance as has been generally supposed.

ETIOLOGY AND TREATMENT OF ACNE.

At the meeting of the British Medical Association held at Bristol in August last, Dr. Stephen MacKenzie read a paper¹ preliminary to the discussion of this topic. A large part of his paper is devoted to the question of the relative share taken by local and by constitutional conditions in causing the disease. Grant-

¹ British Medical Journal, September 29, 1894.

ing that the pathology consists in a blocking of the ducts, followed by inflammation, the question arises as to the cause of this occlusion of the glands by the imperfectly formed products. The physiological activity of the sebaceous glands at the time of puberty is most often the starting-point of the acne, and the affection usually improves as the patient grows older. Dr. MacKenzie takes a very decided stand against the prevalent theory that constitutional disturbances play some part at least in the etiology of acne. He states that while such disturbances undoubtedly occur, they are such common troubles, that nothing at all can be argued from their association with acne, as they occur in his experience as commonly with psoriasis and scabies as with acne. He then takes up the various disorders that have been claimed to have a causal relationship with acne. Anemia is common in females with acne, but acne occurs at a time, especially in females, when anemia is often met with. The acne will not be benefited by the cure of the anemia unless the skin has local treatment also. Constipation also he puts in the same category. Irregularities of menstruation seem at first sight to have a more probable causal connection with acne than any other disorder, as the acne is so frequently aggravated at the menstrual periods. But it will be often found that this is the case where the menstruation is normal in every way. He considers it probable that there is an increased physiological activity of the sebaceous glands at the menstrual period, which would favor the increase of the acne at this time. Flushing of the skin, produced by indigestion, stimulants, changes of temperature, etc., he thinks may act as an aggravating factor, but will not produce it unless the local conditions are favorable. These local conditions he regards as of the greatest importance, while the constitutional state has little etiological significance, except in the broad sense that every debilitating condition is unfavorable to the proper performance of the functions of the glands.

Hence his conclusion that local treatment is of prime importance. Preventive treatment is regarded as very desirable, and medicated soaps are highly prized. The most useful as preventives of acne are the alkaline camphor-sulphur, Peruvian-balsam, and creolin soaps, also neutral salicylic-sulphur, and salicylic resorcin-sulphur powdered soap. In the developed disease the medicated soaps are also indicated. Puncture of the pustules he considers of great importance. Smith's method of touching each pustule with a drop of liquefied carbolic acid and then covering with collodion may be used where puncture is not consented to. Mild ointments of zinc, boracic acid, etc., at night followed by calamine lotion during the day, act well where there is much inflammation. Otherwise more stimulating ointments, as sulphur ointment, may be used at night, or sulphur in powder or suspended in eau de cologne. After the most of the trouble has been removed persistent employment of the medicated soaps is used to prevent recurrences.

Most of the speakers in the discussion that followed agreed with Dr. MacKenzie that local treatment should hold the first place, but were not all inclined to abandon constitutional measures. Dr. Radcliffe Crocker voiced the feeling of the majority of the best dermatologists when he said that attention to disorders of the alimentary canal and other derangements, *together with* local treatment offered better results than local treatment alone. Dr. Payne thought that too little stress had been laid on diet, which was certainly a factor in some instances.

A STATE SUPPLY OF DIPHTHERIA ANTITOXIN.

It has been understood for some time that the Massachusetts Board of Health was making preparations for the production of a supply of diphtheria antitoxin. The circular printed herewith shows that the work is completed.

Dr. J. L. Goodale was placed in charge of the station established by the Board, and has been carrying on the various portions of his work since September last. The horses, five in number, were inoculated with the first dose of the toxin early in December last, and the successive doses have followed from time to time without untoward incident until an antitoxin has been obtained of satisfactory strength.

How far the supply thus obtained will go in providing for the wants of the community is, of course, an unsettled question; but it is to be hoped that the State Board will extend as far as possible its supervision over the preparation of this class of remedial agents.

COMMONWEALTH OF MASSACHUSETTS. DIPHTHERIA ANTITOXIN.

STATE HOUSE, BOSTON, March 25, 1895.

THE investigations of Behring and Roux with reference to the value of serum-therapy in the treatment of diphtheria, and the later experience of its use in diminishing the mortality from this disease, are widely known and fully understood.

The State Board of Health, in accordance with its organic purpose as defined in the statutes, having in view the "interests of health and life among the citizens of the Commonwealth," and recognizing the value to the people of any agent which will measurably prevent the ravages of a disease capable of destroying more than a thousand of lives annually in Massachusetts and of causing suffering which cannot be expressed numerically, has prepared a supply of antitoxin, for the benefit, primarily, of such communities in this State as find it difficult or impracticable for any reason to supply themselves with the new agent from reliable sources.

Great care has been exercised in the preparation of this supply to fulfil the most exacting technical requirements for obtaining a pure and trustworthy product, and the tests of its strength have shown satisfactory results.

The Board does not propose to offer it for sale, but its gratuitous distribution will be under strict conditions designed to prevent abuse and waste and to obtain the most beneficial fruits. Each bottle is marked with a number and the date of the preparation of its contents. No antitoxin will be issued except upon a pledge that a full statement of the observed effects of its use will be returned to the Board at the termination of the case. In all instances possible a bacterial diagnosis will be insisted upon. The Board desires to emphasize the importance of using such appliances only as are adapted to the proper administration of the remedy, of remembering that experience has demonstrated that antitoxin is most useful in the earliest stages of a diph-

theritic attack, and of realizing that trained medical skill is required to administer it successfully.

A blank form for the report and a detailed statement of instructions as to methods will accompany each bottle of the antitoxin serum.

For the needs of persons living within twenty-five miles of Boston, it will be required, for the present, that personal application at the office of the Board shall be made by the attending physician in the diphtheria case, or by some person authorized by him. For the convenience of more distant parts of the State, local agencies at public hospitals or municipal health offices will probably be established by the Board in accessible centres.

The office of the Board (Room 141, State House Extension) is open each week-day, except Saturday, from 9 A. M. to 5 P. M., and on Saturday from 9 A. M. to 2 P. M.

SAM'L W. ABBOTT, *Secretary*.

MEDICAL NOTES.

PROF. GUIDO BACELLI.—Prof. Guido Bacelli, of Rome, has been chosen an honorary member of the Harveian Society of London.

THE REGISTRATION OF MIDWIVES IN ENGLAND.—It is proposed to introduce into the British Parliament a bill for the Registration of Midwives. The bill has been drawn up by a representative committee from training schools and medical societies, with the assistance of an attorney, and is based on the suggested scheme of the midwives' registration association.

THE STORAGE OF ANTITOXIN.—Prof. Thomas R. Fraser (University of Edinburgh) writes as follows to the *British Medical Journal*: "It seems to me that much unnecessary trouble is being taken in the storage and distribution of diphtheria antitoxin. I refer to the elaborate precautions which are required so long as it continues to retain its liquid form. I would suggest that in future the liquid antitoxin should, as soon as it has been obtained, be evaporated *in vacuo* over sulphuric acid, and stored and distributed in the form of a dry powder, whose exact quantitative relationship to the liquid antitoxin or to the toxin itself could easily be ascertained and stated. There can be no doubt that in this dry form diphtheria and all other antitoxins will retain almost indefinitely their original effects. Were this plan adopted it would also be possible considerably to reduce the bulk of fluid injected under the skin."

A CONVINCING TEMPERANCE ARGUMENT.—An English temperance agitator, Miss Weston, publishes in "Ashore and Afloat," under the caption of "A Drunkard's Brain—No Joke but Awful Truth," a statement that at an inquest recently held upon a noted drunkard, on opening his skull, "the odor of alcohol that filled the room was sickening. One of the surgeons then struck a match and held it close to the head. Immediately a blue flame enveloped the whole of the exposed brain." Miss Weston seems to regard truth as a matter of slight importance compared to the virtue of total abstinence.—*Medical Record*.

CONGENITAL SPOTS A MEANS OF RACIAL IDENTIFICATION.—At a recent meeting of the American Academy of Arts and Sciences, Dr. Stephenson, U. S. N., read a paper entitled: "Congenital Spots on An-

namites a Means of Racial Identification, with Remarks on Linguistics in Connection with Migration of Peoples." Reference was made, also, to the studies of the Annamese savant, Petrus Truong Vinhky of Cholon (near Saigon, Cochin China), and to his works on linguistics, comparative philology, etc. Such investigation, as well as examination of bodily peculiarities, enables us to trace the origin and history of various peoples in their world-wanderings.

CREMATION IN GLASGOW.—A question has recently arisen in Glasgow as to the legitimacy of cremation in the absence of special instructions on the part of the deceased. The final decision was, that no society can countenance the cremation of the remains of any one who was known to disapprove of it, one of the forms to be filled containing the phrase, "and I certify that the deceased expressed to me no objection (orally or in writing) to be cremated after death."

A PATHETIC PICTURE.—The *Railway Surgeon* publishes the following letter from a physician practising in a small Southern town to a firm of instrument-makers:

February 12, 1895.

MESSRS. ——— & Co. *Gentlemen*:—It is useless and a waste of postage to write me about paying you. My wife and children are on the verge of destitution. My little ones are barefoot and hungry. Our supper to-night consisted of raw turnips. It is so with us all in this section of country. A total failure of crops and a dearth of money have brought us to this terrible strait. Horses worth \$100 or \$150 are being turned out to die; there is nothing to feed them on. I have not seen a dollar for months. To send you this letter I borrow two cents from a friend. I wish I could pay you, and would do so willingly if I could, but it is entirely out of my power till these terrible times pass.

The men at the head of our government are men destitute of conscience or honor. Such distress as they have brought on the people, it seems to me, ought to move a heart of stone.

I hope you will not think hardly of me, but what I tell you are horrible facts. My dear little girls are wearing rags around their feet for shoes. You see that it is impossible for me to pay you. I have dreaded to tell you my fearful condition, hoping you would understand it by my not writing to you. When I can, I will pay you, rest assured.

I am, my dear sirs, your unhappy friend, ———.

P. S. The last money that I have had was from the sale of the beef I spoke about last fall. It was a fine thoroughbred Durham, and ought to have brought \$40 or \$50, but I got \$7.35 for it. Since then I have not had one dollar.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, March 27, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 34, scarlet fever 47, measles 125, typhoid fever 2.

THE BOSTON LYING-IN HOSPITAL.—This hospital has issued its annual report for the sixty-second year of its existence.

Since the opening of the hospital at its present situation in the year 1873, 7,226 patients have been received and treated in-doors; and in the out-patient department, since its establishment in the year 1881, 6,405 patients have been cared for under the supervision of the hospital staff. Of the total number of

patients treated in the hospital since 1873, 126 have died; but of the 4,565 cases admitted since the introduction of the antiseptic methods of treatment, all except 34 have been successfully discharged, and this has been the result, notwithstanding the difficult and complicated nature of many of the cases. In the larger part of those which resulted fatally the patients were brought to the hospital in a moribund condition. Only 15 deaths have occurred out of the whole number of out-patient cases cared for.

The number of women received and treated at the hospital, during the past year, has been 557, an increase of 56 over the number treated during the preceding year. In addition to the above the number of babies born and cared for has been 558.

The daily average of patients (mothers) in the hospital has been 23.8, being an increase over that of last year, which was 22.8. The average stay of patients in the hospital has been 15.4 days, a decrease from that of last year, which was 16.4 days.

The number of out-patients treated was 1,485, an increase of 133 over the number treated last year. The total number of patients (mothers) has therefore been 2,042, an increase of 189 over that of last year.

The total number of deaths the past year has been eight, five in the hospital and three in the out-patient department, a mortality of less than one-half of one per cent. Of the five patients who died in the hospital, four were cases of convulsions. The fifth patient died suddenly of embolism twelve hours after the birth of the child.

During the past year the total expenditures for all purposes were \$17,792.40, which included an average cost for each hospital patient (mother) of \$31, and an expense of \$522.24 for the out-patient department.

The care of needy and deserving patients in childbirth is the primary purpose of this hospital, but it is also a centre for the obstetrical training and education of physicians and nurses.

The hospital is dependent to a large extent upon the generosity of its friends for carrying on its work. It is at present in need of a sum of \$10,000 to enable it to meet its annual expenses, and has issued an appeal for contributions towards such a sum. Only to those who do not know its work is it necessary to say that no medical charity is more worthy of support.

A POLYGLOT APOTHECARY.—On the sign-board of a drug-store on Salem Street, Boston, and on the back of the prescription blanks furnished by the proprietor, he states that no less than twelve languages are spoken at his shop; namely, English, French, German, Italian, Greek, Turkish, Spanish, Russian, Hebrew, Hungarian, Roumanian and Portuguese. That an apothecary should find it necessary to advertise his ability to speak English in Boston is a curious indication of the way in which a foreign population has monopolized certain districts in the city. The changes which have taken place in the character of the population of the North End are shown by the fact that this drug-store is within a stone's throw of the Cushman School, which

stands on the site of Charlotte Cushman's birthplace, on Parmenter Street.

NEW YORK.

COMMENCEMENT AT THE NEW YORK COLLEGE OF VETERINARY SURGEONS.—The New York College of Veterinary Surgeons and School of Comparative Medicine held its thirty-eighth annual commencement on March 18, in the Concert Hall of Madison Square Garden. Prof. James Law, of Cornell University, delivered the address, and diplomas were presented by Dr. Herman M. Biggs, President of the Board of Trustees, to thirty-one graduates.

THE NEW EXAMINER IN LUNACY AT BELLEVUE HOSPITAL.—Dr. Alexander Trautman has been appointed a public examiner in lunacy at Bellevue Hospital, in place of the late Dr. Matthew D. Field. For a number of years he was one of the resident staff at the city asylum on Ward's Island.

PROPOSED LEGISLATION AGAINST MIDWIVES.—A special meeting of the Medical Society of the County of New York was held on Saturday evening, March 16th, in response to the following call, signed by twenty members:

Whereas a number of instances have occurred in this city where reputable members of this Society have been arrested for complicity in malpractice cases without even the shadow of a reason for such action on the part of the police, therefore we request a special meeting of the Society for the purpose of ascertaining the rights and privileges of physicians who may be called to attend such cases.

On calling the meeting to order the President, Dr. E. H. Grandin, said that the position in which the medical profession had been placed by the unwarranted action of the police in several recent cases of women suffering from the effects of abortive operations, demanded action on the part of the Society. If a physician did not respond when called upon he would be called hard-hearted and unfeeling. If, on his arrival, he reported his suspicions to the police and refused to have anything to do with the case, he would render himself liable to suit for libel if his suspicions proved incorrect. If he did take hold of the case and reported it, he was, in view of recent police action, liable to arrest as an accomplice. After several resolutions had been proposed and debated at some length a resolution was adopted to the effect that the counsel of the Society be requested to prepare a legal opinion to guide members in malpractice cases. The following resolution was unanimously referred to the executive committee for action:

Whereas, Recent unjustifiable arrests of reputable physicians and members in good standing, of this Society, for performing their professional duties in cases of criminal operation induced by midwives, have outraged the feelings of the members of our profession and in the eyes of the public have placed the gentlemen accused in the position of criminals; and,

Whereas, In the vast majority of instances these criminal operations are performed by midwives, quacks and professional malpractitioners; and,

Whereas, In spite of the occasional spasmodic activity of the police in attempting to suppress these malefactors, the number of cases in which criminal operation is performed is by no means on the decrease; therefore, be it

Resolved, That a bill be drafted and presented to the Legislature through the proper channels, making it a criminal offence for any one to practice midwifery in the city of New York excepting those holding the degree of M.D.; thus legislating midwives out of existence and effectually curtailing, if not absolutely suppressing, their shameful and notorious practices.

Miscellany.

A PATENT MEDICINE BILL IN MINNESOTA.

IN an able editorial upon the bill now before the Minnesota Legislature, to regulate the sale of patent medicines in that State by requiring the printing of the formula of the medicine upon each package, the *North-western Lancet* states that the chief argument used by the opponents of the bill is that its passage would close several patent medicine factories, and cause a considerable loss to certain dealers having these goods on hand. The *Lancet's* answer to this objection is well stated:

"If patent medicines are harmful in themselves (and many of them are), or if they deceive and rob the people by causing them to pay high prices for compounds that are practically inert (and who can doubt it?) then their sale should be regulated, even at the expense of closing a few factories, or of entailing a loss of considerable money to the dealers in these medicines."

The objection that the bill is a piece of class legislation, intended to benefit physicians by making people come directly to them instead of first trying to cure themselves by the use of patent medicines, the *Lancet* compares to the opposition which invariably arises to the enactment of regulations for the benefit of the public health, such as compulsory vaccination, or quarantine regulations for the prevention of contagious disease:

"When any measure of this kind comes before the public the cry is always raised that it is being pushed in the interest of the medical profession, when a little common-sense would show that physicians in supporting such measures are really working against their own immediate pecuniary interests. An epidemic of small pox would enrich the medical profession a hundredfold above what comes to it from the small fee for vaccination, and a single visitation of cholera would give every physician in the community a large income while it lasted. Yet when cholera threatened these shores two years ago the medical societies were foremost in urging (not always successfully) the local authorities to take proper sanitary precautions in the way of cleanliness and quarantine, and many individual physicians gave much [unrequited] time and labor to furthering this end.

"It is the same with this patent medicine bill. The physicians in urging it are acting from disinterested motives, and if they are its chief supporters it is because they are the ones who are most in the way of seeing how crying an evil it is meant to regulate, and how much money is wasted by those who can least afford it in buying medicines that are either useless or positively harmful. But no one who knows anything of the actual practice of medicine could for a moment suppose that it has a rival in the use of patent medicines. As a matter of fact it is but rarely the case that a choice is made between buying a patent medicine and consulting a physician. The home-made

ointment or linament or 'yarb tea' is the true rival of the patent medicine. 'That tired feeling' would not be carried to the doctor even if there were not a dozen sure cures advertised in every newspaper, and the modesty that forbids consulting a physician about a 'female weakness' finds itself sympathetically drawn by Lydia's complacent gaze. No, the doctor does not fear that he will not be sought in preference to the patent medicine vender if there is anything the matter worthy of his attention, and honest medicine has no more to fear from quack remedies than it has from faith cures, astrology or any of the kindred sciences."

If the Minnesota Legislature passes this bill, it will have placed itself in advance of many Eastern States, and set an example in this matter which they would do well to follow.

EFFECTS OF CASTRATION UPON THE ENLARGED PROSTATE.

UNILATERAL CASTRATION.

IN reply to a request published in various medical journals by Dr. White of Philadelphia, for information as to the effect of unilateral castration upon the prostate, E. Hurry Fenwick publishes in the *British Medical Journal* for March 9th, the results of his observations during the last ten years, upon the condition of the prostate of unilateral castration, as well as that of atrophy of the testicle or monorchism. Fenwick endorses Dr. White's statement concerning the shrinkage of the prostate after bilateral castration, and expresses the opinion that the profession and the public "owe him a real debt of gratitude for the introduction of an important addition to our means of combating certain forms of enlarged senile prostate. The results of his experience, however, do not bear out Dr. White's surmises as to the effect of unilateral castration. His notes of cases and remarks are as follows:

UNILATERAL CASTRATION.

1. Left testis removed for tuberculosis. 1889; prostate examined. 1890; left lobe equal to right, both healthy, neither atrophic.
2. Left testis removed, 1863; examined, 1889; left lobe of prostate larger than right.
3. Left testis ablated, 1887; examined, 1894; very little prostate felt, and what was detected of it was confused; no interlobular furrow appreciable.

MONORCHIDS.

4. Left testis absent; left lobe of prostate flat, slightly larger than right.
5. Left testis absent; left lobe of prostate atrophied, right lobe normal.

EXTREME ATROPHY OF TESTIS.

A. After Inflammation.

6. Left testis minute; both lobes of prostate equal, but flattened.
7. Left testis minute; left lobe of prostate large, right lobe atrophic.
8. Right testis minute; right lobe inflamed and cirrhotic; left lobe small.
9. Left testis very small; left lobe of prostate larger than right.
10. Right testis pea-sized; left lobe of prostate very small, half the size of right.
11. Left testis minute; both lobes of prostate equal, smooth and plump.

B. Cause of Atrophy Unknown.

12. Left testis very small; both lobes of prostate equal.
13. Right testis atrophic; lobes of prostate equal, flattened and cupped.
14. Left testis small; prostate of average size, left lobe slightly the larger.
15. Left testis unfeeling; prostate equal lobed.
16. Left testis small; left lobe of prostate the smaller.
17. Left testis small; prostate lobes of equal size, but flattened.
18. Both testes retained in groin, and very small; both lobes of prostate equal; became affected by infiltrating carcinoma primary.
19. Both testes in groin bean-sized; both lobes of prostate equal but small.
20. This case is interesting; left testis in groin very small; patient suddenly affected with gonorrhoeal parenchymatous prostatitis. Both lobes were found equally and greatly enlarged.

"I point out with some diffidence that these cases are mostly at variance with Dr. White's surmises. At the

same time I am aware that rectal examination, however skilled, is as uncertain a guide to the activity of the prostate, as it is unreliable for estimating the amount of urinary obstruction which may be present. Moreover, none of us knows the normal shape of the prostate, for it varies with each decade and with each individual. Lastly, few seem to appreciate the fact that the prostate is often changed in rectal contour by posture, by vesical distention, and by excessive use."

BILATERAL CASTRATION.

Fenwick also reports (in same journal, March 16th), eight cases upon which White's operation (double castration) has been performed for senile enlargement of the prostate. An interesting observation on the effect of castration upon the normal prostate was that of a man aged forty-five years, upon whom the operation was performed for extensive epithelioma, primary in the penis. Six months later the prostate was reduced to the size of a small bean. In seven of the eight cases there had been improvement, more or less marked according to the conditions present at the time of the operation. The fibrous prostate, which is tough, hard and small *per rectum*, does not diminish so quickly as the soft, elastic, fibro-myomatous gland. As to the return of voluntary micturition: in those cases in which the muscular power was still present though impaired, some return of normal micturition took place within the first week. If the atony was pronounced, however, the catheter could not be discarded. The statement applies to castration, as to all prostatic operations, that the prognosis of the return of voluntary micturition depends upon the muscular power of the bladder.

From the study of his cases Fenwick comes to the following conclusions:

(1) There is no doubt that slow shrinkage of the prostatic tissue in many of the forms of senile enlarged prostate ensues upon double castration. Further experience must, however, decide as to whether every form of prostatic growth is thus affected.

(2) It is certain that escape from catheter life after castration depends absolutely upon the health of the vesical muscle. The grade of the atony, therefore, should be most carefully estimated before any hopes of relief from catheterization are held out. To promise a confirmed catheter case that orchectomy will do away with the instrument, will merely bring discredit on the operation and disappointment to the patient. Even after prostatectomy we are unable to promise such relief if the muscle is hopelessly atonic, and we cannot do so after castration.

(3) It is possible that castration by diminishing the microbic infection from the inflamed senile prostate, will remove a constant menace to the integrity of the kidneys, for it will control the most prolific source of ascending pyelitis.

It appears to me that double castration will prove of value in the following conditions:

(1) In reducing bulky overgrowth of the lateral lobes of the prostate. It may be found that the small, tough, fibrous, median or lateral vesical outgrowths will be better removed by suprapubic prostatectomy.

(2) In controlling the distress and danger of an inflamed senile enlarged prostate.


(3) In lessening the frequency or difficulty of introducing the catheter in advanced or confirmed catheter life.

(4) In avoiding the mechanical difficulty of crushing a post-prostatic or post-trigonal stone, by levelling the base of the bladder, thus rendering the operation of litholapaxy feasible in a condition in which before it was impracticable.

(5) In reducing chronic cystitis and recurrent phosphatic calculus in cases of confirmed catheter life.

METEOROLOGICAL RECORD.

For the week ending March 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.		S. 0.0 A. M.	S. 0.0 P. M.	S. 0.0 A. M.	S. 0.0 P. M.	S. 0.0 A. M.	S. 0.0 P. M.		
					S. 0.0 A. M.	S. 0.0 P. M.								
S. .10	29.98	38	48	29	51	61	56	S. W.	W.	6	10	C.	O.	
M. .11	30.26	28	30	26	49	65	57	N.	S. E.	9	10	O.	F.	
T. .12	30.24	31	34	28	53	68	60	E.	S. E.	11	8	O.	O.	
W. .13	30.12	38	43	32	70	91	80	S.	S.	9	11	O.	O.	
T. .14	29.90	33	49	28	62	40	66	N. W.	N. W.	18	19	O.	C.	.80
F. .15	30.06	20	27	14	44	100	72	N. W.	N. E.	7	3	O.	N.	.12
S. .16	29.64	30	37	23	87	57	72	N. W.	N.	10	13	N.	C.	.96
	30.03		38	26			66							.98

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 16, 1895

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal Diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,956,000	872	318	10.78	10.58	.99	.33	3.96	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,467	538	143	10.26	22.50	.90	2.70	4.50	
Brooklyn	1,043,000	399	146	9.00	21.25	1.00	—	5.00	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	217	64	4.14	14.72	—	—	2.00	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	96	26	2.08	19.76	—	1.04	—	
Cincinnati	325,000	133	32	8.36	22.04	—	3.04	3.80	
Cleveland	325,000	114	41	9.68	21.12	4.40	3.52	8.8	
Pittsburg	272,000	84	29	8.33	19.04	3.57	—	3.57	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	50	12	8.00	32.00	—	—	6.00	
Charleston	65,165	27	10	—	3.70	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	35	12	14.28	28.57	5.72	—	2.86	
Fall River	92,233	50	27	4.00	30.00	—	—	2.00	
Lowell	90,613	45	14	8.88	17.77	2.22	4.44	2.22	
Cambridge	79,607	29	7	3.45	20.70	—	—	3.45	
Lynn	65,123	34	10	5.88	2.94	—	—	—	
Springfield	50,284	17	5	—	41.16	—	—	—	
Lawrence	49,900	19	8	5.26	21.04	—	—	—	
New Bedford	47,741	21	4	—	23.80	—	—	—	
Holyoke	43,848	—	—	—	—	—	—	—	
Brockton	33,939	11	4	—	18.18	—	—	—	
Salem	33,155	9	2	—	11.11	—	—	—	
Haverhill	32,925	10	4	—	10.00	—	—	—	
Malden	30,209	14	2	—	35.70	—	—	—	
Chelsea	29,806	9	5	11.11	11.11	—	—	11.11	
Fitchburg	29,363	7	2	14.28	14.28	—	—	—	
Newton	28,837	3	0	33.33	—	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,964	13	4	23.07	—	—	—	15.38	
Waltham	22,058	5	2	20.00	40.00	—	—	—	
Quincy	19,642	4	2	—	25.00	—	—	—	
Pittsfield	18,802	8	2	—	12.50	—	—	—	
Everett	16,586	8	3	—	25.00	—	12.50	12.50	
Northampton	16,331	4	0	—	—	—	—	—	
Newburyport	14,073	9	2	—	—	—	—	—	
Amesbury	10,920	5	0	—	40.00	—	—	—	

Deaths reported 3,012; under five years of age 975; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 803, acute lung diseases 631, consumption 349, diphtheria and croup 106, typhoid fever 33, diarrheal diseases 31, scarlet fever 30, measles 25, whooping-cough 19, cerebro-spinal meningitis 17, erysipelas 9, small-pox 3.

From scarlet fever New York 13, Philadelphia 4, Brooklyn 3, Boston and Providence 2 each, Cleveland, Nashville, Lynn, Newton, Waltham and Everett 1 each. From measles New York 18, Brooklyn 4, Cincinnati, Pittsburg and Providence 1 each. From whooping-cough New York 9, Philadelphia 5, Brooklyn 2, Washington, Somerville and Lawrence 1 each. From cerebro-spinal meningitis New York 5, Lynn 3, Brooklyn, Somerville and Worcester 2 each, Fall River, Chelsea and Fitchburg 1 each. From erysipelas New York 5, Philadelphia, Brook-

lyn, Boston and Taunton 1 each. From small-pox Philadelphia 2, Cincinnati 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending March 9th, the death-rate was 35.0. Deaths reported 7,117: acute diseases of the respiratory organs (London) 1,366, whooping-cough 111, measles 73, diphtheria 62, diarrhea 39, fever 30, scarlet fever 23, small-pox (Derby) 1.

The death-rates ranged from 16.1 in Derby to 48.0 in Plymouth; Birmingham 21.5, Bradford 35.7, Brighton 40.1, Cardiff 34.8, Hull 23.1, Leeds 27.4, Leicester 19.6, Liverpool 45.2, London 41.2, Manchester 32.2, Newcastle-on-Tyne 34.0, Nottingham 37.7, Oldham 34.4, Preston 35.2, West Ham 28.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 16, 1895, TO MARCH 22, 1895.

CAPTAIN EUCLID B. FRICK, assistant surgeon, will be relieved from duty at Fort Townsend, Washington, to take effect upon the expiration of his present leave of absence and will then report for duty at Presidio of San Francisco, Cal., relieving CAPTAIN CHAS. WILLCOX, assistant surgeon.

CAPTAIN WILLCOX, upon being thus relieved, will report for duty at the U. S. Military Academy, West Point, New York, relieving FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon.

FIRST-LIEUT. REYNOLDS, on being thus relieved, will report for duty at Fort Sam Houston, Texas.

The leave of absence on surgeon's certificate of disability, granted FIRST-LIEUT. ALEXANDER S. PORTER, assistant surgeon, is extended four months, on surgeon's certificate of disability.

The leave of absence for seven days, granted MAJOR PHILIP F. HARVEY, assistant surgeon, is extended twenty-one days.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 23, 1895.

MICHAEL BRADLEY, medical director, ordered before Retiring Board, March 20, 1895.

F. A. HESLER, passed assistant surgeon, ordered to the U. S. S. "Philadelphia."

R. P. CRANDALL, passed assistant surgeon, detached from the U. S. S. "Philadelphia," ordered home and granted three months' leave of absence.

APPOINTMENTS.

DRS. J. B. BLAKE and F. B. LUND have been appointed surgeons to out-patients at the Boston City Hospital.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 1st, at 8 o'clock.

Dr. Hamilton Osgood will read a paper on "The Treatment of Sclerosis, of Various Forms of Paralysis, of other Nervous Derangements, by Suggestion." Drs. J. J. Putnam and M. Prince will discuss the paper.

Dr. A. K. Stone will present a paper on "Prostitution; The Relation of the Experience of Europe to the Solution of the Problem in Boston." Drs. J. C. White and A. Post have been asked to take part in the discussion.

JAMES G. MUMFORD, M.D., Secretary.

THE WARREN CLUB.—A regular meeting of the Club will be held at 220 Clarendon Street, April 2, 1895, at 8 P. M.

Dr. W. S. Thayer: "Our Present Knowledge Concerning the Parasites of Malarial Fever."

Dr. J. E. Goldthwait: "A Case of Tendon Transplantation."

W. E. PAUL, M.D., Secretary.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The regular monthly meeting of the Surgical Section of the Suffolk District Medical Society will be held on Wednesday evening, April 3d, at 8 o'clock, at 19 Boylston Place.

"Cyst of the Finger, with Two Cases," Dr. F. M. Briggs.

"A Case of Acute Intestinal Obstruction from the Impaction of an Enterolith; Operation; Death," Dr. M. H. Richardson.

"The Treatment of Elbow-Joint Fractures by Acute Flexion, without Splints; Results with Cases," Dr. H. L. Smith.

C. L. SCUDDER, M.D., Secretary.

RECENT DEATH.

SIR WILLIAM SCOVELL SAVORY, F.R.S., consulting surgeon to St. Bartholomew's Hospital, surgeon to Charité Hospital, died in London on March 4th, aged sixty-nine.

BOOKS AND PAMPHLETS RECEIVED.

Chicago Summer School of Medicine, Chicago, Ill., Announcement, 1894.

Statistical Methods. By George W. Moorehouse, M.L. Reprint. 1894.

The True Field of Duty of the Railway Surgeon. By Clark Bell, Esq. Reprint. 1894.

Report of the State of New York State Commission in Lunacy, Albany, December 26, 1894.

Return to an Order of the Legislative Assembly of the 13th December, 1893, upon Coroners' Inquests.

Bicycling for Women from the Standpoint of the Gynecologist. By Robert L. Dickinson, M.D., etc. Reprint.

Hygiene of the Anus and Contiguous Parts. By J. Rawson Pennington, M.D., Chicago. Reprint. 1895.

Contributions to the Physiology and Pathology of the Nervous System. By Isaac Ott, M.D. Reprint. 1893.

Some Remarks on Skiascopy or the Shadow Test. By J. Thorington, M.D., of Philadelphia. Reprint. 1895.

Annual Report for 1893 of the Medical Officer of Health of the Vestry of St. George the Martyr, Southwark, Eng. By F. J. Waldo, M.A., M.D. (Cantab.). 1894.

Multiple Neuritis, with the Development of Unilateral Facial Paralysis late in the Course of the Disease. By J. T. Eskridge, M.D., of Denver, Col. Reprint. 1894.

Transactions of the New Hampshire Medical Society at the One Hundred and Third Anniversary held at Concord, June 18 and 19, 1894. Concord, N. H.: Republican Press Association. 1894.

Surgical Nursing. By Bertha M. Voswinkel, Graduate of Episcopal Hospital, Philadelphia; Nurse in charge of Children's Hospital, Columbus, O. With 111 illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

Three Cases of Uterus Bicornis Septus; with Report of Operations Performed upon Them. The Technique of Vaginal Hysterectomy. Notes on Movable Kidney and Nephrorrhaphy. By George M. Edebohls, A.M., M.D. Reprints. 1894-95.

Laminectomy for Paraplegia from Pott's Disease; Tenotomy of Contractured Hamstring Tendons of Both Legs; Amputation at the Hip-Joint; Appendicitis; Stone in the Bladder; Suprapubic Lithotomy. By F. C. Schaefer, M.D. Reprint. 1894.

Antisepsis and Antiseptics. By Charles Milton Buchanan, M.D., Professor of Chemistry, Toxicology and Metallurgy, National University, Washington, D. C.; with an Introduction by Professor Augustus C. Bernays. Newark, N. J.: The Terhune Co. 1895.

Further Observations on the Physiological Occurrence of Conical Stump after Amputation in Children. A Brief Note on Some Cases Recently Admitted to the Surgical Service at the New York Cancer Hospital. By Charles A. Powers, M.D. Reprints. 1894.

Transactions of the American Dermatological Association at its Eighteenth Annual Meeting held at the Arlington Hotel, Washington, D. C., May 29, 30, 31 and June 1, 1894, in connection with the Congress of American Physicians and Surgeons. Official Report of the Proceedings. By Charles W. Allen, M.D., Secretary. New York: Geo. L. Goodman & Co. 1894.

Dose Book and Manual of Prescription Writing, with a list of the Official Drugs and Preparations, and also many of the newer Remedies now frequently Used, with their Doses. By E. Q. Thornton, M.D., Ph.G., Demonstrator of Therapeutics, Jefferson Medical College of Philadelphia; Acting Assistant Surgeon, United States Marine-Hospital Service. Philadelphia: W. B. Saunders. 1895.

United States Bureau of Education, Circular of Information, No. 2, 1894. Contributions to American Educational History. Edited by Herbert B. Adams. No. 19. History of Education in Maryland. By Bernard C. Steiner, Ph.D., (J. H. U.), Librarian of the Enoch Pratt Free Library of Baltimore City; Associate in History, Johns Hopkins University. Washington: Government Printing Office. 1894.

The Physicians' Vade Mecum, being a Handbook of Medical and Surgical Reference, with other useful Information and Tables. By Sebastian J. Wimmer, M.A., M.D., Author of Tables and Notes on Human Osteology, etc.; with additions by Frank S. Parsons, M.D., Editor of the Philadelphia Times and Register. Member of the American Medical Association, etc. Philadelphia: The Medical Publishing Co. 1894.

Relations of Diseases of the Eye to General Diseases. By Max Knies, M.D., Professor Extraordinary at the University of Freiburg; forming a supplementary volume to every manual and textbook of Practical Medicine and Ophthalmology. Edited by Henry Noyes, A.M., M.D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College; Executive Surgeon to the New York Eye and Ear Infirmary; recently President of the American Ophthalmological Society, etc. New York: William Wood & Co. 1895.

Original Articles.

ASYLUM PHYSICIANS AND COMMITMENT CERTIFICATES.¹

BY HENRY R. STEDMAN, M.D., BOSTON.

THE object of this paper is in general to collect and analyze the provisions of the commitment laws of this and foreign countries with regard to the part played therein by the qualifications required of certifying physicians, and in particular to consider how far the prevailing law on this point in the States of Massachusetts, Connecticut and Vermont falls short in respect to protection of the insane and justice to medical officers of our lunatic hospitals.

The first part of our subject is of considerable interest in itself. We shall find a variety of statutes regarding the examination of the insane for commitment, from those in which no requirement whatever as to medical testimony appears or seems to be thought necessary, to others which contain full and explicit requirements regarding the physician's professional and moral standing, his relationship to the patient and his connection with the hospitals for the insane. It will be seen also that the amount of precaution taken is, in most of the States of the Union, a fairly accurate gauge of their age and the intelligence which comes from increasing experience as to the true needs and interests of their citizens and their charges. Not less noticeable are the exceptions to this rule. For example, certain new States are found to have had wise laws regarding medical examination of the insane for commitment, even while they were territories, while on the other hand, a few old and well-governed States and foreign countries take few or no precautions in this direction. In others, which are among the most advanced communities, the antipodal extreme of over-precaution is reached in prohibiting the very physicians who are conversant with insanity from certifying. The best interests of the insane are thus overlooked and a tendency developed to a reversion in this respect to the primitive conditions of territories. It should be borne in mind, however, that we are discussing only the professional qualifications required of certifying physicians, omitting, as foreign to the purpose of this paper, the many and admirable safeguards in other directions in many of the older States and countries which go far to offset defects in the special legal provisions regarding physicians which are under consideration. We also omit reference to modifications of statutes as to requirements regarding the number of physicians, etc., in the case of emergency and voluntary patients.

For convenience in comparing States and countries we have arranged them in four groups as follows:

I.

Seven Territories and States in the Union are without any provision for medical examination for commitment of a person to an asylum. These are Colorado, New Mexico, Wyoming, Indian Territory, in which there were no asylums at the time the laws on which this report is based were compiled between ten and fifteen years ago; also Florida, Louisiana and Mississippi. In Louisiana the superintendent of an asylum shall, however, examine all criminal lunatics com-

mitted thereto to ascertain if they are feigning. In Mississippi the patient is to be examined by six discreet persons. The trustees and superintendent of an asylum may also admit a patient if they think him insane, although no proceedings in lunacy may have been instituted. But if the sheriff is satisfied that a convict under sentence of death is insane, six physicians, or if they are not attainable six other discreet men are to examine him.

II.

Nineteen States and territories require examination and certification for this purpose by but one physician. In Georgia and Idaho simply "one physician" is required. In Alabama and Tennessee, "one respectable physician." In Dakota, Iowa, Nebraska and Texas, "a regular practising physician." In Illinois, Kansas and Montana, a jury, one of whom shall be a physician. In Virginia and West Virginia, one; the attending physician examines, the patient's admission to the hospital being subject to the consent of an examining board of the superintendent and trustees of that hospital. Arizona, Washington, Ohio, North Carolina and Arkansas require *one or more* reputable or respectable or regular or practising or licensed practitioner to certify.

Almost all European countries also require that but one physician shall certify. France and Belgium provide in addition that he shall not be connected with the asylum to which the patient is committed. The French code also prohibits a relative of the patient from certifying.

III.

Canada and sixteen of the United States enact that two physicians shall examine and certify in such cases. Maine, New Hampshire, Rhode Island, New Jersey, Maryland, Nevada and District of Columbia call for two "qualified," "graduated," "respectable" or "reputable" physicians; South Carolina, "two licensed practitioners"; Kentucky and Missouri, "two physicians" simply; California, "two or more graduates in medicine"; Utah, "two practitioners"; Oregon, "two or more competent physicians"; Indiana, the medical attendant of the patient and a selected examiner. Wisconsin requires "two disinterested physicians of good repute for skill and morality." Minnesota prescribes two physicians for convicts; a judge and jury — one of them a physician — for the other classes.

IV.

Six States, besides requiring two physicians to certify, have made certain specific provisions regarding their medical education and professional experience, one or both, their residence in the State and their position as asylum physicians. They are Connecticut, Massachusetts, Michigan, New York, Pennsylvania and Vermont. Of these in their turn the statutes of Massachusetts, Michigan and Vermont also require of each certifying physician three, and those of Pennsylvania and New York require each five years of practice in the State. Of these Massachusetts and New York also forbid any but graduates of legally organized medical colleges from signing the certificate. Connecticut, Michigan and Pennsylvania make it illegal for physicians to certify if either of them be related by blood or marriage to the patient. The laws of England, Wales and Scotland, which are founded upon the longest experience and by the counsels of the

¹ Read before the New England Psychological Society, December 11, 1894.

ablest jurists and alienists, belong in this category, which represents in most respects the most thorough legislation on this point that could be desired, as well as upon lunacy matters in general.

The laws of this group are as follows:

In New York each of the certifying physicians must be of reputable character, a graduate of an incorporated medical college, a permanent resident of the State, in which he must have practised medicine three years. He shall not be superintendent, proprietor, officer or the regular professional attendant in the asylum to which the patient is committed.

The law of Pennsylvania on this point provides for two or more reputable physicians, residents of the State, who have been in practice five years. They must certify that they are not related by blood or marriage to the patient, nor in any way connected with the hospital in which it is proposed to place the patient.

The statutes of Vermont require for certification for commitment, that the two physicians shall be of unquestionable integrity and skill, residing in the same probate district as the patient, or in the same district as the asylum if the patient does not reside in the State, or if the patient be a convict such physicians may be residents of the probate district in which such place of confinement is situated. Neither physician shall be a member of one firm *nor an officer of an insane asylum in that State.*

The Massachusetts statute requires two physicians, each a graduate of a legally organized medical college and who have practised three years in the State and neither of whom is connected with any hospital or other establishment for the insane.

The law of Michigan is identical with that of New York, and that of Connecticut with that of Massachusetts. Each add, however, the clause above mentioned making relationship between patient and physician a bar to certification by the latter.

In England and Wales two medical certificates are required, one certifying physician being the usual medical attendant if practicable. Neither shall be manager of the institution to which the patient is committed, or interested in payments on account of the patient, or a regular medical attendant of the institution, the husband or wife, father or father-in-law, mother or mother-in-law, son or son-in-law, daughter or daughter-in-law, brother or brother-in-law, sister or sister-in-law, or the partner or assistant of any of the foregoing persons. Neither person signing medical certificates shall bear a similar relationship to each other and a member of the managing committee of the hospital shall not certify; nor a commissioner or authorized inspector.

In Scotland two properly qualified medical practitioners are necessary. Neither shall have immediate or pecuniary interest in the asylum in which the lunatic is placed, nor can a medical officer of any asylum certify a private patient for such asylum except in emergency cases.²

The laws of the group last described will, with the exception of the objectionable clause to be considered, be accepted as, in the main, the best-devised means

for protecting the interests of the insane, and preventing at the same time illegal commitment of the sane by interested physicians. We have little doubt that those States in which the less numerous and severe regulations are in force regarding certifying physicians, as in Group III, or even perhaps regarding a single physician, as in Group II, are quite free from attempts at illegal commitment. Not only our belief in the integrity of physicians in general, but the fact that so few cases of this nature have come to light, seem to corroborate this view. It is, nevertheless, the part of wisdom to allay, so far as is possible, the suspicion regarding the possibility of such illegal acts which has so long possessed the public mind and which may have had its foundation in actual abuses in the early days when the general ignorance regarding insanity made such practices possible. The opportunity thus afforded interested persons, or relatives it may be, as well as physicians, of controlling the person and property of a sane person, or one not sufficiently insane to be deprived of his liberty, had much to do, especially in England where there have long been a large number of private asylums, with the imposition of the restrictions which we have detailed as well as the various other requirements of the more stringent lunacy codes. But although it is very mortifying to the alienist to feel that the unwritten law of humanity and fair-dealing is not considered binding enough in his case, he ought not to object to any reasonable provisions if they tend to encourage public confidence regarding the protection and care of the sane and the insane in this respect. It is in this spirit that asylum physicians have accepted without remonstrance even those restrictions which forbid them to certify a patient for commitment to any asylum *with which they are connected.* This requirement is, as we have seen, the law in England and Wales, Scotland, France, Belgium, New York, Pennsylvania, Vermont and Massachusetts. When, however, the laws of a State or other government forbid *all physicians who are in any way connected with an asylum certifying a patient to any and all asylums within its borders,* it is the right and duty of such physicians to protest and to use every legitimate means to amend a statute so subversive of their self-respect and of the interests of the insane.

This brings us to the second and more practical portion of our subject, the operation of the clause in the lunacy laws of Massachusetts, Connecticut and Vermont, whereby our asylum physicians and the mass of our insane are subjected to this very injustice. If we examine the provisions in all the other States and countries in the world, above given, we find that these three States alone have this unenviable distinction. The Vermont law is the least sweeping of the three. Hers is to the effect that neither certifying physician shall be an officer of *an* asylum in the State, a law which was adopted when there was but one small lunatic hospital in this, the smallest State in point of population but one — Delaware — in the country. Nevertheless, it must be said that although the Vermont law thus affects but a very few physicians, its injustice as a law is in no degree mitigated. The laws of Massachusetts and Connecticut, the former enacted in 1883 and copied by the latter in 1889, when there were eight large and several small lunatic hospitals within their borders with the usual complement of physicians, provide that no physician *connected with*

² The data above given were collected from Stearns's extracts from the laws of the different States and Territories of the United States which relate to the general care of the insane, 1893; Folsom's do, 1884; Tuke's Dictionary of Psychological Medicine, 1892; Reports from her Majesty's Representatives at European Courts and in the United States, etc., on same, 1885; Journal Mental Science, Vol. xxi, p. 236.

any establishment for the insane shall certify for commitment to a lunatic hospital. Thus, no asylum alienist, be he ever so able or upright, in whatever part of the globe he may live, is thought fit to certify that a person is insane and should be committed to a Massachusetts hospital for care and treatment. We are not the first to call attention to the matter. A few quiet protests were made by certain superintendents of lunatic hospitals in the State of Massachusetts; but there has been no actual attempt to modify the law. The public and the insane have, to be sure, great reason to be thankful to the framers of the lunacy laws of these States; but in this instance, in their zeal to protect the interests of the insane they have injured the cause of these very unfortunates by depriving such patients (outside the city of Boston, at least) from having expert opinion as to the desirability of their commitment. Moreover, the duty of certifying therefore devolves necessarily upon general physicians, many of whom shrink from giving opinions in such cases, as they recognize their necessary lack of familiarity with the disease and the possible disastrous consequences of a mistaken decision. They do not hesitate to confess comparative ignorance of the subject and their feeling of helplessness before certain patients from whom they are trying to elicit facts sufficient for proper certification. This fact was emphasized by a request made of the writer very recently by the secretary of a large district medical society that he would give its members some practical directions as to the proper methods of examining such persons and obtaining the facts necessary for their certifying them as insane persons. He asked this at the request of a number of physicians who had been often perplexed in such cases. In cases where an asylum physician also is called, their burden may be lightened by consultation, it is true, but the poor cannot afford this, and the State does not recompense the services of three physicians.

The law tends, at the same time, to lower reputable physicians in the eyes of their fellows and the people, by implying a certain distrust of the motives of all medical officers of asylums. It is a satire on Massachusetts justice that impostors and quacks should have thriven in that community until a few months ago, when the bill for regulating the practice of medicine was passed, while for the past twelve or more years its asylum physicians, men of deserved repute as able and self-sacrificing workers in a difficult field, have been restricted in a legitimate line of service and humiliated as well, by unfair legislation. We can understand, as we have said, the sentiment which seeks to prevent physicians from assisting in certification in the commitment of a person to the asylum or establishment with which he is connected. It is even no doubt a welcome protection from criticism to some superintendents, but we are at a loss to find any practical reasons based upon facts why it should be thought necessary to prevent the experienced hospital alienist from committing a patient to *any asylum in any State whatever*, whether he be connected with it or not. This restriction applies also to physicians on the boards of trustees of asylums who, although thought worthy of that honor, may not be trusted to certify for the purpose of commitment by reason of their connection with a hospital for the insane. In the same category are also eight or ten councillors of the Massachusetts Medical Society, among whom is a recent president of that body.

Other conditions which show the absurdity — we

can find no other appropriate term — of this discrimination against an asylum physician as certifier for commitment, are the laws which make legal his certificate as to insanity in cases of guardianship of the property of any insane person, whether he be in his charge or not, and that which obliges him to decide as to the mental condition of voluntary patients in lunatic hospitals, as is the case in Massachusetts. Moreover, the enactment, in Massachusetts and Connecticut, which prescribes fine or imprisonment for any physician who willfully conspires to commit any person who is not insane to a hospital or asylum in the State, demonstrates how superfluous the law is, were there no other reason for its amendment. As Dr. Fisher also forcibly puts it: "the opinion of the asylum superintendent in court may settle questions of damages of large amount or determine the disposition of large fortunes by will; the life or death of an insane criminal may depend on his judgment; but having advised so simple a thing as hospital treatment for some patient, two strange physicians must be called in, at added expense, to re-examine the person before he can be sent to a hospital for treatment."¹

Finally, there is omitted from the statute all reference to the conditions which are imposed, as we have seen, in several of the most careful codes in this country and abroad regarding the relationship between a physician and the patient to be committed or the fact of pecuniary interest in the place of his commitment, safeguards thought by many to be eminently practical. To pass this by and insert instead the almost petty requirement of which we complain, and which is absent from all other codes, with the two minor exceptions mentioned, is another glaring inconsistency.

Enough argument has, we think, been now brought forward to justify our asylum physicians in demanding an amendment of the law so that it shall conform to that of England, for example, in forbidding certification only to physicians connected with the hospital to which the patient is committed.

Finally, we should bear in mind that the alienist has been the object of enough criticism of late, much of which we know to be unjust. Is our inactivity in tacitly allowing a statute to remain unaltered which lowers in public estimation the asylum physicians of these three States, limits their legitimate field of work and injures the cause of the insane, to be added to our other shortcomings?

REMARKS ON TWO HUNDRED CASES OF PHTHISIS.¹

BY GEORGE G. SEARS, M.D.,
Physician to Out-Patients, Boston City Hospital.

It is not my intention to go elaborately into the statistics of these cases, most of whom came under observation during my last term of service in the Out-Patient Department of the Boston City Hospital, but to use them chiefly for the discussion of a few points on which medical opinion is not yet unanimous. They comprise 93 women and 107 men, of whom almost the same proportion belongs to the first and second generation of Irish immigrants as that given by the mortality statistics of our Board of Health, 99.

¹ Read before the Clinical Section of the Suffolk District Medical Society, January 16, 1895.

² Thirty-second Annual Report of the Board of Directors of Public Institutions of the City of Boston, 1888.

or nearly 50 per cent., belonging to this class. One hundred and thirty-two of the patients were native Americans, of whom 62 were of Irish parentage, while the remainder were natives of a half-dozen different countries, including five Russian Jews, whose presence deserves some comment from the current ideas as to their immunity as a race; when, however, one considers their history since the enforcement of the so-called May Laws of 1882, it is not a matter of surprise that the Russian army examiner, who found no traces of phthisis among the Jewish recruits during the reign of Nicholas and Alexander II, now reject 6.5 per cent. of them for this cause, against 0.4 per cent. among all other Russians, nor that those who sought a refuge in America should occasionally succumb to a disease whose seeds in many cases were sown before they fled. Under such conditions the appearance of consumption among the chosen people cannot be considered a valid argument against the efficacy of the use of Kosher meat and strict obedience to the Mosaic law as important factors in securing the immunity with which they have been credited, but only as showing that there are limits in starvation and sanitary wretchedness to which even the Russian Jew cannot adapt himself.

Contrary to later statistics which have been given regarding the distribution of phthisis according to age, these cases show a marked decrease with advancing years after thirty has been reached, but seventeen, of whom three were women, being over fifty, while but seven were over sixty. Arranged by decades there were 2 in the first (children forming but a small proportion of the clinic), 17 in the second, 79 in the third, 49 in the fourth, 33 in the fifth, 10 in the sixth and 7 in the seventh, with 3 unplaced owing to the silence of the records on this point. It is impossible to give the relative number of phthisical patients compared with the total number in each decade which applied for treatment, but it is safe to say that the proportion given above would not be greatly altered. This is in line with the experience of the writer while a member of the Board of Pension Examining Surgeons, consumption being a very rare cause of disability among the applicants, almost all of whom are middle-aged or old men. Although the energetic pension agent has scoured the country for crippled veterans and has done his best to send before the examiners all in whom the slightest disability could be found or hoped for, yet out of over 1,500, who appeared before the board from August, 1892, to September, 1893, in eleven only, two of whom were young men recently discharged, could a diagnosis of phthisis be made after a most careful examination. In the press of work search for the tubercle bacillus was impossible, so that a certain number of cases, although they must have been few, may have been overlooked owing to the equivocal nature of the signs which are occasionally noticed in the aged. If phthisis is so common a disease in advanced life it is remarkable that so few cases were found among these men, unless the hardships of active service had previously weeded out all those with consumptive tendencies.

Arranged according to both age and sex, 69 per cent. of the women in round numbers were under thirty, while the proportion of men under thirty was almost exactly reversed, 60 per cent. being over it. This is presumably explainable by the fact that in the latter, especially of the class who appear as out-patients, exposure to cold

or dust, the abuse of alcohol, etc., are influences which are operative through life, while in the former two potent factors in the causation of the disease, pregnancy and lactation, become less and less active after the age of thirty, till they finally cease. No greater susceptibility of young Irish women than of those of other nationalities could be determined.

On the two points in the natural history of the disease of greatest interest both to the profession and the community, its transmissibility by heredity and contagion, however carefully cases may be analyzed, statistics can throw but little light, and in the present state of the question may even prove misleading. The diversity of professional opinion, however, seems very largely a matter of definition. Since Koch's discovery of the tubercle bacillus some modification of what is meant by heredity in this connection has been necessary, since, although the possibility of its direct transmission from parent to offspring has been proved by six or seven well authenticated cases of prenatal tuberculosis, and suggested in a good many more, it is generally acknowledged to be a very rare event and inadequate to explain the family taint so frequently noticed. Laboratory experiments would seem to prove that the virulence of the tubercle bacillus is practically a constant quantity; and yet, although autopsies show that every third or fourth person whom one meets is somewhere tubercular, and although the bacilli themselves are so generally distributed, and often in such numbers that their actual presence can be demonstrated, only about one-seventh of all deaths result from this cause. In other words, although exposure to an ever-active germ is nearly constant, only about one-third of the population become infected, and in fully half of these the disease falls upon such infertile soil that its course is checked oftentimes before giving rise to any recognizable symptoms, while of those who die most possess sufficient resisting power to keep it localized and prevent its progress except in the most chronic manner. In comparison with many other animals, man cannot therefore be considered as especially susceptible; infection, when it occurs, being due to a lessened power of resistance in the individual, which might well be transmitted through many generations of a family and show itself in the narrow chest, the feeble muscles and transparent skin, which we associate with the phthisical habit, or in some more subtle and unrecognizable change, which Gärtner suggests may be chemical or biochemical. Even if it could be proved, as Wyssokowicz says, that the "tubercle germs could not be hereditarily transmitted, no reason could be found therein why healthy children should always come from phthisical parents. On the contrary, this result should no more be expected than that juicy fruit should grow on a gnarled and stunted tree." In the present series of cases the hereditary taint, as shown by the appearance of the disease in several members of a family, was present in 81, or about forty per cent., in some of whom it may possibly have been transmitted from one to the other by contagion, but in most the second patient had been so long away from home or so many years had elapsed between the death of the first and the development of the second case, that any connection between them seemed extremely unlikely.

In view of the many difficulties which surround the effort to prove the dependence of one case upon another, it is not surprising that careful inquiry into the details

of the histories of these patients should have failed to give any satisfactory results. Although in 22 instances, 15 women and 7 men, the second case in a family or household began to show symptoms during the lifetime of the first or shortly after his death, in only one was such a connection sufficiently marked to deserve notice. This occurred in a professional gambler, thirty-eight years old, of good family history. Three years ago he had most devotedly nursed his mistress, who was ill with the disease, through the latter months of her illness. About four weeks before her death he had a severe hemorrhage and has since suffered from cough and dyspnea with some loss of weight. At the time of examination there were well-marked signs of phthisical consolidation in the left lung with an explosion of râles after cough in the right apex.

So far as the necessity for adopting preventive measures against the spread of the disease is concerned, it is of little importance whether contagion in a particular instance can be proved or not. In the present state of our knowledge regarding the rôle which the tubercle bacillus plays in the causation of consumption, it is inconceivable that it should arise independently of some previous case in man or animal, while at the same time it is almost equally improbable that a single exposure, as in measles or scarlet fever, should be sufficient to overcome the patient. Nor is it necessary to prove the latter in order to show its contagious character, since the tubercle bacillus is able to bivouac within the body and wait for reinforcements before beginning an active campaign. A slow process of infection, an incremental infection, is thus possible, and it is not improbable that a patient finally surrenders to an army which has been recruited from many sources. Whether the contagious nature of phthisis is as great as it is sometimes claimed, or whether as Powell states, it is practically impossible in conditions of human association that the necessary degree of concentration be reached to induce tuberculosis in a healthy person, it is certain that, apart from the food-supply, whose importance as a possible source of infection it is difficult to estimate, effective methods of limiting the disease are theoretically found in isolating the patient, in destroying the bacilli at their point of origin, in improving the general health of the individual up to the point of non-susceptibility, or in limiting the range of activity of the bacilli by better hygienic and sanitary conditions. Although greater precision in diagnosis has undoubtedly contributed to the gradual diminution in the death-rate from phthisis which has been noticed during the past ten years, improved hygienic and sanitary conditions must be considered a most important factor in producing this result, more important even than the diffusion among the masses, as some enthusiasts have claimed, of the knowledge of the bacterial origin of the disease and of the necessity of combating its spread by their destruction, unless the lower classes of other places have shown a greater aptitude for assimilating such knowledge than has been noticed in our out-patient clinic.

What has already been accomplished by such measures gives great encouragement for further efforts in the same line, and though we can hope by their aid only to limit and not prevent the dissemination of tuberculosis, they have the merit of being more practical than the more radical methods proposed, since they can be more readily enforced by our health boards, and do not add to the suffering of the patient

by branding him as an outcast. It is difficult to exaggerate the attitude of the so-called intelligent part of the community toward patients with scarlet fever or diphtheria and their families. I speak from personal experience in saying that social ostracism could scarcely be made more complete, and I know of one family, in which several cases recurred at intervals of a few months, which was finally forced to move into another house in order to enjoy the privilege of visits from their nearest relatives. Ostracism can be borne if it lasts but a few weeks, and is unquestionably useful in limiting the spread of a disease, but continuing for years it would be intolerable. It is scarcely probable that the demoralization of the public in the latter case would be as complete, but the change in popular opinion toward other infectious diseases within ten years has been so marked that it suggests a distinct danger in the case of phthisis which should be risked only if it could be offset by a corresponding amount of good not obtainable in other ways, conclusive evidence of which is as yet entirely wanting. Dr. Knight,² in discussing the question of the isolation of phthisical patients, and the compulsory notification and registration of them and of their houses, says in a paper on the prevention of tuberculosis that "leaving the whole matter in the hands of the family doctor both in regard to the amount of information to be given and what precautions shall be taken, cannot be as efficacious as if this was done by an officer of the board of health. Unless the family physician thoroughly believed, and was personally interested, it would not be thoroughly done." To such a statement in itself no objection can be made. Neglect to give specific instructions, as he says, is almost invariably the result of indifference, but the question may fairly be asked if this may not be better than the active hostility toward compulsory notification and registration felt by a large number, possibly a majority of physicians, who could see in them but a useless annoyance to the patient, and a probable source of pecuniary loss, and who would be tempted under such circumstances with little violation of their consciences to conceal from the patient and his family the nature of his trouble. Precautions which might otherwise be taken might thus be neglected through ignorance. No harm, however, but only good can result from educating the community up to a knowledge of the nature of consumption and of the necessary preventive measures, provided it can be done without sensationalism.

A step in the right direction has been taken by our Board of Health in issuing its circulars, and the example could profitably be followed by all our out-patient departments and dispensaries. The following instructions which are somewhat fuller than those of the Board of Health, have been prepared for distribution among the Boston City Hospital out-patients. They are given now to almost every patient as soon as a diagnosis is certain, since it has seemed that, especially in this class, the advantages gained by the more active co-operation of the patient who realizes the serious character of his disease, were greater than the disadvantages, in the way of discouragement, which a knowledge of the nature of his affection in the early stages might entail. An effort has been made to avoid all directions which might excite unnecessary alarm and yet make them sufficiently strenuous to be of practical value. They have been received by the

² International Medical Magazine, July, 1894.

patients apparently in the spirit in which they were given, and while it is impossible to say how far they have been followed, they do not seem to have increased the difficulties of the patient by alarming his friends as to any danger which they may run by associating with him. The circular runs as follows:

(1) Consumption is a contagious disease, but the breath of consumptives is not directly infectious.

(2) The seeds of the disease are found in the phlegm or spit which is coughed up, but it is not a source of danger till it has become dry.

(3) Do not, therefore, spit upon the streets or upon the floor of your house or shop.

(4) In-doors use a special spit-cup which either contains water or is lined with paper. The cup must be often emptied into the pan of the water-closet or into a bright fire, never anywhere else, and then washed out with boiling water.

(5) Out-doors use a bit of rag or paper which should be burned as soon as possible.

(6) Handkerchiefs should never be used for the phlegm; if used at all they must be boiled for half an hour.

(7) Keep your room clean; use a damp cloth for dusting.

(8) Throw the windows wide open when you leave your room; at night sleep with the windows somewhat open from the top.

(9) Consumptive patients should sleep alone.

(10) Consumptive mothers should not nurse their children.

Of the causes to which the patients ascribed their illness, exposure, "catching cold," naturally came first with 57 cases. The inhalation of dust was supposed to be responsible for 15, grippe 13, rapidly succeeding pregnancies 7, injury 3, and pneumonia 3. In 8 the first symptom noticed was hemorrhage, more or less severe. There was a history of malaria in 3 cases, and of the abuse of alcohol in 10; 19 had had pleurisy from a few months to a few years before, 15 however, had had pneumonia. Two had suffered previously from lupus of the face and one from Pott's disease. Three had had syphilis, one year, fifteen years, and twenty-six years ago respectively. Among the complications there were found 6 cases in which the cervical glands were affected, apparently before the development of the pulmonary trouble, 4 had fistula in ano, and 2 valvular cardiac disease. One case was complicated by patches of tubercular caries on sternum, ribs and ulna.

Many of the cases were seen for the first time after the disease was considerably advanced, so that it was often impossible to tell where it originated, but those in which one lung only was attacked showed a marked predominance of the right side. 59 to 32, in 47 the disease being confined to the right apex, and in 28 to the left.

Owing to the very incomplete condition of the records as well as the short time during which many of these cases were under observation, the results of treatment can only be given in the form of an impression, which is, however, less liable to be wrong in out-patient practice than among other classes of patients, since there is usually but one factor to be estimated. In private or hospital practice when it is possible to modify the diet and general manner of life, doubt always arises as to whether improvement, should it take place, is to be credited to this or to the drugs prescribed, while among out-patients such modification is rarely possible and then usually but to a limited extent. It is of little use to order a special diet to those

who are already a drain upon a family struggling for the bare necessities of life, or to recommend an abundance of fresh air to those who fear a draught more than death, or to give special directions as to exercise where intelligence is lacking to appreciate its value. Drugs, however, are usually conscientiously taken, so that whatever change for the better takes place can with a certain amount of confidence be ascribed to them. This limitation of one's resources makes the treatment of such patients at best discouraging work, yet it has seemed to me in watching the progress of these cases, that a larger proportion of them improved than previous experience had led me to expect, while a cure, as shown by the disappearance of all signs and symptoms, occurred in a few instances. Routine treatment, when the prognosis was not absolutely fatal, consisted in the administration of guaiacol (occasionally creasote) in doses rarely exceeding five minims three times a day, together with arsenic and Merck's digitalin. In a few cases the dose of guaiacol was gradually increased to fifteen or twenty drops, but no advantage could be seen in the larger amount. Except in one or two cases, where it excited some digestive disturbance which disappeared with a reduction in the dose, patients took it without trouble, almost the only complaint ever made being of the somewhat acrid taste and the persistent odor of the breath, of which they were themselves very conscious. The most marked effects for good were seen in the improvement in the general well-being of the patient, and were shown by a gain in appetite and weight, and a decrease in the cough, even in many where the physical signs remained stationary or even seemed to be advancing.

TUBERCULOSIS AMONG OUR NEAT CATTLE.¹

BY DR. F. H. OSGOOD.

TUBERCULOSIS is a contagious and infectious disease so widely disseminated, so insidious in attack, and so fatal in results, that it is, no doubt, the most important disease which we are called upon to combat. Not only does it cause one-seventh of the deaths of mankind, but it is the most widely distributed and disastrous disease among our cattle. Since the discovery, a dozen years ago, of the bacillus tuberculosis, and the demonstration of the identity of the disease in man and the lower animals, a great interest has been manifested in the question of the meat- and milk-supply in our large cities. This interest has given rise to the establishment of an inspection service, which, notwithstanding its necessarily superficial character, has revealed many startling facts respecting the prevalence of tuberculosis among our milch cows and beef cattle; so that at the present time there is little or no question concerning its quite general prevalence.

Accurate statistics as to its extent are not yet attainable, but the abattoir reports show in Prussia 6.3 per cent., in Berlin 12 per cent., in Dresden 14.4 per cent., in London 25 per cent., in Midlothian 20 per cent.; in England, during an outbreak of contagious pleuro-pneumonia, in 1890 and 1891, there were slaughtered, as being infected, or having been exposed, 12,000 animals, all of which were subjected to critical post-mortem examinations, and 12½ per cent. were found to be tuberculous.

¹ Read before the Suffolk District Medical Society, Section for Clinical Medicine, Pathology and Hygiene, January 16, 1895.

The result of the work at our own quarantine stations at Brighton and Watertown, where every animal is subjected to the tuberculin test, before being allowed entry to the State, show that of the animals being brought there for sale, during the first week, 15 per cent. of them were tubercular; during the second week 12 per cent., during the third week 8 per cent., during the fourth week $4\frac{1}{2}$ per cent., and up to December 15th, in the total examination of 1,700 animals, 6 per cent. were affected with the disease. Animals so tested and found diseased, if they have not been within the borders of the Commonwealth for at least six months are destroyed without compensation.

In our examination of animals in this State, we have found some herds with every animal tuberculous, though kept in the most careful way, many of them apparently in the best of condition. Other herds, under precisely similar surroundings, were entirely free from the disease; but in these cases it could be clearly shown that the animals had been bred upon the premises, and no animals brought from without, during a period of at least nine years. Where, however, there has been an interchange of animals during this period of time, in a large majority of cases there is a variable percentage of disease. In many instances the introduction of infected animals into apparently healthy herds has resulted in the transmission of the disease to a large per cent. of their number. In many expensive herds, kept for private use to insure a pure milk-supply, we have found the disease in startling proportions, frequently as high as 80 or 90 per cent.; the autopsy showing lesions of the worst type in well-nourished animals.

The point has been raised that it is impossible to exterminate contagious disease. In this connection I would point to the fact that the incurable contagious diseases among the lower animals can be combated only by slaughter of infected animals, rendering possible the extermination of the disease which might not be possible in men. It may not be without interest in this connection to speak of the importation of a number of animals, some thirty-four years since, consigned to the "Chenerys," some of which were affected with contagious pleuro-pneumonia. The disease spread among our cattle so rapidly and disastrously, that special legislation was secured, which provided that not only those animals manifesting evidence of the disease should be destroyed, but that also all animals which had been exposed to the contagion. The results were gratifying in the extreme. The disease was thoroughly eradicated at an expense of \$60,000, since which time, for a period of about thirty years, there has not been known a case of contagious pleuro-pneumonia in Massachusetts. Some of these animals were sent to New Jersey, but the same methods were not adopted; the policy of that State was to destroy animals which showed evidence of the disease, without destroying those that had been exposed; the disease spread over New Jersey, Pennsylvania, New York, Virginia, and the District of Columbia.

In 1887 it was gaining a foothold in the West, when the United States government took into their hands the extermination of the disease, adopting the methods pursued in Massachusetts, some thirty years before; but so rapidly had it spread that five years were required and many millions of dollars before it was possible to exterminate the disease; since which time, some two years ago, there has not been known a

case of contagious pleuro-pneumonia in the United States.

The history of the treatment of this disease in Great Britain, and the immense amount of money that has been expended, only show the wisdom of the policy adopted by Massachusetts so many years ago.

Until 1892, tuberculosis was not considered of enough importance in Massachusetts to receive even passing notice. At this time, however, a bill was passed entitled, "An Act to more effectually prevent the spread of tuberculosis among cattle." Under the provision of this Act an earnest endeavor was made by the Board of Cattle Commissioners to do all in their power toward the suppression of the disease; but the legislature of 1894, realizing more fully the importance of the subject, enlarged the Commission, increased its powers, and added to the appropriation, making possible the adoption of a new policy, which, it is believed, will prove efficient in accomplishing such end.

Cattle seem especially predisposed to tuberculosis, as has been explained by authors in different ways. It may be that their normal temperature 102° F., is better suited to the growth of the bacillus, as it develops with great rapidity in fowls, whose normal temperature is 107° . Then, too, the health and vigor of cattle is greatly diminished by the conditions under which they are kept, namely, the unsanitary stables, lack of exercise, and the prolonged lactation of the dairy cows, under all the stimulation possible. Their constant breeding throughout their lives, also constitutes a tax upon the system which leaves them in no condition to resist disease to which they are exposed.

In many of our city dairies cattle are tied in the stable from October to April, often remaining for months, without moving out of their stalls, their heads confined in stanchions; and not infrequently their coats are removed by clipping, that they may be able to stand the temperature to which their stables are heated, for the highest production of milk is the only object sought, to attain which, everything else is sacrificed. The ruinous effect of this policy is shown by the great percentage of disease among our dairy cattle, as compared with those that live an out-door life.

The disease may be transmitted by inhalation of the bacillus, by ingestion of the meat or milk of tuberculous animals, and by direct inoculation through an abrasion in the skin. Numberless instances of infection by milk may be quoted, both by experiments on small animals and accidental infection of people using the milk. German, French and American investigators, working independently, found about the same time, that animals using the milk from tuberculous cows rapidly became the victims of the disease. An interesting experiment was made by taking six little pigs about three weeks old. Two were placed in a pen and fed upon cereals; the other four were placed in a separate pen and fed upon the milk of a tuberculous cow. At the end of two months the post-mortem of the cow revealed extensive pulmonary tuberculosis, but no lesions in the mammae. The pigs were also killed and examined. The grain-fed animals were poor, not having had the flesh-forming food, but they were free from the disease. The milk-fed pigs were fat and hearty, but every one was tuberculous. Hirschberger also cites a precisely similar instance which came to his notice. The owner of a herd, learning of their infection with tuberculosis, discontinued selling

the milk, but used it to feed his hogs. When they went to the slaughter they were found affected with general tuberculosis.

Inoculative experiments are so positive and so frequently quoted that I will not cite them, as you are undoubtedly familiar with many.

The result of feeding experiments upon the lower animals leads us to consider the probable transmission of the disease, especially to children and invalids, their ability to resist the disease being at a minimum. Milk is often their favorite food, and is usually taken in the uncooked state. Direct experiment on man, is, of course, impossible; but no doubt you are all familiar with cases of accidental infection, as quoted by many observers. From these I select two, not that they are of necessity the strongest upon record, but because they are well authenticated, and occurred in the immediate vicinity.

A cow died of general tuberculosis in Providence, R. I., the lungs, most of the abdominal viscera, muscular tissue and udder being tubercular. The milk had been used in the family. In August the baby was taken sick, and died in seven weeks of tubercular meningitis. Post-mortem showed tubercular deposits in the membranes covering the brain, and some in the lungs. Two years later a two-year-old child in the same family died of tubercular bronchitis; and seven years after a nine-year-old boy, "delicate" for years, died of "quick" consumption. So far as is known the family on both sides were rugged and healthy.²

In the spring of 1890, Dr. Gage, City Physician of Lowell, Mass., had as a patient an infant which died of tubercular meningitis. Its parents were healthy and the surroundings good. It had never been fed on anything but the milk of a single cow. The cow's milk was microscopically examined, and found to contain the bacilli of tuberculosis. Guinea-pigs inoculated with her milk developed the disease. A second child, fed upon the same milk, was developing similar symptoms to those discovered in the child that died. Dr. Gage could find no way to prevent the sale of the milk, unless he bought and paid for the cow out of his own pocket. So far as he knew, she was still being used for a milk-supply a year later.³

Prof. James Law, of Cornell University, calls our attention to another danger which heretofore has rather escaped attention; namely, there is being constantly produced in tuberculous animals the product called tuberculin, varying in quantity with the number and activity of the bacilli present. This is diffused throughout the animal economy, the blood, lymph, and milk all containing it. When introduced into a person or animal having tuberculosis its effect is well known; namely, it excites the bacillus to renewed activity, thus augmenting the disease, and, therefore, although the milk may be absolutely free from bacilli, much harm may be done by this product, since sterilization has upon it no effect whatever. That its effects are not everywhere recognized is no evidence that they are not produced, as Professor Law very well says, "It is the scrutiny, and not the facts, that is wanting." We have not been looking for these facts, and so have not seen them; but that such effects may be produced there seems to be little room to doubt.

This matter is certainly worthy of consideration, although it is right for me to state clearly that this view has not, as yet, been generally accepted by the medical profession at large. Tuberculin is not destroyed by sterilization, nor by a temperature of 212° F. If present in the animal when alive, it will certainly be present in its flesh and milk; and those who make use of these infectious substances as food must run a risk of injury. From the results of the post-mortem study, by which we have learned that in large cities at least one-half of the poor population are more or less affected by tuberculosis some time in their lives, it is evident that an equal number of those who make use of the flesh or milk of tuberculous animals are likely to suffer the greatest injury thereby, through the intensification of the tubercular process or the diffusion of the circumscribed disease. If then it be true that the temperature of 212° F. offers nothing in the way of protection, it is evident that a thorough individual inspection of each animal is the only means of accomplishing valuable results; and such inspection must include a careful physical examination together with the application of the tuberculin test.

In view of the prevalence of bovine tuberculosis and the consequent danger to us from such conditions of our food-supply, there is no doubt that its prevention and control are among the most important sanitary problems before us to-day. So slow and insidious is the course of this disease that it may be present for a long time, even for years, the animal apparently in the best of condition.

DIAGNOSIS.

Up to within a very short time, the only positive means of diagnosis was microscopic examination of, or inoculative experiments with, the nasal vaginal, or mammary secretions whereby the presence of the germ could be demonstrated. These methods could not be put into general application. Physical examination is very difficult and unsatisfactory in a disease which may affect so many organs and tissues. The recognition of the disease in the early stages is almost impossible, because in whatever organ it may be situated, the changes are so slight, that the functions are not seriously interfered with, and consequently no marked symptoms are developed. There are certain anatomical difficulties in the way of making a perfect physical examination of cattle that are not met with in man. In cattle fed for milk or beef, the digestive function is all important, the abdominal organs having been developed by nature and breeding until they encroach upon the thoracic cavity. The first stomach, or rumen, with a capacity of fifty-five gallons, presses forward against the diaphragm, crowding it into the thorax, materially alters the sounds elicited upon percussion over the posterior portion of the lung. This influence is so irregular, and at times so great as to render the results obtained by percussion in this region of but little value. Auscultation is also interfered with by the soft breathing of cattle, by the thick layer of interlobular connective tissue, by the confusing sounds which originate in the rumen, as well as by the thick skin and mass of muscular tissue interposed between the ear and lung. When the tubercular lesions are located in the liver, intestines, mesenteric and mediastinal glands, it is impossible to make a positive diagnosis till after death; but, fortunately, we now have an agent by the use of which the disease can be detected in its early stages. Although Dr. Koch's

² Ernst: Report to Massachusetts Society for Promotion of Agriculture, p. 4; also reprint in Hatch, Experiment Station of Massachusetts Agricultural College, and Bulletin No. 8, p. 16.

³ Ernst: Hearing before Committee on Public Health, Massachusetts Legislature of 1891, publications of Massachusetts Society for Promotion of Agriculture, p. 19.

endeavors to find a cure for the disease ended in disappointment, the result of his researches led Professor Gutman, of Dorpat, Russia, in 1891, to experiment upon the cattle. He found that inoculation with tuberculin caused in them a characteristic reaction. Since that time tuberculin has been used in many parts of the world with almost uniform satisfaction in the detection of tuberculosis in cattle.

In making the test the temperatures are taken once or twice prior to the inoculation, which is generally made in the evening. About nine hours are usually required before the reaction occurs, though it may be delayed until the eighteenth hour. The temperature is taken every two hours beginning with the ninth hour after inoculation, until about the twentieth. In a typical case the fever ranges from two to five degrees above the normal, increasing regularly to the maximum, and then showing a gradual decline as the tuberculin is eliminated from the system. In conducting the work throughout the State up to December 15th, the Commission have made over 6,000 tests upon cattle, of which 810 were destroyed as tubercular and the post-mortem confirmed the diagnosis in every instance. There have, however, been destroyed 26 animals in which no disease was discovered; 20 of these were killed at the quarantine stations at Brighton and Watertown during the early part of our experience in a practically new field. These apparent mistakes were made, in several instances, owing to the policy adopted by the Commission, namely, while these animals showed no reaction they appeared to us upon physical examination to be tuberculous. We did not dare to put the brand of the Commission upon them as a guarantee that they were free from tuberculosis, although tuberculin had said so. In every one of these cases the animals proved free from disease in spite of their appearances, and the carcasses were sold for beef.

Another condition with which we were confronted was that some of the animals just unloaded from the cars were about to calve, and were, consequently, in an irritable condition. We considered it better to seize them as they were suspicious, and if free from the disease the loss to the State would be less than if we continued them in quarantine for a re-test. Since this time we have gained such experience that our markings have been almost absolutely correct.

The government stations and live-stock commissions of this country, Canada, Great Britain and Europe, are all agreed that tuberculin is a reliable agent for the detection of tuberculosis in cattle, and from our own experience we are satisfied to base our future work upon its accuracy as a diagnostic agent.

THE FLAXSEED-MEAL POULTICE AS A STERILE DRESSING.¹

BY R. W. LOVETT, M.D.

Surgeon to Out-Patients, Boston City Hospital.

FOR an indefinitely long time the flaxseed-meal poultice held its place as an invaluable surgical dressing. With the advent of antiseptic surgery, however, it began to be condemned as dirty; and its use has been generally discountenanced by surgical writers, in

spite of the fact of its undoubted practical utility in many conditions. The present paper represents an attempt to determine by experiment the question, whether this form of dressing can be considered a sterile one.

As an instance of the practical usefulness of flaxseed-meal poultices the following series of cases may be mentioned. After operations for chronic or acute glandular abscess, the writer has treated cases in two ways. In the first series of cases a wet corrosive dressing, with perhaps iodoform, was at once applied, and so far as possible was kept continuously wet. In the second series of cases a flaxseed-meal poultice was used from the first, and was changed every two or three hours. The cases observed have amounted to some forty in number altogether; and in those treated by the flaxseed poultices the patients suffered less pain, the induration disappeared more quickly, and the progress was in every way more favorable than with the corrosive dressing. To a certain extent the same is true with regard to felons and similar inflammatory conditions.

The following experiments deal with the flaxseed-meal poultice as a dressing considered from a bacteriological standpoint:

(1) In the diphtheria ward some flaxseed-meal was taken from a tin box in which it was kept, and boiling water was poured upon it in the ordinary copper poultice dish. It was kept hot over the gas heater for three minutes, a little hot water being added from time to time. It was then poured out in the usual way, smoothed with a clean knife and covered with a piece of gauze not sterilized. A culture from the inner surface of the poultice, including the gauze, showed it to be absolutely sterile.

(2) In the surgical out-patient dressing-room, where fifty to one hundred wounds are dressed daily. The air in this room is foul on account of the large number of patients always there and on account of the presence of many foul leg-ulcers, etc. A poultice was made in a clean copper tin by pouring boiling water onto the meal. The meal was taken from a tin box kept in the room. The water and meal were mixed with a knife. No precautions were taken to render the poultice sterile. A culture from the meal as it was poured out was sterile.

(3) Ordinary gauze, not sterilized, was placed over the inner surface of the meal. A culture showed a few cocci resembling pus cocci and a few thin bacilli.

(4) The hands were sterilized; the poultice dish was thoroughly cleansed; the meal and water were heated for three minutes over the heater.

Culture from the meal as poured out showed a few long, thick bacilli, probably non-pathogenic.

(5) Sterilized gauze was placed over the inner surface of the meal and wet in the moisture of the poultice. A culture from this was sterile.

(6) A poultice made in the ordinary way without precautions, covered with non-sterilized gauze. A culture from inner surface showed many confluent colonies of whitish color, which microscopically were seen to consist of short, thick bacilli, probably non-pathogenic.

(7) Poultice made as in No. 6, but heated for five minutes at a temperature somewhat above 212° F. A culture showed a few small, whitish colonies seen to consist of micrococci.

(8) December 12th. Men's surgical ward. Poul-

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

tice made without precautions; cooked thirty seconds. A culture showed colonies of colon bacilli.

(9) Poultice cooked five minutes; otherwise same as No. 8. A culture showed a few colonies of colon bacilli.

(10) December 13th. Surgical out-patient dressing-room. Poultice made with aseptic precautions; sterile gauze, aseptic hands, etc.; cooked thirty seconds. A culture showed a pure growth of fine bacilli but no pus cocci.

(11) The same as No. 10. Cooked five minutes. A culture showed various bacilli of different forms, but no pus cocci.

(12) Surgical private ward. The poultice was made with all aseptic precautions, and sterilized gauze was used. The meal was boiled for three minutes. A culture showed various organisms present.

(13) The same precautions as in No. 12. The poultice was boiled for ten minutes. A culture showed various organisms.

(14) Women's surgical ward. The meal was boiled for three minutes and poured out. No gauze was used. A culture was sterile.

(15) Out-patient surgical dressing-room. The meal was boiled for three minutes. No gauze was used. A culture showed only one colony of long, thin bacilli.

(16) Surgical out-patient dressing-room. The poultice was made with all aseptic precautions, and the meal was boiled for two minutes. A culture showed long, thin bacilli and cocci.

(17) The poultice was made with all aseptic precautions, and was boiled for five minutes. A culture showed long, thin bacilli and cocci.

These experiments show plainly, that although apparently by chance, the flaxseed-meal poultice may be perfectly sterile, yet in the majority of cases it is not so. Nor can it be rendered sterile by the most scrupulous care in its preparation — as shown, for example, in experiments Nos. 16 and 17. Experiments made in heating the meal for ten minutes or more reduced it to such a gelatinous mass that it was not suitable for surgical use, so that the times given here are as long a period of sterilization as is practicable. The organisms found were in most cases probably non-pathogenic and micrococci were not often present. The place where the poultice was prepared seemed to have little effect on its character, experiments Nos. 12 and 13 having been made under the most favorable conditions, while experiment No. 1 was done in a ward containing many of the foulest cases of diphtheria.

In conclusion, it may be said that the flaxseed-meal poultice is a dressing often sterile, and, if not sterile, containing, as a rule, organisms which are probably not pathogenic; but that it may contain pus cocci. It may be added that no care in its preparation can be relied on to render it sterile.

The writer is indebted to Dr. Stokes of the Pathological Department of the hospital for his kind assistance.

A STATUE TO HELMHOLTZ. — The Emperor of Germany announces that he will contribute 10,000 marks towards the erection of a statue in Berlin to Helmholtz's memory. This is the first contribution by royalty or any distinguished functionary of State to commemorate the achievements of either doctor or scientist, so far as our memory serves us.

A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF AUTOPSIES.¹

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(Concluded from No. 13, p. 296.)

GENERAL INFECTIONS WITH THE STAPHYLOCOCCUS PYOGENES AUREUS.

IN this group we consider those cases in which the bacteriological examination showed a general monoinfection essentially with the staphylococcus pyogenes aureus. One of the cases of diphtheria is included here because the general infection with the staphylococcus seemed to have its origin in an operation wound of the hip, rather than the throat. We also report here more in detail the two cases of endocarditis with staphylococcus septicemia.

CASE I. Infection-atrium a decubitus over the scapula. Edema and hypostatic congestion of lungs. Acute splenic tumor. Arterio-sclerosis of aorta and heart hypertrophy. Staphylococcus pyogenes aureus in spleen, lung, liver and kidney and cerebral meninges. Streptococcus and micrococcus lanceolatus in lung.

CASE II. Ophorectomy for cancer. Metastases in retroperitoneal lymph-glands, omentum and liver. Circumscribed peritonitis. Acute splenic tumor. Chronic diffuse nephritis. Chronic pleuritis with effusion. Hypostatic congestion and edema of lungs. Staphylococcus pyogenes aureus in kidney and blood of heart.

CASE III. Laparotomy for chronic salpingitis, slight peritonitis. Soft spleen. Staphylococcus pyogenes aureus in the peritoneum, spleen and blood of heart.

CASE IV. Operation for congenital dislocation of hip. Abscess about hip-joint extending around ileum, beneath peritoneum, up to the kidney. Secondary abscess in left shoulder, kidney and lung. Diphtheria. Staphylococcus pyogenes aureus in primary abscess, kidney, spleen, liver and lung. Bacillus diphtheriae in air-passages and lung.

CASE V. General infection with actinomycetes. The cultures showed a general infection with staphylococcus pyogenes aureus also. This case is fully reported elsewhere by Dr. Mallory.

CASE VI. Carbuncle of upper lip, metastatic abscesses of lung and kidney. Acute endocarditis, acute splenic tumor, acute hyperplasia of cervical and mesenteric lymph-glands. Acute parenchymatous degeneration of liver and kidneys. Acute degeneration of heart muscle. Staphylococcus pyogenes aureus in carbuncle of lip, kidney, spleen, liver, lung, pericardium and blood of heart.

CASE VII. Pyo-pneumothorax, perforation of diaphragm. Extensive purulent excavation of liver, general peritonitis. Pleural effusion (left side), fatty degeneration of liver. Staphylococcus pyogenes aureus in remnants of lung, liver substance, liver pus and in kidney.

CASE VIII. Acute ulcerative endocarditis, acute pericarditis, infarction of kidney, unresolved pneumonia, empyema, chronic passive congestion. General hypertrophy and dilatation of heart. General

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

edema of connective tissue. *Staphylococcus pyogenes aureus* in heart-lesion, spleen, kidney, kidney infarction, liver and blood of heart.

CASE IX. Purulent broncho-pneumonia, empyema of one side, broncho-pneumonia and acute pleuritis of other side. Multiple miliary abscesses in kidney. *Staphylococcus pyogenes aureus* in lung (purulent broncho-pneumonia), liver and spleen. Kidney abscesses sterile.

CASE X. Acute alcoholismus. Congestion of lung and stomach. Acute splenic tumor. Acute parenchymatous degeneration of liver. *Staphylococcus pyogenes aureus* in lung, liver and kidney. Spleen sterile. *Pneumococcus* also in lung. A mouse inoculated with an impure culture of the *pneumococcus* found in the lung died in forty-eight hours with typical encapsulated diplococci in the blood.

ANOMALOUS GENERAL POLY-INFECTIONS.

Under the head of anomalous general poly-infection we group certain of the cases in which the *staphylococcus pyogenes aureus* and the *streptococcus*, or either of these organisms and the *micrococcus lanceolatus*, have been found together in the same case in some of the internal organs other than in the lung. The poly-infections of this character which have been observed in diphtheria, scarlet fever, erysipelas and puerperal cases are not included in this group, but are considered elsewhere.

CASE I. Cirrhosis of liver, chronic interstitial nephritis, dilatation of right ventricle of heart, fibrous myocarditis, general chronic passive congestion, ascites and hydrothorax. *Staphylococcus pyogenes aureus* in liver and kidney. *Streptococcus* and *staphylococcus pyogenes aureus* in spleen. No cultures from lung and heart.

CASE II. Extreme hemoglobinemia, hemoglobinuria, icterus, acute splenic tumor, acute fatty degeneration of heart-muscle. *Micrococcus lanceolatus* and *staphylococcus pyogenes aureus* in kidney. *Micrococcus lanceolatus* and *streptococcus* in lung. *Streptococcus* in liver. Spleen sterile. Unknown bacteria in blood of femoral vein.

CASE III. Meningitis purulenta, secondary to otitis media. Acute splenic tumor. *Streptococcus* in pus of otitis and in liver. *Staphylococcus pyogenes aureus* in kidney and lung. *Bacillus coli communis* in blood of heart. Spleen sterile.

CASE IV. Acute lobar pneumonia, acute pleuritis, acute splenic tumor, urinary fistula, abscess of kidney, acute degeneration of kidneys, cirrhosis of liver, arterio-sclerosis of aorta and coronary arteries, atrophy of pancreas. *Streptococcus* in liver, *staphylococcus albus* (?) in kidney, large coccus in spleen. Various bacteria in lung.

CASE V. Chronic diffuse nephritis, fatty kidney. Edema of brain and lungs, arterio-sclerosis of coronary arteries, mico-purulent bronchitis, acute splenic tumor. *Micrococcus lanceolatus* and *streptococcus* in liver. *Micrococcus lanceolatus* in kidney and spleen. Blood of heart negative. A mouse inoculated with the mixed culture from the liver, died in about forty-eight hours with a *streptococcus* septicemia, as shown by cultures from the organs.

CASE VI. Chronic coxitis with suppurating foci, peritonitis with serious exudation, fibrinous focal pneumonia left lung, subacute nephritis and general amyloid infiltration. *Micrococcus lanceolatus* in peritoneal ex-

udate, lung and kidney. *Streptococcus* in liver, spleen, and also in kidney.

CASE VII. Bronchiecatic abscesses in lungs, organized pneumonia, subacute pleuritis with pus formation. Acute splenic tumor. Subacute nephritis. *Micrococcus lanceolatus* and *staphylococcus pyogenes aureus* in lung, pleural-pus and kidney. *Staphylococcus pyogenes aureus* in liver. Spleen sterile.

CASE VIII. Acute croupous pneumonia, acute fibrinous pleuritis. Acute splenic tumor. *Micrococcus lanceolatus* and *staphylococcus pyogenes aureus* in lung, liver, kidney and blood of heart. *Micrococcus lanceolatus* in pleura, spleen and blood of femoral vein.

DIPHTHERIA.

Up to the time of the well-known work of Frosch, it was generally believed that the *bacillus diphtheriæ* never invaded the internal organs, but was only to be found in the local inflammatory lesions. In ten out of fifteen autopsies on this disease, this investigator, by using large amounts of material for each culture, could demonstrate the presence of the bacillus either in the blood or in some of the organs. One of the most frequent situations in which it was found was in the pneumonic areas of the lungs. Previous to the work of Frosch but a very few instances are on record in which the bacillus has been met with in these situations. One of these is its occurrence in the spleen in a case reported by Kolisko and Paltauf. In the cervical lymph-glands it has been observed by Schmorl in seven out of ten cases. Recently Booker obtained it in cultures from the spleen, submaxillary gland, lung and blood of the heart in a case of diphtheria, and Kutcher observed it once in the liver and once in the kidney.

In the broncho-pneumonia of diphtheria the presence of the *bacillus diphtheriæ* was noted by Thaon in 1885, but its occurrence in this common complication of the disease does not seem to have received much attention until the last few years, during which time Johnston found it in a single case, Strelitz in one case out of eight, Flexner in one of two cases, Mosny in one of three, Kutcher in eight out of nine, while the frequency of its occurrence in the cases examined by Frosch, has been already mentioned. Of other bacteria associated with the broncho-pneumonia of diphtheria, the work of Thaon, A. Fränkel, Prudden and Northrup, Mosny and Netter, shows that the *streptococcus* is to be met with in the great majority of cases. In the two cases reported by Flexner, however, the *micrococcus lanceolatus* was present, and of the eight cases of Strelitz's, the same organism was present in five, in three of which it was accompanied by the pyogenic cocci.

The occurrence of a poly-infection in certain cases of diphtheria with both the specific bacillus and the *streptococcus* has been insisted upon by Barbier. This writer holds that there exist two forms of the disease, one a pure mono-infection with the *bacillus diphtheriæ*, the other a poly-infection with that organism and the *streptococcus*, or various (doubtful) varieties of it. This conclusion is based mainly upon the results of the bacteriological examination of the throat during life. The post-mortem demonstration, however, of the presence of pyogenic cocci in the internal organs has apparently been made in but a few cases.

Geneserich, in an examination of twenty-five autop-

sies on cases of diphtheria of different clinical types, found among these, four cases of invasion of the blood and internal organs with the streptococcus, while in many cases a general infection with the staphylococcus pyogenes albus was observed.

Bacteriological examinations of the various internal organs have been made in 31 cases of diphtheria, in 5 of which scarlet fever was coincident, and in another case typhoid fever. The bacillus diphtheriæ has been found by culture in the lung in 30 out of 31 cases examined, in the liver in 9 out of 29 cases, in the kidney in 6 out of 31, in the spleen in 5 out of 31, in the blood of the heart in 5 out of 26, in the mesenteric lymph-glands in 7 out of 16, in the cervical lymph-glands in 4 out of 9, in the bronchial lymph-glands in 2 out of 3, in the brain tissue in 2 out of 5 cases, and in the mucous membrane of the stomach in 3 cases. In 21 of the 31 cases, or in nearly 70 per cent., there has been found a more or less general invasion of the internal organs by the pyogenic bacteria, of which the streptococcus was the one most frequently met with.

The streptococcus was present in one or more of the large viscera (exclusive of the lungs), or in the blood of the heart, or in both, in twenty cases. In five of these cases, in addition to the streptococcus in certain organs, the staphylococcus pyogenes aureus or the micrococcus lanceolatus, or both, have been found also in some of the organs of the same case.

Among the streptococcus septicemias was the case of diphtheria and typhoid fever reported by Morse, in which the typhoid bacillus was also found in the various viscera. The only case of pyogenic infection in diphtheria in which the streptococcus was not concerned, but in which the staphylococcus pyogenes aureus was cultivated from all the large viscera, was one with a recent operation wound about the hip-joint, which should be regarded as the probable infection-atrium for the staphylococcus. Because of its unusual features, this case should be excluded from consideration as an ordinary case of poly-infection in diphtheria, as should also be excluded for the same reason, one of the cases of general streptococcus infection, in which the infection-atrium was probably a recent operation-wound in the abdominal wall with abscess formation. Excluding, therefore, these two surgical cases, there still remain nineteen cases of poly-infection in which the infection with the bacillus diphtheriæ was complicated by infection with the pyogenic bacteria.

This fact is of importance in connection with the treatment of diphtheria with antitoxin, for while the antitoxin is certainly capable of neutralizing the effects of the diphtheritic poison under certain conditions, yet there is no evidence that it can neutralize the effects of the pyogenic infection as well. If it is generally true that 60 per cent. of all cases die with a general infection with the pyogenic cocci in addition to the infection with the bacillus diphtheriæ, the failure of the antitoxin to effect a cure in a certain proportion of cases can be readily understood. It will be interesting to observe in future, when the antitoxin treatment has come into general use, whether many cases of pure uncomplicated diphtheria come to autopsy as at present.

Of the thirty-one cases, broncho-pneumonia was present in nineteen. The cultures from the lung in these broncho-pneumonias gave the following results:

The bacillus diphtheriæ (not accompanied by other

pathogenic bacteria) in eight cases. The bacillus diphtheriæ and the streptococcus in five cases; the bacillus diphtheriæ, the streptococcus and the staphylococcus pyogenes aureus in two cases; the bacillus diphtheriæ, the streptococcus, the staphylococcus pyogenes aureus and the micrococcus lanceolatus in one case; the bacillus diphtheriæ and the staphylococcus pyogenes aureus in one case; the streptococcus (not accompanied by other pathogenic bacteria) in one case, and the bacillus diphtheriæ, the streptococcus and the micrococcus lanceolatus in one case.

From these results it is apparent that no one organism is to be regarded as the cause of the broncho-pneumonia of diphtheria. In fact, some or all of these species of bacteria above mentioned may be present in the lungs without the occurrence of broncho-pneumonia, as the following results show. Of the twelve cases in which no pneumonic condition was present, the cultures from the lungs in six cases (including two cases of pulmonary infarction) showed the presence of the bacillus diphtheriæ as the only pathogenic organism present, in two cases the bacillus diphtheriæ and the streptococcus, in two cases the bacillus diphtheriæ and the staphylococcus pyogenes aureus, and in two other cases the bacillus diphtheriæ, the streptococcus, the staphylococcus pyogenes aureus and the micrococcus lanceolatus.

Undoubtedly a large portion of the bacteria developing in the cultures from the lung are derived from the smaller bronchi, and not from the lung substance proper.

An interesting case, not included in our cases of diphtheria above analysed, in which the bacillus diphtheriæ was found, may be referred to here. The case was essentially one of broncho-pneumonia in an old man, no other well-marked lesions being made out at the autopsy, although the larynx and trachea were not examined. There were no symptoms during life. The cultures showed the presence of typical forms of the bacillus diphtheriæ in the lung and liver, in addition to various unknown bacteria. The organism, however, both from the lung and liver, was found to have no virulence towards guinea-pigs. This lack of virulence towards guinea-pigs has been occasionally observed in the bacillus diphtheriæ. We have noted it ourselves in a number of instances, even when the bacillus was derived from fatal cases of diphtheria. In addition to this case we have also met with the bacillus diphtheria in the lung in two other cases, in one of which it was found to be typically virulent towards a guinea-pig. In neither of these cases was there any suspicion of diphtheria during life and the air-passages were not examined at the autopsy.

SCARLET FEVER.

Crooke, in 1885, found micrococci in the spleen and kidneys of 30 cases of scarlet fever; and in the same year Fränkel and Frendenberg found the streptococcus in cultures or sections from the submaxillary glands, the liver, the spleen and kidneys in three cases of the disease. Raskin observed the streptococcus in the purulent lymph-glands and joints, and four times in the blood of the heart in scarlet fever; and Leubartz examined a case with similar results. In the kidneys, in scarlatinal nephritis, Babes obtained constantly the same organism. The occurrence of a streptococcus general infection has also been constantly observed by Kurth at autopsies on scarlet fever.

Autopsies have been performed on 11 cases of scarlet fever, in five of which diphtheria was coincident. A well-marked general infection with the streptococcus was demonstrated in four cases (diphtheria being coincident in two); a general infection with the micrococcus lanceolatus in one case; and in another case a general poly-infection with the micrococcus lanceolatus, and the staphylococcus pyogenes aureus; these bacteria being found in the various organs either separately or together. In still another case, in which diphtheria was coincident, the culture from the spleen showed the presence of the micrococcus lanceolatus, and that from the kidney, both the streptococcus and the staphylococcus pyogenes aureus.

In the four remaining cases the cultures from the various organs (exclusive of the lungs) were sterile, or contained various unknown bacteria; and no general pyogenic infection could be demonstrated. It may be mentioned that diphtheria was coincident in but three of the seven cases of general infection with pyogenic cocci. Broncho-pneumonia was observed in nine of the eleven cases. The cultures from the lung in these cases resulted as follows:

The streptococcus was found in four cases (including two cases of coincident diphtheria in which it was associated with the bacillus diphtheriæ); the bacillus diphtheriæ in two cases; the micrococcus lanceolatus in one case; the micrococcus lanceolatus and staphylococcus pyogenes aureus in one case; and in one case a mixture of three of these species of bacteria. It is apparent, therefore, that no one species of bacteria is to be found constantly in the broncho-pneumonia of scarlet fever. This has also been shown to be true of the broncho-pneumonia of diphtheria.

TYPHOID FEVER.

But nine cases of typhoid fever have come to autopsy. The chief points of interest in our study of these cases may be briefly given as follows: The typhoid bacillus has been found in the spleen in seven of the nine cases. In the two negative cases the failure to find the bacillus may be explained by the fact that both cases had entered the stage of healing. This early disappearance of the typhoid bacillus is interesting. It is worthy of note that in one of these cases (an acute endocarditis) micrococcus lanceolatus was present. In two cases there was a poly-infection with both the typhoid bacillus and the streptococcus, diphtheria being coincident in one of them. As to the distribution of the typhoid bacillus through the organs other than the spleen, our observations are not as complete as could be desired. Our results on this point may be summarized as follows: The typhoid bacillus has been found in the liver in four out of seven cases in which cultures were made from that organ; in the kidney in three out of seven cases; in the blood of the heart in two out of four; in the mesenteric gland in three out of five cases; and in the bile in two out of three cases.

In the identification of the typhoid bacillus and its differentiation from the bacillus coli communis, great care was exercised, the liability of confusing it with that organism being always borne in mind. The typhoid bacillus in these cases was differentiated from the bacillus coli communis by the absence of gas production in its sugar-agar culture, by the appearance of its potato and litmus-milk cultures, by the absence of indol production, by its motility, and by the ease with which its locomotor organs could be stained. Most of

these tests were gone through with in every case to make certain the identity of the bacillus.

BRONCHO-PNEUMONIA AND FOCAL-PNEUMONIA.

The most important and extensive investigations of the bacteriology of the various forms of acute focal inflammations of the lungs are those of Finkler, Netter and Mosny. Finkler, from an examination of 37 cases of broncho-pneumonia and other forms of acute focal-pneumonia, found that various species of bacteria occurred in these processes, but that the streptococcus was most frequently met with in the focal forms other than true broncho-pneumonia.

Netter studied 95 cases of broncho-pneumonia, 53 of which were in adults and 42 in children. Of the 53 cases in adults, 35 were mono-infections in which the micrococcus lanceolatus was found in 15, the streptococcus in 12, the bacillus of Friedlander in 9, and the pyogenic staphylococci in 3; while 14 were poly-infections with two or more of these species of bacteria. Of the 42 cases in children, 25 were mono-infections, in which the micrococcus lanceolatus was found in 10, the streptococcus in 8, pyogenic staphylococci in 5, and the bacillus of Friedlander in 2; while 17 were poly-infections with two or more of these species of bacteria. Netter concludes from his study, that neither in children nor adults is there any relation between the species of bacteria and the type of inflammation in the lung.

Mosny studied 17 cases and found the streptococcus in 11, in five cases accompanied by other bacteria; the micrococcus lanceolatus in four, and the bacillus of Friedlander in one case. Three of Mosny's cases were pseudo-lobar and in these the micrococcus lanceolatus was present.

In the course of this work cultures have been made from the lung in 16 cases in which broncho-pneumonia was present, exclusive of cases of diphtheria and scarlet fever. In eight of these cases the micrococcus lanceolatus was found as the only pathogenic organism present, in two the streptococcus, in three the staphylococcus pyogenes aureus, in one the micrococcus lanceolatus and the streptococcus; and in two only the bacillus coli communis or various unknown bacteria grew in the cultures.

In two cases of atypical pneumonic consolidation the micrococcus lanceolatus and the streptococcus were respectively present.

From these results it is clear that, as in the broncho-pneumonias of diphtheria and scarlet fever, the species of bacteria associated with pneumonia conditions other than the lobar type are subject to great variation.

Of other pathological conditions in the lung, from which cultures have been made, tuberculosis only will be considered. In all of five cases of various types of pulmonary tuberculosis either the streptococcus or the staphylococcus pyogenes aureus, or both, have been found in the diseased lung. From one of these cases the bacillus diphtheriæ was also isolated, and found to be characteristically virulent for a guinea-pig. No examination was made of the throat or trachea at the autopsy, for there was no suspicion of diphtheritic infection.

A WARNING TO MIDWIVES. — It is reported that a midwife has been committed to trial in England charged with manslaughter, on the ground of having communicated puerperal fever to her patient.

Clinical Department.

PERSISTENT ATTEMPTS AT SELF-DESTRUCTION; A REMARKABLE METHOD OF SUICIDE.

BY CHARLES H. MORROW, M.D., GLOUCESTER, MASS.

IN November of the year 1894, I was called to attend A. B., a man who had passed middle life, was unmarried and lived alone. He had for years been troubled with indigestion and was a confirmed pill-taker. He now believed he had heart disease, but after examination I informed him that he had not. He wished me to visit him as often as I considered necessary and I called two days later; during this time he was frequently on the street, and made several social calls. He was noticeably despondent.

In the afternoon, five days after my first visit, responding to a summons, I found my patient in bed. In the early morning of that day he had made an attempt upon his life. I found an incised wound two inches in length, beginning over the apex of the heart, extending towards the sternum, and penetrating the chest near the sternum, the organs contained in the chest being apparently uninjured; a second incised, non-penetrating wound was found just above the one described; there were two incised wounds on the anterior surface of the left forearm near the wrist, but the arteries were not cut. There was a small wound of the skull and its coverings at the vertex in the median line at the point of junction of the coronal and sagittal sutures which he informed me he had made by driving a nail through his skull with a hammer. While penetration of the skull was quite apparent a probe could not now be made to pass through it. A small wound was found near the one described, which had probably been made by a nail, but which had not penetrated the skull.

He informed me that he was tired of life, believed he had water around the heart, and had made an incision for the purpose of letting it out; he also desired to know the exact location of the heart and vital points in the brain. The implements which he had used could not be found. Just after the attempt on his life he had called a woman occupying a portion of the house, who found him sitting in a chair with a basin in which there was considerable blood, which had flowed chiefly from the chest wounds. His clothes had absorbed considerable blood. She observed the head of a nail protruding from the skull, but on returning after a short absence from the room it had disappeared. It would seem that the skull wound had been first made, as it would apparently be impossible to make it when weak from the loss of blood. The end-cutting wire pliers by means of which he had extracted the nail were found. He progressed favorably, and after a few days gave every evidence of recovery. The highest temperature noted was 100.5°. As his condition improved his expressions of dissatisfaction at the failure of his attempt became more pronounced.

On the ninth day after his first efforts at suicide I was informed that the nurse had left him for a short time, and during his absence the patient had arisen, obtained a hammer and nail, and made a second attempt at suicide. The point of entrance of the nail into the brain was the same as before and it was extracted by the nurse with the pliers which the patient had himself used on the former occasion. The nurse stated

that the head of the nail was so close to the skull that it was with difficulty he secured sufficient hold upon it to allow its extraction; he also stated that the nail was so tightly held by the bone that a considerable outlay of strength was required for its liberation. The first nail used was now found and identified by the blood which had clung to it. It was the ordinary smooth, round, wire nail so much in use, and measured five inches in length and three-sixteenths of an inch in diameter. The nail used on the second occasion was somewhat larger, and measured five and one-half inches in length and one-fourth of an inch in diameter. The hammer was an ordinary-sized one, having a claw for nail-extraction. The knife used was a fish-cutter's knife; an idea of this knife is obtained if we imagine a six-inch bread-knife with the cutting edge ground out in a uniform curve from the handle to the end of the straight portion of the cutting edge, that is, the end of the knife is as large as formerly, the blade narrowed at the centre.

A rise in temperature followed this second attempt, the highest recorded being 102°. Death occurred on the fifth day, or on the fourteenth day after the first attempt at self-destruction. Power to communicate ideas by speech was lost two days before death; but his mind readily responded, and showed normal understanding until death. Two days previous to death a twitching of the muscles of the right side of the face was noticed, and was soon after apparent in the right arm and hand.

Laceration of the brain and its coverings was demonstrated after death. The course of the nails was downward and backward towards a point one inch to the left of the junction of the longitudinal and lateral sinuses.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

JOHN L. AMES, M.D., SECRETARY.

REGULAR Meeting, Wednesday, January 16, 1895, DR. G. M. GARLAND in the chair.

DR. G. G. SEARS read a paper entitled,

REMARKS ON TWO HUNDRED CASES OF PHTHISIS.¹

DR. V. Y. BOWDITCH: Dr. Sears's paper brings up several interesting points for discussion. Certainly, in regard to the point of heredity in consumption, I have been led to adopt the belief that it is not transmission of a tuberculous condition from parent to child, but that a vitiated system can be handed down which makes a fruitful soil for the germ to grow in.

In reference to our methods of diminishing the liability of infection from one case to another and the action of boards of health, it has always seemed to me that a middle ground is the safer. I had the strongest feeling against the action taken by some of the boards of health at first who would almost ostracize the poor patient the instant the bacillus was found in his sputa—it seems to me a cruel and unnecessary position to take. I do believe that certain measures, especially those adopted by the Massachusetts Board of Health and the City Board of Health, are capable of doing a vast amount of good. I have

¹ See page 323 of the Journal.

been very much surprised to find how amongst the poorer classes there seems to be already a knowledge of how to dispose of the sputa of tuberculous patients. Several times in questioning what was done with the sputa I have asked whether handkerchiefs were used, and they have said, "No, we use a piece of paper and throw it into the fire." It is a hopeful sign, I think, that people are awake to the fact that dried sputum is a danger element, and that its destruction by fire is the safest method.

It seems to me that Dr. Sears's suggestions in regard to out-patients are excellent. There is nothing in them one would take fright at. In the City Hospital we have lately adopted a new method, or, at least, it is already on the boards to be adopted, recommended by the medical staff to the superintendent who is to put it in force, and that is, instead of using the ordinary china spit-cups, a certain kind of paper spit-cup is used at the bedside. These cups when not too full are taken by the nurses, piled up together and put in a cheap cardboard box prepared for the purpose, with a rubber strap placed around it, then put into an iron rack and carried down to the fire-room. There the boxes are thrown immediately into the fire. That diminishes the possibility of infection from cuts on the hands, etc., among nurses who complain that in order to keep the china cups clean they have to put their fingers in and rub. Dr. White tells us that he has had cases of tuberculous trouble in nurses originating in the hands.

DR. VICKERY: I have enjoyed listening to the paper very much, and been instructed by it. This question about the attitude that the healthy part of the community should hold toward persons afflicted with contagious diseases is a difficult matter. Look at it from another side, which was brought to my mind by one of the doctors in this city who goes about visiting the families of those school-children who have scarlet fever and diphtheria. Perhaps in the whole city there are fifteen or more cases reported among school children daily. Now, supposing instead of being diphtheria or scarlet fever, it was small-pox, just think what a stir there would be, and how people would like to move out of Boston for the sake of their health; and yet unless very recent methods are going to change the prognosis, diphtheria is fully as fatal a disease as small-pox would be among children who had been well vaccinated. I think it is a very good thing to be frightened if you are frightened at the right things; and I am frightened at diphtheria, for instance, and scarlet fever: it is a bad thing to have in your house. A family will nurse one child, isolate him, suffer all sorts of privations, send the other children off and have everything repainted and repapered, and the other children come back and one of them comes down with scarlet fever in that clean house. This brings me to one point about which I think we all agree, and that is, after a consumptive has died, his home should be visited by the board of health and cleaned up. It seems to me that would not hurt anybody, and just the same as soldiers march from a funeral a little faster than they went, the family might feel they had taken a new start and were not going to have any more such things among them.

About the treatment, my experience confirms somewhat what Dr. Sears said about guaiacol. When creasote was first recommended I tried it conscientiously, and found that almost invariably patients seemed to

be worse for it. They got upset, and a good many of them never came again. Now I give a very small dose of it, and it is really surprising how much good it seems to do. The benefit seems to be primarily a stimulation of appetite and digestion. The formula I have employed (but did not originate) is as follows:

Creasoti fagi	.....	gtt. xxiv
Tr. gentian. comp.	.....	3 i
Sps. vini rectificati	.....	3 ss
Syr. sarsaparill. comp.	.....	3 i
Vini Xerici q. s. ad.	.....	3 iv M.
Sig. One teaspoonful in water before meals.		

The combination is much like Fraentzel's.

DR. PRESCOTT: I would like to call the attention of the Section to a method of treatment of consumption brought to my notice last September by Dr. Wood of the United States army. It is a method published by Dr. Carossa, in the *Centralblatt für Bacteriologie* for last June, and consists in the continuous inhalation of the essence of peppermint and the administration of peppermint and creasote internally combined with hyperalimentation and all the wine that an Italian soldier can take. Dr. Carossa reported forty-four cases treated by this method. Four cases were of general tuberculosis and all died: one case had a severe hemorrhage, and died while under treatment: one case died in sixteen months, as it was said from re-infection, having gone back to the same hovel where she had lived previously, and had contaminated the room by spitting all over the floor and walls. All the rest recovered; thirty-two were discharged absolutely cured, and the rest were benefited or discharged nearly cured. Twenty cases were in the second stage, two in the third stage, and the rest were in the first stage.

It was drawn to my attention last September, and I immediately put a patient under treatment. Since then I have had ten cases in all, three of them having been benefited to no great extent; they are no worse than last September; the number of bacilli is no greater; and some of the symptoms, like cough, the amount of expectoration and the night-sweats, are improved, but further than that there has been no improvement. One who went to New Mexico, and was in New Mexico sometime before she began the peppermint treatment, without any great improvement, started in upon it there, and has gained eight pounds in three or four weeks, is very much better in every way, so much so that she feels very much encouraged, and her husband does too. She had had amenorrhea nearly a year, but the courses returned on December 28th, and she now has only a very slight cough. I have not had a chance to examine her sputum, but everything else points to recovery. That, of course, cannot be attributed wholly to treatment, but at least the treatment has benefited her. A doctor who went there in the last stages, and who had some peppermint given him by my patient, was so much benefited, although there was no hope of recovery, that he wrote saying, if he lived a thousand years he could not thank her enough for the relief to the cough and dyspnea and night-sweats he had received. The other six cases were men in the Reformatory at Concord, Mass., whom I saw through the kindness of Dr. G. E. Titcomb, the physician in charge. Every one has improved, and gained in weight from two to eleven and-a-half pounds. Their expectoration has diminished so much that it is now practically nothing (I have not been able to get any from them for a month

to examine, and the last time I examined it the number of tubercle bacilli was very much diminished). Two have left the institution, one without symptoms of any sort, and he has been lost sight of. The other has gained steadily from the time he started treatment, and he is still under treatment. The other four have given up treatment as being practically well, have gone back to work, and with such improvement that you cannot get any sputa to examine for bacilli. The number of cases is very small. I speak of them with a good deal of diffidence, simply wishing to call attention to the method of treatment and to report what improvement has been obtained.

The method I used was this: A piece of cloth about ten centimetres long and five wide is folded upon itself so as to make a piece one and a half centimetres wide and five long, and this is held to the nose by a string or elastic passed around the head, and is to be worn continuously. Upon that four or five drops of the essence of peppermint are put every three or four hours, and the patient wears it except when eating. The doctor impresses upon the patient the necessity of every twenty to thirty minutes taking deep breaths and holding the inspired air so that the peppermint can come in contact with the bacilli in the lungs. Peppermint and creasote are given internally in a mixture made of eight parts each of the spirit of peppermint and pure creasote, 20 parts of chloroform, 225 parts of glycerine, and 550 parts of alcohol.

I do not know what kind of stomachs the Italian soldiers have; but the doctor says he gives a tablespoonful of that mixture every four hours. I have never found anybody who could take it that way, and most of them cannot take it any way. Half a teaspoonful every four hours is all I have been able to give.

The first patient, I think, was a young girl of sixteen, who took it straight. Everybody else wants to take it in as much water as they can get. Dr. Carossa says it can be put into a tumbler of water and sipped if the stomach does not retain it readily. Then in addition to the peppermint and the creasote taken into the stomach and peppermint inhaled, he gives 400 c. c. of wine in the twenty-four hours. But the first symptom to disappear are the night-sweats, and every patient who has had night-sweats has had them disappear inside of the first two weeks; and within three weeks the cough has diminished very much, as well as the amount of expectoration.

DR. BOWDITCH: I have used this method, and have used the oil of peppermint. If one does use that he has to be careful, as the oils vary very much in quality. Some are extremely irritating and some extremely nauseating.

DR. GARLAND: I met a doctor from Virginia a few years ago, who used the oil of peppermint for coryza. He told the patient to moisten the nostrils first with water and then with the oil of peppermint directly on the nostrils, with a great deal of benefit by clearing the head where the nostrils were closed.

I should like to ask whether in private practice the patients object to this thing while going about. Of course, in the Concord prison they can wear it all day; but what advice would Dr. Prescott give to a private patient about town as regards the number of hours he should use this apparatus?

DR. BOWDITCH: I think I have tried it in six or seven cases. The most of these were at the Sharon

Sanitarium, and there was no difficulty in controlling them. Another case was a lady in Milton. She wore it day and night, and made no objection to it. One other case was a silly girl, who objected to it at the outset, and I discontinued it. My experience has been negative as far as results at the sanitarium have been concerned. In the lady at Milton, there was an astonishing change in her cough and night-sweats, and after six or eight weeks she was decidedly better. It seemed something more than coincidence, but finally she became nauseated with any attempt to use it. She is now going rapidly down hill. In strict justice to the method proposed, however, I ought to add that the internal treatment with creasote and peppermint was not used at the same time.

DR. PRESCOTT: I have only had four private patients, and one of these was a young girl who wore it around the house, and did not go out except to ride or to come up to see me in the car, and then she made a cone of her handkerchief instead of wearing the cloth. The second one was a woman of about forty. She made a cone which she preferred to the cloth. This she put over the nose and kept saturated. She liked it very much. I think she would have improved more, but she had an attack of acute endocarditis. But as far as the lungs were concerned she was no worse. The third patient has worn it just the same way; but she doesn't go visiting at all, and I don't suppose they could. I think, too, from reading Dr. Carossa's method, that the best results were obtained by keeping the patient in bed until after the disappearance of the signs; and I suppose one reason of that was because they could keep them more under surveillance.

DR. ABBOTT: I should like to ask Dr. Osgood how he would explain this fact: Some thirty years or more ago Dr. Bowditch made a statement which marked an advance in our knowledge of tuberculosis beyond anything known up to that time as to the conditions under which it prevailed. In that paper, published in 1861 or 1862, he showed that in certain parts of the State there was much more tuberculosis than in others; and that in the sea-coast counties of Barnstable and Nantucket tuberculosis in human beings was relatively greater than in any other places in the State, Nantucket having the highest ratio; and yet I understand that the examinations of cattle in Nantucket have shown the least tuberculosis of any place thus far, only five or six in six hundred. Now, there is a better opportunity in that island to make an observation than in any other place in the State. It is an isolated community, with no migration to that place at all. They use, undoubtedly, their entire milk-supply from those animals. Probably they use a large part of the beef of those animals. If there is a close connection between the consumption of the products of tuberculous cattle and the prevalence of tuberculosis among human beings, should we not expect to find upon that island corresponding ratios in these two sets of observations?

DR. F. H. OSGOOD presented a paper on

TUBERCULOSIS AMONG OUR NEAT CATTLE.²

DR. ABBOTT: I think the point is correct that it may be one factor, but by no means the greatest. In reference to whether we know what kind of milk our milkmen carry. In the method in which milk is distributed in Boston it would be impossible except in a very few instances. The milk is brought in by large

² See page 326 of the Journal.

contractors who distribute it, and sometimes it is put into mixers holding from one hundred to several hundred gallons each, so that the "one can" business and "one-cow's milk" is often a mere hypothesis.

The PRESIDENT: I wish to express my own gratification and appreciation of the value of this paper, and I imagine that I convey the sentiments of the gentlemen in thanking Dr. Osgood for the pleasure and the profitable evening he has given us.

Recent Literature.

A Practical Treatise on Orthopedic Surgery. By JAMES K. YOUNG, M.D. Philadelphia: Lea Brothers. 1894.

The author states that the book is designed as a guide to students and practitioners, and he has judged well of the necessary requirements for a scope of such a presentation of the subject. The work is a good representation of the general opinions of to-day in orthopedic surgery; and in offering this the author has given full attention to recent literature in the various departments of the subject. The text is well written, and the illustrations, which are numerous, are good.

Portions devoted to the description of disease and to etiology and diagnosis are particularly well presented, and distinctions in diagnosis in many instances are made clear by comparative tables; but it would have added more to the value of the work to have given in general more space to the discussion in greater detail of questions of treatment in the matter of application of apparatus, which is so essential to the successful treatment of this class of cases. It is to be regretted that the various methods employed in the treatment of hip-disease should not have been considered more with reference to the objects which they are designed to accomplish and the education which leads to their choice rather than as schools of treatment that would be inferred by the names of American and English methods.

The presentation of the subject of etiology and development of lateral curvature is particularly good and deserves mention; but the question of the treatment seems to be rather slighted. In view of the prominence and interest which is now being displayed in this department, and also the need of putting this on a scientific basis, it seems an omission to dismiss the question without most thorough consideration, especially that of treatment of resistant cases which require more than simple gymnastic measures or retentive appliance.

The portions devoted to the neurological side deserve special mention, not only because it is rare to find this so carefully treated in works of this kind, but from its own worth. The author evidently recognizes the advantage to the orthopedic surgeon of a thorough understanding of this branch, both for itself and for its aid in general orthopedics, and to have this presented so well from the orthopedic side gives it special value.

One is impressed with the thoroughness which Dr. Young has shown throughout the work, and not the least, in his attention to recent literature and presenting recent advances in many departments. To present a subject in a brief form always involves danger in the omission of important facts, but the author is here to be commended on his judgment in selection.

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REPORT OF THE ST. LAWRENCE HOSPITAL FOR THE INSANE.

THE managers of the St. Lawrence Insane Hospital, Ogdensburg, N. Y., have just issued their eighth report. The hospital seems well equipped with buildings, surgical and medical outfits, libraries, laboratories, etc., and the reports of the medical directors show a commendable zeal to improve the large opportunities there offered. The number of patients on September 30, 1894, was 1,100. The average *per capita* cost for maintenance, including officers' salaries and clothing, was four dollars and thirty cents weekly.

Under the head of "Medical Science," Dr. Wise, the medical superintendent, speaks somewhat enthusiastically of the work of his associates, whose aim is to carry into effect these objects: "the application of the most advanced and enlightened views in relation to the treatment of the insane; minute and precise clinical observation of cases; the acceptance of every opportunity afforded towards the solution of problems connected with the causation and pathology of insanity.

Under the head of "Laboratory Methods," Dr. Robert G. Cook, resident physician, describes the processes employed of hardening, section-cutting, staining and mounting of morbid specimens of nerve and brain tissue. He has given several colored plates illustrative of pathological changes in the brains of subjects who had died at the hospital.

Dr. J. M. Mosher presents specimens of the clinical records and bedside notes of this hospital. A blood chart has recently been added to the series of blanks in daily use.

The chapter by Dr. J. M. Mosher on "The Relations of Physical Disease and Mental Disorder" is of especial interest and value. The conclusion is reached, "that the differences and distinctions between affections of the mind and body are more apparent than real, and that success in the treatment of disease of the former is attained on purely medical methods no

less than in the treatment of affections of any other part of the organism. Mental disease as an entity, whether its manifestations be mania or melancholia, exhilaration or depression, disorder of the will or the emotions, yields to the preponderating physical depravity and remains only as a complicating group of symptoms, often perplexing and obscure, but subordinate."

The writer agrees with Dr. Edward Cowles (Shattuck Lecture, 1891), in teaching that in the genesis of insanity, the departure from health is initiated by a train of neurasthenic symptoms, of which the earliest is the development of pathological from physiological fatigue. He affirms that neurasthenia, as pre-eminently the type of perverted nervous function, has the closest relationship to insanity, of which, in fact, it is a well-nigh universal complication. "In chronic cases long past the initial neurasthenic stage, its impress remains in the enfeebled circulation, intestinal torpor, dilated pupils, retarded and benumbed sensations, motor debility and inactive reflexes." The sequence and relations of the neurasthenic manifestations have been shown to be, on the physical side, lack of control of nerve-force, failure of co-ordination, and increased excitability with quick exhaustion; the earliest mental indication is weakness of the faculty of attention, alteration of the bodily feelings, producing a sense of ill-being and of effort. So far the symptoms are those of normal tire amenable to the relief obtained by usual processes of recuperation. The morbid state follows the grafting upon these, symptoms of introspection, retrospection, apprehension, worry and hypochondria, irritability and restlessness, from which the change to suspicion and delusion is but a step.¹

Dr. Mosher thinks that for these cases, rest is the prime indication. When this may be best secured by withdrawal from sources of irritation, and the novelties of sight-seeing and similar mental stimulation, from the sympathetic and too fidgety interference of well-meaning but oppressively-anxious friends, isolation becomes imperative, often in the hospital. There, induced by routine manner of living, by well-ordered direction of trained nurses, and by nutritious food properly adjusted in time and quantity for the digestive capacity, improvement is often rapid and permanent. The action of tonic drugs is re-enforced by electricity and massage. At a proper moment in convalescence, dulness is sought to be overcome by the stimulation of carefully-regulated diversion, and the physical and mental recuperation to be completed by calisthenics, drives, short walks and easy games, as croquet and tennis.

Disorders of digestion, according to this writer, are not less frequent complications of insanity than of its associated neurasthenic state. Their correction is essential to successful treatment, and may be expected to exert a prominently favorable effect upon the mental disease. Gastric and intestinal dyspepsia, func-

tional derangement of the liver, constipation and its sequelæ, cholelithiasis and intestinal parasites are such frequent symptoms, that cases so affected have furnished grounds for the belief in the so-called sympathetic insanities. Recovery from acute melancholia following fecal impaction is reported by Dr. Hutchinson, and Mosher also has recorded a similar case in which disinfection of the primæ viæ was followed by relief of stuporous melancholia and restoration of the patient to his home and vocation. The study of this form of auto-intoxication throws much light on the causes and complications of acute insanity. Several interesting reports in illustration and vindication of this statement are given.

No less interesting is the study of the insanities dependent on diseases of the circulatory system and of the genito-urinary system. Dr. Mickle's analysis shows mitral regurgitation to be most frequently accompanied by depression with delusions of persecution and suspicion; mitral stenosis with impulsive excitement and discontent; aortic regurgitation with loquacity and delusions of exaltation and of internal sensations, such as magnetic influences; and aortic stenosis with impulsive violence and delusions of persecution and poisoning. Several illustrative cases occurring at St. Lawrence Hospital are reported by Dr. Mosher.

With regard to uremic insanity, it would appear that there is a large field yet to be explored in which the relations of renal insufficiency to various forms of mental alienation may be set forth. Mosher gives four conspicuous cases of uremic insanity, of which two resulted in death, one in chronic insanity, and one in restoration to mental health.

The question of the relations of insanity and tuberculosis presents great interest, and the same may be said of constitutional diseases such as gout and diabetes. The frequent co-existence of phthisis and insanity has been acknowledged by all authorities, and the substitution of one for the other in tuberculous families has been noted. Phthisical insanity may be of the mildly delusional, slightly demented type, or of the melancholic, monomania of suspicion type. "It is a very striking fact," says Dr. Mosher, "that nearly all pure cases of monomania of suspicion sooner or later die of phthisis."

There is an interesting paper by Dr. Hutchings on "The Douche-Bath, with Cases." These douche-baths, in the form of a coarse, cold spray, have been found very valuable in mania and dementia. The exposure should be brief, and subsequently energetic friction and massage employed.

Dr. James Burton contributes a paper on "The Blood in the Insane." He arrives at the general conclusion that in cases of senile dementia, as a rule, there is increase of leucocytes, while in cases of general paralysis they are markedly decreased; also that in cases of maniacal excitement the number of leucocytes is greatly increased.

There is an excellent paper by Dr. Robert G. Cook

¹ Cowles: Neurasthenia and Mental Symptoms. The Shattuck Lecture, 1891.

on "General Paralysis," and an elaborate analysis by Dr. Sawyer of "One Hundred Consecutive Autopsies at the St. Lawrence Hospital." This is a contribution of value to the aggregate statistics of the morbid anatomy of persons dying insane; it is illustrated by a number of plates, and a comprehensive table.

The volume is a good example of the kind of work which might be done at all our great insane hospitals; we hope that the managers of other institutions of the same kind may be stimulated to do likewise.

AN EPIDEMIC OF LEPROSY IN RIGA.

ALTHOUGH it would seem that no further proof of the contagiousness of leprosy was needed, so many instances having been reported of its occurrence in persons who had been in intimate contact with other lepers, yet in view of the reluctance of a number of eminent foreign and American dermatologists to accept this view, the following statistics¹ of the occurrence of the disease in the poor-houses of Riga, may be appropriately and usefully reproduced.

During the last few years leprosy has been on the increase in Riga, but it has been very difficult to determine the causes, as many of those living in the suburbs are removed from medical supervision, and the period of incubation being so long, little weight can be laid on the facts supplied by the patients themselves. Still von Bergmann has succeeded in establishing the fact of contact between most of these cases and lepers that were known to him.

Von Reisner is physician to the leper hospital in Riga and can prove that the great majority of the seventy-five patients in the hospital have been in contact with lepers. Three cases of leprosy having appeared in one of the poor-houses of the city within a short period, an examination of the remaining inmates by von Reisner led to the discovery of five more cases. Of these eight cases two were of the tubercular form; the remaining six were cases of nerve leprosy. All were so marked that there could be no question as to the correctness of the diagnosis, and the bacillus lepræ, searched for in all, was found in the two cases of the tubercular form. Cases 1, 2 and 3 form a group by themselves. They had had neighboring beds for years and as they were Catholics, were separated from the other inmates. Case 1 had been in the institution twenty years; Case 2, ten years; Case 3, fifteen years. Case 1 came from a district known to be a focus for leprosy. In the second group, all examples of nerve leprosy, Cases 4, 5, 6, and 7 had either occupied neighboring beds or had been in intimate association with one another in the same room.

In another poor-house in the city, situated near the former, thirteen cases of leprosy were discovered. In almost all of the cases the patient had either had a neighboring bed, or had been in constant association with one or more of those affected.

Farther he relates a case that seems to speak positively for the contagiousness of leprosy, a man whose occupation was that of a travelling juggler. He had never visited any places where leprosy was common, but four years before, he had travelled for a year with a merchant who was afflicted with leprosy. Although he kept away from him as much as possible, it sometimes happened that they were obliged to share the same sleeping-room and to use the same towel. Two years afterward the first signs of leprosy appeared, and later unmistakable nodules of the forehead.

Of these twenty-three cases of leprosy, nine were instances where one who had occupied an adjoining bed to a leper was found to be affected; six had lived in close relationship with a leper for many years; four brought in the affection from without; four could only be explained by frequent association with the other lepers in the institution. The writer remarks that this is the same picture presented by every chronic, contagious disease, as heredity was in all cases excluded. When the feeble virulence of the disease is considered, 22 cases in from four to five years from a total of 340 inmates of the two institutions is a high figure. The writer's view is that advanced age predisposes to the contraction of leprosy, and that normal dietetic and hygienic conditions do not protect from it. He closes by describing some remarkable improvements that have occurred in cases of leprosy by the use of gurgun balsam. Cases of the tubercular form treated both externally and internally with this drug never failed to show some improvement. In one case which was treated by this method for ten months, a complete disappearance of the leprous tissue was effected. The patient returned soon afterward, however, with an acute febrile attack followed by dense, reddish-brown infiltrations covering nearly all the skin of the extremities and of the face.

DIAGNOSIS OF CHRONIC HYDROCEPHALUS IN EARLY STAGES, BEFORE ENLARGEMENT OF THE SKULL HAS OCCURRED.

THE difficulty in the diagnosis of hydrocephalus is naturally much increased when the collection of fluid in the ventricles has not yet led to enlargement of the skull. The diagnosis must then rest wholly on the clinical symptoms. Of these an exceedingly important one is the well-recognized spastic condition of the extremity muscles, which, however, varies within wide limits. This condition occurs not infrequently before the head has begun to enlarge, and especially in those cases in which an external hydrocephalus alone exists, or is accompanied by a collection of fluid in the ventricles. In cases of uncomplicated internal hydrocephalus the enlargement of the head is apt to occur at an early period in the disease, and so lead to an immediate correct diagnosis. Attacks of recurring eclampsia are of less importance than the more permanent spastic conditions. Congenital spastic rigidity of the limbs (Little's disease) is usually due to defec

¹ Arthur von Reisner: Monatsheft. für prak. Derm., February 15, 1894.

tive development or to diffuse sclerotic processes in the cortex, and may occur quite independently of hydrocephalus. Especially important in differential diagnosis are the following facts well stated by v. Ranke (*Jahrbuch f. Kinderheilkunde*, Part IV, 1895):

(1) In congenital spastic rigidity the lower extremities usually are alone affected, whereas in hydrocephalus the arms are attacked as well, and at times even the muscles of the body.

(2) The congenital spastic condition is usually first noticed when the child begins to walk; the rigidity resulting from hydrocephalus, on the other hand, is for the most part an exceedingly early symptom.

(3) Accompanying eclamptic attacks are an indication in favor of hydrocephalus.

The differentiation of hydrocephalus from tetany is usually not difficult, owing to the progressive tendency of the one, and the tendency of the other, after a lapse of two or three weeks, toward recovery. Furthermore, cases of tetany with spontaneous tonic contractures in all extremities are very rare, and when they occur characteristic positions of the hand (obstetric hand) make diagnosis easy.

MEDICAL NOTES.

AMALGAMATED TWINS.—Dr. F. B. Heisordt (*Journal of the American Medical Association*) reports the birth of twins, the mother being a light-haired German woman and the father a negro; one of the twins was white and one black.

SEMI-CENTENNIAL ANNIVERSARY OF THE BUFFALO MEDICAL AND SURGICAL JOURNAL.—This excellent contemporary proposes to signalize its semi-centennial anniversary, which will occur in a few weeks, by increasing the number of its pages from 64 to 80, and making other improvements.

A TAX ON PHYSICIANS.—The *North Carolina Medical Journal* writes editorially, in sharp language concerning a recent bill in the State Legislature levying a tax of ten dollars a year on every practising physician. Such legislation is unprecedented, and seems to have absolutely no reasonable foundation.

THE MEDICAL MIND FETTERED.—The Pennsylvania State Medical Society wants no papers longer than ten minutes, this year, at its annual meeting. A maximum limit of ten minutes is rather running brevity into the ground. It is hard to see how any great amount of wisdom could be crowded into so exceedingly short a space of time.

THE HOSPICE SALPÊTRIÈRE, made famous by the names of Pinel, Esquirol, Trélat, Vulpian, and Charcot, was first established in a building that had been originally a factory of saltpetre, whence its name. The buildings were first converted into an arsenal, and then in 1653 set aside as a home for aged and indigent women. In 1684 a prison for the detention of prostitutes was built in the centre of the grounds. A century later this building was turned into an asylum for the incurably insane. In 1862, when Charcot first be-

came attached to the institution as *chef de service*, the population of the Salpêtrière was about five thousand.

THE INFLUENZA EPIDEMIC IN ENGLAND.—The fatality of influenza in London last week (*British Medical Journal*, March 16th) showed a further considerable increase. The deaths primarily referred to this disease, which had been 24, 111, and 296 in the three preceding weeks, further rose to 473 during the week ending Saturday last, March 9th. This number considerably exceeds that recorded in any week during either of the two previous epidemics, and, with one exception, was higher than in any week on record. The mortality among elderly persons from the disease showed an even greater excess than in the preceding week, 255, or nearly 54 per cent., being of persons aged upwards of sixty. The calculation of the death-rates from influenza last week at different age-periods gives the following interesting results: Among persons under twenty years of age the mortality from influenza was equal to an annual rate of 1.5 per 1,000 estimated to be living at that age-period; among persons aged between twenty and forty the rate was 1.6 per 1,000; among persons aged between forty and sixty the rate was 8.1 per 1,000; among persons aged between sixty and eighty it was 40.6 per 1,000; while among persons aged upwards of eighty the rate was no less than 144.1 per 1,000. If the deaths are divided into two age-periods only—under sixty and above sixty years of age—it is found that among equal numbers living to one death from influenza among persons aged under sixty, there were 17 deaths among persons aged upwards of sixty. The deaths referred to diseases of the respiratory organs in London, which had been 840, 1,120, and 1,448 in the three preceding weeks, were 1,366 last week, and exceeded the average by as many as 824; of these 1,366 deaths, 938 resulted from bronchitis, against an average of 325; and 336 from pneumonia, against an average of 143. Many of these deaths, although primarily attributed to one or the other of these diseases, were indirectly due to influenza. In some of the large provincial towns, where influenza is fatally prevalent, very high death-rates were recorded last week, notably in Brighton, Halifax, Liverpool and Plymouth, in all of which the death-rate exceeded 40 per 1,000.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, April 3, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 38, scarlet fever 27, measles 311 (nine days), typhoid fever 4.

BEQUESTS TO HOSPITALS.—By the will of the late Moses Kimball, of Boston, \$21,000 is bequeathed to the New England Hospital for Women and Children, \$5,000 to the Massachusetts Charitable Eye and Ear Infirmary, and \$5,000 to the Boston Dispensary.

MASSACHUSETTS HOSPITAL FOR INEBRIATES.—The hearing at the State House before the Committee

on Public Charitable Institutions on the bill to enforce the use of the Keeley cure at the Massachusetts Hospital for Dipsomaniacs and Inebriates will take place on Tuesday, April 9th, for the petitioners, and Wednesday, April 10th, for the remonstrants, at 10th A. M.

THE NON-SUPPRESSION OF BOVINE TUBERCULOSIS.—The Bill at present before the Massachusetts Legislature for the suppression (!) of bovine tuberculosis has taken this form and substance: (1) An appropriation of only \$100,000 for the Commission. (2) Full compensation to owners. (3) No use of the tuberculin test without the owner's consent.

BOVINE TUBERCULOSIS.—The Governor of New Hampshire has vetoed the bill recently passed by the legislature of that State appropriating \$100,000 for the suppression of bovine tuberculosis. Farmers vote!

DEATH AT THE AGE OF ONE HUNDRED AND ONE YEARS.—Jonathan Scott Ellis died at Farmington, Me., March 30th, at the age of one hundred and one years and eight months, from the effect of a fall received while he was preparing a razor to shave himself. It is reported that he had not required medical attendance for over eighty years previous to this injury.

NEW YORK.

A DEATH ATTRIBUTED TO ANTITOXIN.—On March 29th Bertha Valentine, a young girl seventeen years old, residing in Williamsburg (Brooklyn, E. D.), who was suffering from diphtheria, said to be of a mild character, was inoculated with antitoxin by the family physician. Almost immediately afterward she was seized with violent convulsions, and within five minutes was dead. The case was referred to the coroner; and the coroner's physician, Dr. J. M. Clayland, after making an autopsy, reported that death was due to the effects of the antitoxin injection. The attending physician, Dr. J. L. Kortright, is of the opinion that the fatal result was probably due to the fact that in putting up the vial used, some virulent poison had been mistakably labelled as antitoxin. The preparation employed was imported from Behring's laboratory, and was purchased in New York. Dr. Kortright has had quite a large experience with antitoxin in the treatment of diphtheria, and has been very favorably impressed with its efficacy in the disease. He has generally used the Pasteur antitoxin. It is stated that Miss Valentine contracted diphtheria from a young cousin, nine years old, who was visiting at the house. In this instance the disease had advanced to a hopeless stage before the family physician was called in. Dr. Kortright employed antitoxin (the Pasteur preparation) as promptly as possible, but death ensued in a short time. The Behring antitoxin used in Miss Valentine's case will be carefully examined by experts, and tests will be made with it upon animals.

DEATH OF THE DAHOMEY GIANT.—"Colonel" Gilbert, formerly known as Barnum's Dahomey Giant, died on March 29th at the age of thirty-four. He was seven feet, five inches in height, and had been ex-

hibited ever since he was seventeen. While travelling in Minnesota two years ago he met a young woman almost as tall as himself and married her. They then appeared together at museums. The body was taken to Scranton, Penn., for interment, and the coffin required a box nine feet long to hold it.

WEEKLY MORTALITY.—There were reported in the city 900 deaths during the week ending March 30th, against 887 for the preceding week, and 995 for the average of the corresponding weeks during the past five years. There were 40 deaths from diphtheria, an increase of five over the previous week, and 111 from pneumonia, a decrease of 34 as compared with the previous week. Twenty deaths were reported as due to influenza.

FIRST AID TO THE INJURED.—A society composed of graduates of the course in first aid to the injured has lately been organized with the title, "First Aid to the Injured Alumni." Lectures will be given and meetings held in the United Charities Building.

INSUFFICIENT APPROPRIATION FOR QUARANTINE.—At a meeting of the Quarantine Commissioners held March 29th, State Engineer Adams reported that the Ways and Means Committee of the lower house of the Legislature at Albany had cut \$83,000 out of the annual quarantine appropriation, including \$61,000 for a fire-proof building on Swinburne Island and \$10,000 of the estimate of \$35,000 for repairs and maintenance. The Health Officer, Dr. A. H. Doty, stated that he could not get along with this reduced appropriation, especially for repairs and maintenance. Extensive repairs are urgently needed, and he is at present building a pathological laboratory. A committee was accordingly appointed to go to Albany to explain the situation and endeavor to have the items restored.

Miscellany.

EXAMINATIONS BY THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE.

THE Board of Registration in Medicine held examinations on the 6th and 12th of March in Boston, and on the 29th of March at Springfield.

At the first, 47 applicants were examined and one was rejected. At the second, 10 were examined and three rejected. At the last there were 34 applicants, but the result is not yet determined.

The law allows those who have been rejected to be re-examined at any regular meeting of the board any time within two years without additional fee, and thereafter as often as they may desire upon payment of the fee of ten dollars.

The examination is a written one on the following subjects: surgery, physiology, pathology, obstetrics and practice of medicine. Graduates of schools recognized by the board as giving a good medical education, regular, homeopathic or eclectic, are given one question on each of the five subjects allowed by the law. Non-graduates are given five questions. Seventy per cent. is required to successfully pass.

The first report of the board is in the hands of the State printers. The appendix will contain the names of all those who have been registered who made application prior to the first of January.

Another examination will be held some time during the present month. Notices are sent to those whose applications are on file.

A PASTEUR INSTITUTE AND VIVISECTION.

AN exceedingly temperate and able article has appeared in the February number of the *Indian Medical Gazette*, by Surgeon-Colonel Harvey, relating to the founding of a Pasteur Institute in India. The article was called forth by the misguided opposition to the scheme, of the Bengal Branch of the Anti-Vivisection Society. As has usually been the case, the anti-vivisectionists have taken up the cudgels armed with quite insufficient facts, but nevertheless have succeeded in stirring up public sentiment to a considerable degree.

It is Dr. Harvey's purpose in his paper, and he succeeds most admirably, to go over with care and fairness the much disputed ground, and from the standpoint of a large-minded man, who is not personally a vivisectionist, to weigh the arguments for and against the practice. His conclusions are simply those to which every one must come who has the best interests of scientific medicine at heart, and who is able to see the inevitable tendency of future investigations. To the moralist it may appear a strange anomaly that progress must be along lines, which entail death and a certain amount of suffering to lower animals, but in the light of the brilliant results of experimental medicine during the past few years, it is hard to see any other alternative for the future. Aided by Dr. Harvey's article the Pasteur Institute will doubtless be founded, and enter upon a career of constantly increasing usefulness.

SUCCESSFUL LAPAROTOMY FOR REVOLVER WOUND OF THE ABDOMEN IN A PREGNANT WOMAN.

THE Paris correspondent of the *Lancet*, writing under date of March 12th, gives the following account of a most remarkable case:

"M. Albarran presented to the Société de Chirurgie on the 27th ult. a young woman aged nineteen years who was admitted to the Hôpital Cochin for a bullet wound in the umbilical region at a spot four fingers' breadth from the median line. Five hours and a half after the receipt of the wound she had vomited only once—during her removal to hospital. The patient was collapsed, and there was ascertained to be some dulness at the lower part of the abdomen. A penetrating wound with internal hemorrhage was diagnosed, and immediate laparotomy was had recourse to. During the preparations for the operation the state of the breasts led to a vaginal examination, and a pregnancy advanced to from the fourth to the fifth month was detected. Four wounds of the small intestine, necessitating the resection of twenty centimetres of the bowel, were seen directly the abdomen was opened; a fifth intestinal wound was sutured, and search for the source of hemorrhage which continued revealed a perforation of the mesentery involving a branch of the superior mesenteric artery, which was tied. The

fundus of the gravid uterus was the seat of a small wound through which protruded a loop of the umbilical cord. Wishing to terminate the operation promptly, M. Albarran resected the loop on a level with the uterine surface, the stump being returned into the uterine cavity. The abdominal incision was then quickly closed. The next day abortion took place, but nothing of interest occurred afterwards to retard complete recovery."

REPORT FROM AN EARLY CASE OF TUBERCULIN INJECTION.

IN a recent number of the *Philadelphia Polyclinic*, the following statements are made:

"We have just learned through his physician, Dr. George W. Free, of Harrisburg, formerly of Laramie, Wyoming Territory, that the young man, a patient of Dr. J. Solis-Cohen, with tuberculosis of the lungs and larynx upon whom, through the courtesy of Police-Surgeon Dr. Angney, the first injection of tuberculin was made in Philadelphia, December 17, 1890, at Jefferson Medical College Hospital, in the presence of Drs. Henry Hearn, Harris and others, is alive and well, with a strong voice, vigorous and without any evidence of disease.

"In this case subsequent injections were made on the 19th and 30th of December, and on January 6th, 9th, 11th and 14th, after which the previous hygienic and medicinal treatment was resumed."

It is a matter of considerable interest to have a definite report after the lapse of over four years, of one of the cases originally treated with tuberculin. One case of course proves nothing, and the apparent cure may perfectly well have been due to other agencies than the tuberculin injections; nevertheless, evidence even of so uncertain a character has its decided value.

Correspondence.

THE CONTROL OF VIVISECTION.

PHILADELPHIA, PA., March 27, 1895.

MR. EDITOR:—May I, through your columns, sound a note of warning in regard to certain circulars and petitions which have been more or less widely circulated by Dr. Albert Leffingwell, of Cambridge? I am led to do this both by the remembrance of the fact that members of the medical profession are not rarely led by their good nature and inadvertence to give their names improperly, and also by the fear that some physicians may be misled by the positive false statements contained in these circulars.

It is astounding that even the wildest fanaticism should so blind a man of apparent culture and honesty as to lead to such publication as is contained in the following paragraph (*italics as in circular*):

"11. While State laws generally prohibit cruelty, yet, in the great majority of cases, *there is no law, no college rule, or regulation even*, preventing the infliction upon living animals of the utmost conceivable torture, *so long as it is done within the walls of the college laboratory and by permission of the instructor.*"

I do not know in detail the laws of all the States in the Union; but certainly in Pennsylvania and in many, if not in most of the other States, the college instructor or the college student who is guilty of cruelty is just as liable to punishment as is the carter or the huntsman who abuses the horse or dog.

It is probable that no American physiologist believes in

unrestricted vivisection; it is certain that the statement that unrestricted vivisection exists in most parts of the United States is a falsehood. What the American physiologist contends for is that vivisection requires no special brand to be placed upon it; that the vivisectionist needs no other restriction than that placed upon all other members of the community by the general law. Every physiologist familiar with antivivisection literature knows that it is full of misstatements, so that this attempt to manufacture public opinion by the circulation of what should be called by the Saxon word "lies," is concordant with the history of the past in warranting a strong suspicion that signatures to the document circulated by Dr. Leffingwell will not be honestly dealt with. I therefore venture to suggest that the proper receptacle for the circulars is the waste-paper basket.

Very respectfully yours,
H. C. Wood, M.D.

THE AMERICAN HUMANE ASSOCIATION AND VIVISECTION.

CAMBRIDGE, March 30, 1895.

MR. EDITOR:—The American Humane Association is at present engaged in an attempt to ascertain the views regarding scientific experimentation upon living animals entertained by the leaders of thought and opinion throughout the United States and Europe. For the purpose of giving definite form to impressions and concepts that are sometimes vague, and for the more ready classification of replies, there have been drawn up for comparative consideration, four different statements of opinion, couched in clear and emphatic terms, and expressing views radically distinct from one another. It is, of course, impossible to represent all existing shades of opinion in Europe and America by these four statements, and every recipient is specially requested to erase all clauses with which he cannot agree, and to favor the Committee with the fullest expression of his own particular views. That the four statements thus presented, do fairly represent existing shades of sentiment, is evinced by the fact, that while many slight changes in phraseology are often made, yet *all* of them—and particularly the first two which favor this form of research—have received the signatures of leading scientific men throughout the United States, and that, without erasure or change in any respect.

It has recently been decided to test medical opinion on this subject in one or more States more minutely than would be possible for the entire country. Every physician in Massachusetts whose standing in the profession is evinced by a certain period of practice will be asked to express judgment on the question. No such census of opinion has ever before been attempted, and the Medical Committee hope that the response of the profession may be as complete as possible. I trust, sir, that not only the members of the medical profession who favor extreme views in either direction may respond, but that there will also be afforded a representation of that sentiment favorable, within limitations, to all vivisection founded on utility, but not to the wantonness of a Magendie, or the cruelty of a Mantagazza.

I am, sir, etc.,

ALBERT LEFFINGWELL.

COLD IN THE TREATMENT OF PNEUMONIA.

PHILADELPHIA, March 30, 1895.

MR. EDITOR:—My last paper on "Ice-Cold Applications in Acute Pneumonia," gives a record of seventy-four cases so treated and only two deaths.

Being desirous of making a full collective report on this subject, I take the liberty of asking those members of the medical profession who have tested this measure to kindly give me the result of their experience with it. Full credit will be given to each correspondent in the report which I hope to publish.

THOMAS J. MAYS, M.D., 1829 Spruce Street.

METEOROLOGICAL RECORD.

For the week ending March 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...17	29.75	30	36	23	51	40	46	W.	S.W.	18	13	C.
M...18	29.62	32	37	27	58	46	52	W.	W.	24	24	C.
T...19	29.62	33	40	26	35	48	42	W.	W.	22	10	C.
W...20	29.98	34	43	25	44	53	48	N.W.	N.E.	17	5	F.
T...21	30.04	32	38	25	47	60	54	N.	S.E.	12	3	C.
F...22	30.29	36	41	31	75	63	69	N.E.	N.E.	7	5	O.
S...23	30.50	37	42	32	52	54	53	N.	S.W.	13	8	C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 23, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Scarlet fever.	Diphtheria and croup.	
New York	1,956,000	887	336	12.21	20.35	1.67	2.20	4.95	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	490	141	9.40	18.10	1.80	—	4.00	
Brooklyn	1,043,000	439	155	11.50	20.24	—	.69	8.51	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	223	59	9.99	23.40	.90	2.25	3.15	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	114	32	3.52	12.32	1.84	—	—	
Cincinnati	325,000	146	38	3.45	16.46	1.38	—	.69	
Cleveland	325,000	93	41	9.72	12.96	1.08	4.32	1.08	
Pittsburg	272,000	108	36	3.68	18.40	—	—	1.84	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	49	11	—	26.52	—	—	—	
Charleston	65,165	23	4	4.35	30.45	4.35	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	37	10	13.50	18.50	—	—	8.10	
Fall River	92,233	42	14	2.38	30.94	—	2.38	—	
Lowell	90,613	39	16	12.50	20.48	5.12	—	—	
Cambridge	79,607	20	6	5.00	20.00	—	—	—	
Lynn	65,123	23	—	13.65	13.65	4.55	4.55	—	
Springfield	50,284	26	7	11.55	19.25	—	—	—	
Lawrence	48,900	19	5	—	—	—	—	—	
New Bedford	47,741	21	8	19.04	14.28	—	—	4.76	
Holyoke	43,348	—	—	—	—	—	—	—	
Brockton	33,939	8	2	12.50	37.50	—	—	—	
Salem	33,155	11	4	—	18.18	—	—	—	
Haverhill	32,925	7	2	28.56	28.56	14.28	—	14.28	
Malden	30,209	11	3	18.18	9.09	—	9.09	—	
Chelsea	29,806	9	2	22.22	—	—	—	—	
Fitchburg	29,383	13	3	—	—	—	—	—	
Newton	28,887	7	0	14.28	—	—	14.28	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	14	—	14.28	—	—	—	14.28	
Waltham	22,058	4	1	—	25.00	—	—	—	
Quincy	19,642	—	—	—	—	—	—	—	
Pittsfield	18,802	3	0	—	66.66	—	—	—	
Everett	16,585	—	—	—	—	—	—	—	
Northampton	16,331	8	1	—	25.00	—	—	—	
Newburyport	14,073	5	0	—	40.00	—	—	—	
Amesbury	10,920	3	1	—	33.33	—	—	—	

Deaths reported 3,018: under five years of age 970; principal infectious diseases (small-pox, diphtheria and croup, measles, diarrheal diseases, whooping-cough, erysipelas and fevers) 302, acute lung diseases 590, consumption 368, diphtheria and croup 127, scarlet fever 41, diarrheal diseases 41, measles 23, typhoid fever 23, cerebro-spinal meningitis, whooping-cough, and erysipelas 15 each, malarial fever 2, small-pox 1.

From measles New York 14, Providence 4, Brooklyn 2, Boston Cleveland and Clinton 1 each. From typhoid fever Philadelphia 10, Lowell 3, Cleveland and Pittsburgh 2 each. New York, Brooklyn, Boston, Cincinnati, Springfield and Clinton 1 each. From cerebro-spinal meningitis New York 6, Boston and Worcester 2 each, Brooklyn, Providence, Lynn, Somerville and Chelsea 1 each. From whooping-cough Brooklyn 4, New York 3, Philadelphia and Boston 2 each, Cambridge, Springfield, Brockton and Chelsea 1 each. From erysipelas New York 5,

New Bedford 3, Philadelphia, Brooklyn and Boston 2 each, Providence 1. From malarial fever Washington 2. From small-pox Cincinnati 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending March 16th, the death-rate was 32.2. Deaths reported 6,531: acute diseases of the respiratory organs (London) 1,120, whooping-cough 113, diphtheria 52, measles 51, diarrhea 36, fever 27, scarlet fever 22, small-pox (London) 1.

The death-rates ranged from 15.6 in Norwich to 48.0 in Brighton; Birmingham 30.9, Bolton 32.3, Croydon 34.5, Gateshead 26.1, Hull 22.9, Leeds 34.0, Leicester 20.7, Liverpool 37.1, London 33.4, Newcastle-on-Tyne 34.5, Nottingham 32.2, Oldham 44.0, Preston 40.3, Salford 30.0, Swansea 28.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 23, 1895, TO MARCH 29, 1895.

The extension of leave of absence on surgeon's certificate of disability, granted FIRST-LIEUT. HENRY R. STILES, assistant surgeon, is still further extended two months, on surgeon's certificate of disability.

The leave of absence for one month is granted CAPTAIN JEFFERSON D. POINDEXTER, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 30, 1895.

L. B. BALDWIN, surgeon, detached from Pensacola Navy Yard, and ordered to the U. S. S. "Montgomery."

J. S. HOPE, assistant surgeon, ordered to the U. S. S. "Montgomery."

HOWARD WELLS, surgeon, detached from the U. S. S. "Montgomery," and granted three months' leave.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MARCH 30, 1895.

G. T. VAUGHAN, passed assistant surgeon, to proceed to Philadelphia, Pa., and assume command of service, March 28, 1895.

G. H. GARDNER, assistant surgeon, granted leave of absence for fifteen days, March 22, 1895.

H. S. CUMMING, assistant surgeon, to rejoin station New York City, New York, March 16, 1895.

PROMOTION.

J. M. EAGER, commissioned as passed assistant surgeon, March 26, 1895.

APPOINTMENTS.

The following changes have taken place in the Carney Hospital Staff:

Resigned.

DR. A. COOLIDGE, Jr., from position of physician to out-patients.

DR. J. E. GOLDTHWAIT, from position of surgeon to out-patients.

Appointed.

DR. J. E. GOLDTHWAIT, to position of orthopedic surgeon to out-patients.

DR. G. E. THOMPSON, to position of physician to out-patients.

SOCIETY NOTICE.

PHILADELPHIA PATHOLOGICAL SOCIETY.—At the semi-annual conversational meeting of the Philadelphia Pathological Society to be held in the hall of the College of Physicians, northeast corner 13th and Locust Streets, on Thursday, April 25, 1895, at 8.15 P. M., Dr. George Dock, of the University of Michigan, will deliver an address entitled "Trichomonas as a Parasite of Man." Members of the profession are cordially invited to be present.

AUGUSTUS A. ESHNER, M.D., *Secretary.*

RECENT DEATHS.

DR. WILLIAM S. W. RUSCHENBERGER, an eminent naval surgeon and scientist, died March 24th, in Philadelphia, at the age of eighty-eight years. He was a graduate of the University of

Pennsylvania and served with distinction in the medical service of the U. S. Navy. In 1871 he was commissioned medical director on the retired list, with a relative rank of commodore. He was an active member of the Academy of Natural Sciences, whose vice-president and president he has successively been. He was a notable fellow of the College of Physicians, whose secretary and vice-president he had been. He was also a member of the American Medical Association, of the American Philosophical Society, and of the Historical Society of Pennsylvania. He had made a considerable number of contributions to scientific literature.

DR. JOHN A. RYDER, Professor of Comparative Embryology in the University of Pennsylvania and a very distinguished embryologist, died on March 26th, at the age of forty-three years. He was for a time embryologist to the United States Fish Commission, and made numerous valuable contributions to the art of fish-culture and in other departments of biology. In 1886 he was made professor of Comparative Embryology in the University of Pennsylvania. He was a strong advocate of the mechanical theory of evolution.

BOOKS AND PAMPHLETS RECEIVED.

The Surgical Treatment of Inguinal Hernia. By Henry O. Marcy, A.M., M.D., LL.D., of Boston, U. S. A. Reprint. 1894.

Transactions of the Medical Society of the State of North Carolina, Forty-first Annual Meeting held at Greensboro, N. C., May 15, 16 and 17, 1894. Washington, N. C.: Jackson & Bell. 1894.

The Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners. Thirteenth year. Bristol: John Wright & Co., Stone Bridge. London: Simpkin, Marshall, Kent & Co., Limited. 1895.

Leçons sur les Maladies Nerveuses (Salpêtrière, 1893-1894). Par le Dr. E. Brissaud, Professeur Agrégé à la Faculté de Médecine, Médecin de l'Hôpital Saint-Antoine, Recueillies et Publiées par Henry Meige. 1 vol. grand in-8°, avec 240 figures (schémas et photographies). G. Masson, Editure. 1895.

Digestive Protolysis, being the Cartwright Lectures for 1894, delivered before the Alumni Association of the College of Physicians and Surgeons of New York. By R. H. Chittenden, Ph.D., Professor of Physiological Chemistry in Yale University. New Haven: Tuttle, Morehouse and Taylor. 1895.

A Manual of Bandaging, Adapted for Self-Instruction. By C. Henri Leonard, A.M., M.D., Professor of Medical and Surgical Diseases of Women, and Clinical Gynecology in the Detroit College of Medicine. Sixth edition, with 139 engravings. Detroit, Mich.: The Illustrated Medical Journal Co., Publishers.

Suggestions to Hospital and Asylum Visitors. By John S. Billings, M.D., Director of the Hospital of the University of Pennsylvania, and Henry M. Hurd, M.D., Superintendent of the Johns Hopkins Hospital, with an introduction by S. Weir Mitchell, M.D. Philadelphia: J. B. Lippincott & Co. 1895.

Enlargement of the Prostate; Its Treatment and Radical Cure. By C. W. Mansell-Moullin, M.A., M.D., Oxon., F.R.C.S., Surgeon to, and Lecturer on, Physiology at the London Hospital; Late Radcliffe's Travelling Fellow and Fellow of Pembroke College, Oxford, and Hunterian Professor at the Royal College of Surgeons. Philadelphia: P. Blakiston, Son & Co. 1894.

Syphilis. By Alfred Cooper, F.R.C.S., Eng., Consulting Surgeon to the West London Hospital; Senior Surgeon to St. Mark's Hospital for Fistula; Late Surgeon to Lock Hospital, etc. Second edition, enlarged and illustrated by colored plates. Edited by Edward Cotterell, F.R.C.S., Eng., Surgeon (Out-Patients) London Lock Hospital, etc. Philadelphia: P. Blakiston, Son & Co. 1895.

The Medical, Pharmaceutical and Dental Register-Directory and Intelligencer with Special Medical, Pharmaceutical and Dental Departments Containing Detailed Information of Colleges, Hospitals, Asylums, Medical Societies, etc., for Pennsylvania, New York, New Jersey, Maryland, Delaware and the District of Columbia. Third edition. Philadelphia: George Keil, Publisher and Editor. 1895.

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Lecture.

THE CARE OF THE BREASTS AFTER LABOR.¹

BY EDWARD REYNOLDS, M.D.

GENTLEMEN:—In the treatment of the breasts after labor, our object is to so regulate the amount of milk in the breasts, that the patient will be spared the pain and other evil consequences which follow an undue engorgement of them. To this end, we have at our disposal the following expedients with which to work, the baby, the breast-pump, massage, the bandage, the collodion dressing, the poultice, the ice-cap and the ice-poultice.

The first step in any subject is to acquire a practical knowledge of the machinery with which you are to work; and I propose now to demonstrate to you the use of each of these methods of treatment, and at the same time to speak briefly of the principles which should guide you in their employment.

The Baby.—Nursing is the physiological and only natural method of emptying the breast; but it is often insufficient, and is, moreover, contraindicated by the presence of inflammatory disease of the organ. We may say then that we use the baby only when the breast can endure the stimulating effect of nursing, when we wish to keep up the milk, and when there is nothing in the milk that will be harmful to the child.

The Breast-Pump.—The use of the pump should never be pushed to the point of causing pain; and it is therefore well to restrict ourselves to such a pump as this, that is, to one which is not exhausted by a piston or by a rubber bulb, but by a tube which connects it with the patient's mouth. She is instructed to suck upon the tube and to stop whenever it causes pain. This pump also has the advantage of being easily cleansed. It is known as the Phoebe Bailey breast-pump.

The breast-pump is in itself irritating to the breast, and seldom empties it completely, as it is only capable of withdrawing the milk which is already in the large ducts near the nipple; but it is often useful as an adjuvant to massage, as the breasts are often more easily emptied by this combination than by massage alone.

The pump should never be applied to an inflamed breast.

Massage.—The technique of massage to the breasts may be divided into two parts, the first having for its aim the decreasing of the sensitiveness of the inflamed lobe; the second, emptying of the milk. Exactly how massage decreases the sensitiveness of the breast has not been adequately explained; but it is a fact that after a few minutes' massage a breast which has been exquisitely sensitive will gradually decrease in sensitiveness. The fact applies to all inflammations of the breast; yet, as we shall see, there are inflammations of the breast, in which, though the immediate effect is beneficial, its remote effect is harmful, and therefore massage must be restricted to one class of cases.

[The process of emptying an engorged breast by massage was here demonstrated.]

(1) When massage is applied, it should begin with the movements which decrease sensitiveness, that is, with extremely light strokes with the tips of the fingers from the periphery of the breast towards the

nipple. The breasts or fingers should be lubricated by some emollient, it matters little what; and this stroking movement from the periphery towards the centre continued. At first only the lightest possible touch can be employed, but in a short time slightly deeper pressure may be used with equally soothing effect. If at any moment there is pain, slightly less pressure must be used. The process is continued until quite deep stroking is borne without causing pain. The breast will be by this time pretty soft, and the second motion then begins.

(2) In the generally engorged breast the whole breast should be gathered between the edges of the hands, lifted gently from the pectoral muscles, and squeezed gently from the periphery towards the nipple. If there is only a certain portion of the breast affected, the massage must be especially directed towards this, which should be gently urged as a whole towards the nipple. Great care should be used not to cause real pain. Each pressure is usually followed by the appearance of a little thickened milk from the ducts connected with that portion of the breast which is under the hand, and this process should be continued until the affected portion is soft, or until tenderness reappears. A bandage should be applied after the massage, and the massage should be used not at regular intervals but whenever the breasts become uncomfortably tense.

The Breast-Bandage.—[Here the breast-bandage was applied before the class.] The breast-bandage is one of the best means we have of meeting the more common affections of the breast. It is used to give rest and quiet to the breast, just as the splint is used in sprains. It is intended (1) to give surgical rest in all cases in which there is trouble with the breast; (2) it is also used in cases where we are afraid the weight of a pendulous breast will lead to engorgement and in-spissation; (3) it is used as a means of applying pressure and keeping the breast from filling.

The bandage used in the Boston Lying-in Hospital is a T-shaped piece of cloth, which is applied by passing the tail of the T under the patient, across the scapular region, and bringing the ends of the cross-bar together, one above, the other below the breasts. This ready-made bandage may be replaced by an extemporaneous T made from a couple of towels. One should be folded at a convenient width to go across the back, not so narrow as to cut nor so wide as to be inconvenient to the patient. The cross-bar of the T should be folded to the size of the patient's breasts, being measured on the patient's chest and so folded that when applied it will extend an inch or an inch and a half beyond the periphery of the breasts. This should be folded in the middle, and then attached to the first strip by means of a safety-pin, which should be inserted through the back strip first, into the front strip, and out again, so that when the bandage is applied, the pin is outside and cannot make pressure against the patient. A single safety-pin in the middle is ordinarily sufficient; when the breasts are large, two pins should be used, one at each edge. The tail should then be placed under the patient's back exactly opposite the nipples and drawn just so far through that when the bandage is pinned the end of the cross towel is just outside the outer edge of the breast. Usually it is necessary to apply shoulder-straps to keep the upper edge of the bandage from slipping down. This piece of cloth should be attached at its middle point to the

¹ A lecture delivered in the wards of the Boston Lying-in Hospital during the Summer Courses of Harvard University for 1894.

middle of the towel at the patient's back, being fastened after the tail is in position to insure that the attachment is at the spinal column. The free ends are brought one over each shoulder and pinned to the upper edge of the bandage in front directly above the nipples. Either part of the bandage in front may be fastened first; everything being in position, the bandage is drawn forward across the patient's breasts which are moved out of the way by the hands of the patient. The middle of the free end of the tail which goes under the patient's back should be opposite the middle of the outer edge of the breast. The upper half of the bandage is usually secured first and its upper edge should at once be attached to the shoulder-strap at a point opposite the upper middle line of the breast to prevent the upper edge of the bandage from slipping down and pressing on the breast tissue. When the upper part of the bandage has been attached the lower part is drawn across and fastened by its lower edge to the tail in the same manner. It is then attached opposite the middle of the lower edge of the breast to the binder to prevent it from slipping upwards. The patient is then asked to raise the breasts towards the median line in order to have the bandage clear of them while it is being pinned. The rest of the bandage is drawn smoothly across the breast and pinned to the tail in the same way, the pressure gradually diminishing from the outer edges of the bandage to the edges nearest the nipple. The hand of the physician or nurse should be inside of the bandage to avoid the danger of sticking the pin into the patient. The bandage should be so applied that there is considerable pressure at its edges, and that the pressure is gradually and smoothly diminished toward the nipple. The breasts are also drawn near to the median line as well as subjected to this uniform pressure. That the pressure on the inner, may be the same as that on the outer sides of the breasts a piece of absorbent waste is placed between them and the bandage is drawn over it in the median line by a safety-pin passed from edge to edge of the bandage. If a single safety-pin is not enough, two or more may be looped together in the form of a chain. The milk often begins to run from the breasts at once. If the end of the tail is long enough it may be laid across the nipples to absorb the milk which runs from them.

Contractile Collodion.—In extreme cases where it is absolutely necessary to keep the breast empty, we may use a dressing of crepe lisse and contractile collodion, whereby the breast is forced into a small mass, against the ribs; but this dressing is very distressing to the patient. This, like all other pressure dressings, should be applied so far outside the breasts that there is no chance of cutting off an island of breast tissue.

The Poultice.—The hot poultice may be made of any convenient material enclosed between two pieces of cloth. It is used for the relief of the symptoms attending a distinct phlegmon, when we have given up all hope of its resolving and are waiting, as we sometimes may for a short time, before opening the abscess.

Cold Applications.—Cold dressings are used for checking inflammatory affections in their inception and before pus appears. Cold may be applied to the breasts in several ways: (1) Small tubes made into a spiral through which cold water continuously flows may be placed over the affected breast. These spirals may be large or small, depending upon whether the application is to be made to the entire breast or to in-

dividual spots. (2) More commonly we use a rubber ice-bag containing ice so finely divided as not to irritate the breast. (3) The ice-poultice is an excellent substitute. This is prepared from bran with small fragments of ice scattered through it. As the ice melts the meal absorbs the water. The meal also prevents the ice from irritating the sensitive breast. There should be enough meal to prevent dripping, but still plenty of ice well distributed through it.

[These appliances were here shown.]

We are now in a position to consider the several branches of our subject: (1) the care of normal breasts after labor; (2) the arrest of lactation either (a) at its beginning or (b) after prolonged nursing; and (3) the care of threatened abscess of the breasts, to which we shall have to add the operative treatment of fully-developed abscesses.

CARE OF THE NORMAL BREASTS.

We must be guided in this (1) by the character of the breasts and (2) by the manner in which the milk comes into them. On the whole the most satisfactory way in which the milk can appear is when it comes slowly and gradually. In such cases it is sometimes rather late for the baby, but almost never makes any trouble for the mother. In other cases the milk appears very suddenly, the breasts fill up in a few hours to a high degree of tension, and there is probably more milk secreted than after lactation has become established. The breasts become large and tense and the skin over them becomes shiny; the patient complains of pain, and sometimes has a slight elevation of temperature. If the milk comes slowly no treatment is needed other than regularity of nursing; the infant should be placed to the breast as soon as the mother is rested from her labor, and thereafter once in six hours; the child thus gets a little sweetish colostrum, and this not only satisfies its appetite but also tends to loosen its bowels. Nursing also stimulates the contractions of the uterus by reflex effect; and, finally, encourages the appearance of the milk, and tends to bring it gradually rather than with a rush. As soon as lactation is established the breasts should be nursed alternately, once in two hours.

When the breasts are very large and heavy, they may be rendered more comfortable to the patient, and any danger of inspissation of the milk can be prevented by the application of a light bandage as a matter of routine. This is much more comfortable to the patient if made from the material known as stockinet, which is elastic enough to yield to the respiratory movements, and at the same time supports the breasts. It should not, of course, be applied very tightly.

When the milk comes with a rush and the breasts become tense and painful, much discomfort and risk may be saved to the patient if a reasonably firm bandage is applied at once. This renders it very difficult for the breasts to become overdistended. The bandage in itself is somewhat uncomfortable to the patient, but it is well worth enduring to get rid of the greater discomfort due to distended breasts. When the breasts are already distended and painful, the use of the bandage may also be supplemented by massage.

ARREST OF LACTATION.

If it becomes important to dry up a breast at the very start, that is, when there is a stillborn child, or when it has been decided in advance that the baby is

not to nurse, it may be done by the breast-bandage, massage, and, occasionally, the use of the breast-pump. The bandage should be applied in advance of the appearance of the milk, and as firmly as the patient can be induced to endure it. When in spite of the bandage the breasts become full, massage and occasionally the breast-pump find their use, and should be employed after the manner which was shown to you, until the secretion ceases. The application of the ice-cap or ice-coil over the bandage will sometimes do much to discourage secretion. When the reason for drying up the breasts is that they have been nursed long enough and that the child is ready for other food, the process is much easier and safer. The breasts are physiologically ready to cease their activity, and all that is necessary is to break up their habit of secreting. If the baby, which has been applied to the breast at regular intervals, is put on the bottle and the breasts are let alone, they soon become tense; if then they are emptied they will usually go for a longer time, and so the successive intervals lengthen. When the intervals have become thoroughly irregular the emptying of the breast should not be done by the baby because it is not good for the child itself; it may then be done by the breast-pump, supplemented if necessary by a little massage. In case pain or tenderness comes on, the patient should be put to bed, a tight bandage should be applied, and the breast treated by massage, and, if necessary, by the ice-cap.

THREATENED ABSCESS OF THE BREAST (EXHIBITION OF A CASE).

This case, gentlemen, was delivered fourteen days ago. Ten days after delivery there came a pain in the left nipple. The following morning there was a slight rise of temperature, and in the evening a temperature of 102° , with the appearance of a slightly sensitive red lump in the inner and upper quadrant of the left breast. The child was removed from the breast and an ice-cap and breast-bandage were applied; the next morning the temperature was 100° , and the tenderness and redness were much decreased. That night cautious and very light massage was applied to the affected part; this emptied the breast as a whole, but did not relieve the affected lump. Since then the temperature has been normal, the lump in the breast still remains, and the blush on the skin still continues. There is a history of a blow six or seven months ago, not followed by any serious pain or lameness. How much this has to do with the case I cannot say. On examining the breast we feel a hard lump one and one-half inches long and one inch broad in the upper and inner part of the breast. The blush on the skin is shaped like a piece of pie, narrow at the areola and broad at the periphery of the breast. The prognosis is doubtful. The treatment for the last three days has been light bandaging, the ice-cap, and abstinence from nursing. The local treatment will not be changed, unless the use of the knife becomes necessary. With this case as a text we will take up the general subject of abscess of the breast.

In what I am about to say of threatened abscess of the breast, I feel bound to divide the cases into two classes, which are quite different in pathology and prognosis. This is one of my individual views and so far as I know is not supported by any other authority, but I have no hesitation in teaching it, as it is founded on many years of observation and has been deduced

from a large number of cases. I believe that there are two definite varieties of mammary abscess. The one is due to inspissation of the milk within the ducts and acini of a given lobe of the gland, caused by a migration of bacteria from the nipple into the ducts. In the second and less common class, on the other hand, the essential pathological entity is a phlegmonous inflammation of the connective tissue of the breast, due to absorption of poisons by the lymphatics, precisely as occurs in other parts of the body.

Inspissation Abscesses.—Clinically, you will find in this first class of cases a more or less rounded, irregular, lobulated, hard mass of definite outlines, usually extremely sensitive to pressure and seldom accompanied by redness of the skin over it. It is usually extremely painful to the patient, even when the breast is at rest, and is usually attended by a sudden and marked elevation of temperature. In such cases, on thorough massage, you will see the ducts which connect with the affected lobe discharge quantities of a semi-fluid, almost cheesy substance, followed by natural milk. The discharge is attended by complete subsidence of the lumps, and an almost complete disappearance of the pain and sensitiveness. Under the rest which follows an application of the bandage the whole thing usually clears up within from twenty-four to forty-eight hours. If this inspissation of milk in the ducts is neglected it however rapidly extends, and if it is still left untreated the formation of pus occurs as in other varieties.

The natural history of the inspissation form of threatened abscess is that of sudden enlargement attended by pain and elevation of temperature. The prognosis of this form is good, under treatment.

Phlegmon.—The second form I believe to be the ordinary surgical phlegmon. There is usually, if not invariably, a cracked nipple, or a pimple in the areola, at the place of entrance of the poison into the ordinary lymphatics of the breast. These cases are characterized by comparatively little pain and tenderness, (pain, as you know, is usually symptomatic of distention, the connective tissue of the breast is very loose, and consequently there is not much pain in this variety). The elevation of temperature is slower and more gradual, and often in a fully developed abscess there is but a very slight pyrexia. There is marked reddening of the skin over the affected region, the outline of which is shaped like a piece of pie, as in the case you saw in the ward. The natural history of this form of threatened abscess is that of insidious onset. The prognosis is bad, because we cannot remove the cause. In this variety the use of massage or of any mechanical meddling is harmful. The treatment should be conducted upon ordinary surgical principles. The case in the ward I now believe to be due to this cause and not to inspissation of the milk in the ducts. Therefore, massage was not given after the first day.

Treatment.—Of the two forms of threatened trouble in the breast, we readily gather that inspissation is to be treated throughout by abstinence from nursing, rest in bed, massage and the bandage. I say throughout, because when a case of inspissation has been so neglected that the inflammation has got outside of the ducts, it becomes a case of phlegmon and must be so treated. The other form is to be treated during the early stages by ice and by surgical rest, obtained by means of the bandage and by keeping the patient in bed; and during the later stages by poultices.

When we have reason to believe an abscess has formed, either form must be treated by the knife. In cases which have gone on in an unfavorable way, it is always better to make an unnecessary incision than to let the breast open spontaneously, because breasts which open spontaneously almost never run a short course, while those which are treated by early incisions are usually healed within ten days or a fortnight.

OPERATIVE TREATMENT OF MAMMARY ABSCESS.

When a breast has refused to get better for from five to six, or at the outside, ten days, according to the acuteness of the case, and when a hard phlegmonous lump surrounded by edematous material which is getting worse can be felt, do not wait for a soft spot to appear in the centre, but make an exploratory incision early.

The technique of the operation is of the very greatest importance. In the first place, absolute asepsis is necessary. The skin of the breast should be disinfected as it would be for a celiotomy, that is, first scrubbed with soap and water, then sopped with permanganate of potash, then cleaned with oxalic acid, and finally scrubbed with a nail-brush and corrosive. The hands and instruments should be treated with the same care.

An extremely important point in the operation is that the lacteal ducts should not be divided or wounded. A duct which has been divided or torn across becomes obliterated, and the next time the breast fills up, that is, with the next child, the milk secreted by the acini which have been cut off collects and there will then be inspissation with the risk of another abscess.

The object of the operation is, then, to evacuate the pus without dividing any of the lacteal ducts. These ducts radiate towards the nipple and if the cut is made in this direction it is least likely to injure them; they, however, branch so frequently that if the operation were done with the knife throughout, there would be almost no chance of avoiding the ducts. The technique which I think should be pursued is as follows: The knife should make an incision radiating from the nipple, through the skin and subcutaneous tissue, and this cut should be long enough to permit the finger to pass through it easily. Then a director or large probe should be pushed down to the centre of the bunch and moved about until it finds the pus. Next a dilator should be run down on the director and the passage dilated. The finger should next be forced into the centre of the abscess, no cutting being done after the skin has been divided. The finger should be swept around everywhere to break down all the tissue that is soft enough to be broken down with any readiness.

Care must be taken to find all the pockets or side openings, which usually exist, and that the partitions between them are broken down; and any one of them which is at a distance from the incision must be exposed by a counter-opening. To make a counter-opening, take a long probe and carry it under the guidance of the finger to the farthest point of the pocket in question, then push it on until you see the point dimpling the skin upward; make a fresh skin incision at this point, dilate it, and put the finger in again, feeling about for fresh pockets as before.

After the counter-opening is made, the whole cavity should be syringed out with a corrosive-sublimate solution, 1-2,000, or perhaps better with a fifteen-volume solution of peroxide of hydrogen diluted with equal parts of water. The whole cavity should be puffed

full and the process repeated until the solution comes out perfectly clear. Then put in rubber drainage-tubes, or gauze strips, so that each of the subsidiary cavities has direct drainage. If the pus is thick use rubber tubes, if it is thin you may use gauze. If rubber tubes are used, substitute gauze as soon as possible, because the pressure of the tubes may cause them to ulcerate through the neighboring ducts.

Having opened, disinfected, and drained, put on a sterile dressing, packing it all around the breast, and then bind the whole breast down against the ribs pretty firmly with an elastic gauze bandage, so that the walls of the cavity may have a chance of being brought together and of healing by first intention.

The wound should be redressed within twenty-four hours, and if you are compelled to leave rubber drainage-tubes in, dress again in from twenty-four to forty-eight hours more. All drainage should ordinarily be gotten rid of in a week or ten days. If this method be thoroughly carried out, I think it will yield uniformly good results.

Original Articles.

NEURASTHENIA.¹

BY B. W. BARTLETT, M.D., ROWLEY, MASS.

NEURASTHENIA is a functional disease of the nervous system characterized principally by asthenia and exhaustion, and manifesting itself by headache, insomnia, cerebral depression, neuro-muscular enfeeblement; often by various symptoms referable to the spinal cord (rachialgia, spinal irritation) and by atonic gastro-intestinal dyspepsia. It is described by Beard as cerebral or spinal according as the predominant symptoms are referable to the higher or lower nerve centres.

ETIOLOGY.

Beginning with those causes which are least recognized, I would mention, first, a dry atmosphere. On this cause (to which, by the way, Dana attributes considerable weight) may be in part dependent the unusual prevalence of neurasthenia in our Northern climate. I would not venture much speculation as to how dry climates favor neurasthenia. The fact, I believe to be unquestioned. Extremes of heat and cold predispose to nervous debility. In the Southern climates, and in the small islands surrounded by water, marked extremes of temperature are uncommon, and we find less susceptibility to nervous excitability in the inhabitants of these climates as contrasted with the inhabitants of the Northern States, in which severe winters are followed by a high range of temperature during the summer months. The cold of the winter obliges residents to remain much of the time indoors, subjected to a dry, overheated atmosphere. On the other hand, the hot weather of summer is relaxing and does not tend to encourage athletic sports and pastimes. It is noteworthy in this connection, that in England where the climate is more moist and equable, athletic exercises can be indulged in during all seasons of the year. I regard these factors as predisposing to neurasthenia by their debilitating influence; and to faulty habits of eating and drinking may be attributed a similar predisposition. The principal and exciting causes are

¹ Read before the Essex North District Medical Society.

such as directly conduce to nerve tire and enfeeblement.

(1) *Prolonged Mental Application*, as to study or business, using up cerebral and nervous energy. This cause is especially operative when conjoined with dyspeptic troubles, and with insomnia. A man will endure very severe and very persistent mental strain if he can sleep well at night, and if the digestive organs are vigorous.

(2) *Worry*. There is one reason why our civilization so predisposes to neurasthenia—the present age is one of worry. Men and women are competing for a position for office, for honors, or else they are struggling to retain a position; hence there is constant anxiety and care. Many are engaged in commercial enterprises which give them great worry and little rest. Many a stock-gambler, many a speculator in “futures,” has become a broken-down neurasthenic. Many merchants doing a large business give themselves too little sleep, and prematurely become nervous wrecks. How often among professional men, scholars, literary men, we hear complaints of tired limbs and aching eyes and heads! This is especially true of those who turn day into night and night into day. It is from the great army of the unrested that our modern neurasthenics are for the most part recruited.

(3) There are also *Emotional Causes*. Grief, disappointment, remorse, brooding over losses and crosses, promote wear and tear of brain and nerve.

(4) *Sexual Abuses and Onanism* enter for their share in the etiology of the disease.

(5) *Sudden Shocks* (as in railroad accidents), excessive physical exertion, excessive child-bearing, may produce neurasthenia. Nor must we omit reflex irritations, such as prostatic and urethral disease, mechanical displacements of the womb, disturbances of the stomach, intestine or liver, and ocular deficiencies, as hypermetropia and astigmatism. But many of the causes above mentioned are perhaps rather predisposing than exciting. Bouchard, who has written so admirably on auto-intoxication, advances the notion that neurasthenia in many cases (and notably in the gastric form) is due to auto-intoxication by ptomaines and even by leucomaines. He calls attention to the fact that toxins secreted by the animal cells (leucomaines) formed in circumstances of vitiated nutrition may produce nervous exhaustion of an intense and peculiarly intractable kind.

SYMPTOMS.

Among the various symptoms on which authors dwell there is one which I should emphasize, namely, the tired feeling after exertion. I may, however, remark that this tired feeling is often lost in melancholia and other forms of insanity, as Dr. Cowles has so well pointed out in his Shattuck Lecture. All patients with whom I have had to do have complained of this symptom. They awake in the morning unrefreshed by their sleep, which is seldom or never unbroken. The attempt to walk, to do housework, to read, even in some cases to sit up, soon fatigue them. Muscular exercise causes aching in the back and limbs; reading, an aching in the eyes and headache. There is almost constantly a painful sense of lassitude, such as one experiences who is coming down with a fever. All these sensations are an expression of an ill-nourished condition of the nerves and nerve centres. Volition is weakened; the power to co-ordinate harmoniously the

various higher cerebral activities is lessened, if not lost. Neurasthenics have difficulty in concentrating and keeping their attention on any subject for more than a brief time; their thoughts are continually wandering in accordance with the incoming flow of excitations which they are unable to inhibit. Of course, this is only an exaggerated degree of that weakness of voluntary control from which we all, except a few gifted minds, suffer more or less. The neurasthenic patient is also subject to headache, which often comes on spontaneously, often follows mental application. Sometimes the headache is almost continuous, though it is generally remittent; it is very likely to supervene after a period of rest. The painful paroxysms are accompanied sometimes by sensations of vertigo, tinnitus aurium, obnubilation of the sight and at times by hyperesthesia of the scalp (Beau). Charcot was so struck by a symptom in connection with this headache of neurasthenic patients, namely, a sensation of constriction about the head and temples, as though the head was compressed in a tight helmet, that he was in the habit of designating these patients by the name *galeati* (helmet-wearers). In my own cases I have not found headache to be so predominant a symptom—except as a sequel of mental application and excitement.

Insomnia.—This has been present in the majority of cases. Neurasthenic patients, as a rule, are poor sleepers. Some patients lie awake till a late hour of the night, and get only a morning nap; others go to sleep at once, but awake after a few hours and lie awake till morning. Most patients soon begin the use of some hypnotic to aid them in procuring sleep. An increase in the dose of the drug (whether it be opium, chloral, sulfonal) is soon necessitated. I believe with Folsom, that it is better to be satisfied with a few hours of natural sleep than to resort to the use of hypnotics. I do not believe that the benumbing effect which follows these drugs is a true rest to the brain cells. If any hypnotic must be administered, a dose of bromide, sulfonal or trional may do as little harm as anything, and under all circumstances, should be administered temporarily, great care being taken that the patient shall not become dependent on the drug. We have in static electricity an agent of great value in the treatment of insomnia. I certainly have obtained very favorable effects from Franklinization. The head-plate is used, and the electricity is conveyed in the form of breezy currents, which are agreeable and soothing. By means of the discharging head-electrode, the patient is also electrified through the clothes. The *séance* lasts about half an hour, and the patient often goes to bed prepared to go to sleep.

Before dismissing the subject of headache, I should say something about headaches from eye-strain. Defective accommodation seems to be a frequent cause of pain in the head in neurasthenic people. In my experience I have found it to be a severe pain, extending through the head from the eyes to the occipital region, and of an explosive character, recurring at short intervals after overwork of the eyes. Many children suffer from similar headaches till the hypermetropia or other eye-trouble is remedied by properly fitting glasses.

Rachialgia, Backache.—Neurasthenic patients frequently complain of pain in the back coming on after exertion, or without known cause, a pain which is elicited by pressure along the vertebral column. The

tender spots over the spine which characterize this condition, were formerly considered as pathognomonic of an individual morbid entity with definite syndrome, to which was given the name of "spinal irritation." The latter is not a disease apart, but simply an indication of exaggerated sensibility of the vertebral column, and belongs to the train of symptoms of *neurasthenia, with spinal form*. Spinal irritation is often attended with general cutaneous hyperesthesia; irritability of the breasts, ovaries and womb in women; fleeting pains of a neuralgic type in various parts of the body; a rapid or slow pulse, which fluctuates widely during periods of excitement or fatigue; excessive perspiration of the feet and hands; muscular twitchings; chilliness; creeping sensations along the spine; itching of the skin; weakness of the bladder and rectum; and other symptoms of disordered and perverted innervation which Beard has so well described.

Aversion for Fluids.—The neurasthenics are, I believe, proverbial for their dislike for liquids, and usually this condition has lasted so long that there is positive deficiency of water in the economy. The skin covering the body becomes dry, if not scaly. The urine is scanty to a high degree, some patients scarcely voiding four ounces in twenty-four hours. The tongue and mouth are dry; in fact, the whole alimentary canal loses its natural moisture. The blood contains less than the normal proportion of water, and this I believe in a measure accounts for the deficiency of the secretions, and the constipation.

Dyspepsia.—All the varieties of dyspepsia may be met in the neurasthenic. Mathieu, who has written an able treatise on neurasthenia emphasizes the dyspeptic troubles in this disease. He also shows the strong affiliation which exists between the so-called essential dyspepsia and neurasthenia; in his estimation, every dyspeptic is a neurasthenic; he thinks, moreover, that neurasthenia without some degree of dyspepsia is a very rare event. He distinguishes three forms of nervous dyspepsia: (1) Neuro-motor dyspepsia, with or without hydrochloric deficiency; (2) hydrochloric excess; (3) hydrochloric deficiency and permanent gastric stasis, with or without organic hyperacidity. A large proportion of these dyspeptics have dilated stomachs, and suffer from morbid fermentations which give rise to toxic ptomaines; the latter are absorbed, and injuriously affect the nerve centres, possibly (as Bouchard thinks) causing the depression of spirits, the languor and hebitude and other nervous disorders of which the victims of gastric neurasthenia complain.

Vertigo.—A frequent symptom of neurasthenia, which seems in most cases to be linked to the dyspepsia and due to the auto-intoxication above mentioned, is vertigo. Neurasthenic patients are frequently dizzy when they are hungry, and along with the vertigo there may be a state of partial nausea. Others are dizzy after eating; the face becomes turgid and flushed; the head feels heavy; the mental faculties are torpid; if the patient attempts to walk, he totters like a drunken person. The exact pathology of this form is not known.

Melancholia.—No one has set forth more clearly than Dr. Edward Cowles, of the McLean Asylum, the relationship of neurasthenia to certain forms of insanity, and especially to melancholia, which seems to derive its being from a neurasthenic condition. He

has shown that there is a definite gradation from the psychical depression which characterizes neurasthenia to true melancholia; in fact, every melancholic patient is a neurasthenic.

TREATMENT.

The treatment of neurasthenia comprises seclusion, rest, feeding, massage and electricity. Seclusion is indispensable in order that the patient may have freedom from care, and sequestration from the injurious home environment, where an injudicious sympathy may do much to foster a chronic invalidism. Again, seclusion enables the patient to be wholly under the control of the physician, a matter of vital importance, for there are no set rules of treatment for restoring these women to health. Each case stands by itself; each case is a study; each has an individuality to which the medical treatment must be adapted. Dr. S. Weir Mitchell first demonstrated the value of rest, with forced feeding, in the treatment of neurasthenia. The question of nutrition is of vital importance, because these patients are either wholly without appetite, or they reject wholesome food. Their nervous system seems to undergo waste in excess of repair, and they are always menaced with complete mental break-down. By beginning the treatment with iron, with malt and with a diet of skimmed milk, usually after a week's time the patient begins to crave solid food. Fixed rations of wholesome food at fixed hours are now given, together with as much new milk between meals as the patient can possibly digest; and it is wonderful how much food a delicate woman can soon dispose of. A goblet of milk is always given at bedtime to render the stomach hyperemic, and thus decongest the brain and promote sleep. The therapeutic effects of massage and electricity on the circulation are very striking in nerve exhaustion. Massage exercises the muscles without any effort of volition, and therefore without expenditure of nerve force. Electricity does the same. This is very important in the treatment, for all voluntary muscle work is nerve work, and the nerve capital in these cases is too small to be drawn upon. Again, both massage and electricity raise the body temperature, stimulate the nervous system, promote the secretions, and increase the peristaltic action of the bowels. Static electricity, as a general tonic and also as a stimulant to depressed nervous functions, seems to be particularly of service. I employ this form of electricity constantly in the treatment of neurasthenia with marked benefit. Sittings of from ten to twenty minutes give remarkable improvement in dyspepsia and habitual constipation. The electrical current also soothes, quiets the nerves, and promotes sleep. Among the internal remedies are the bromides of sodium and potassium, ergot, the triple valerianates, phosphorus, strychnia and arsenic. The usefulness of liquids internally has been alluded to. I have a word to say about hot water as a beverage. A cupful should be drank one hour and a half before each meal, with the temperature as high as it can be borne. It increases downward peristalsis, it stimulates the secretion of urine and alters its character very rapidly. It produces a gentle perspiration and a sense of warmth in the skin. It relieves dyspeptic symptoms. Haig has suggested that the beneficial results of giving large quantities of milk might be partially due to the percentage of water contained in milk and the washing out from the blood of all toxic material.

I may, in this connection, be permitted to allude to a patient, Mr. A. B., who came to my Home some six months ago for treatment: The case has several interesting features. First, there was a close resemblance to some degenerative disease of the brain and spinal cord, as dementia with *tabes dorsalis* or chronic myelitis. Second, there was marked prominence of symptoms the result of ocular defects. The patient was a man twenty-eight years old, whose mother always suffered from severe headaches, and who died in her second confinement. Two maternal aunts were tuberculous. The father was neuropathic. A. B. was robust from boyhood, but cannot remember when he did not suffer from headache. He was fitted for college at the age of seventeen, but was unable to pursue his studies further. He was of good habits; married at twenty, and became a trader; was kept constantly within doors at his business; was successful and made money. A sedentary life and devotion to business broke him down. The headaches increased in frequency and were so severe as to require frequent injections of morphia for their relief. By the aid of powerful hypnotics he was able to get some sleep. He was unable to exercise his eyes on account of the aggravated cephalalgia; and on account of some degree of photophobia, he wore a silk protector, in spite of which strong light was painful to him. Mentally he was much depressed, and suffered from both delusions and hallucinations. His method of speech was slow and hesitating; he was unable to think of the right word to express his ideas (amnesic aphasia), and the ideas themselves were formed with great difficulty. He had but little control over his upper extremities; because of the twitching of the muscles he was unable to grasp or hold articles in his hands firmly. He was ataxic in his gait. There was pain and tenderness over the spine. Sensation was normal and so was control of the sphincters. There was complete loss of sexual tone, but no atrophy of the testicles.

During his three years of sickness he had been treated for rheumatism and various cerebral and spinal diseases. When he came to the Home I was led to give attention to the condition of the eyes, and found the ocular defects most marked. There was pronounced astigmatism and *asthenopia*. The disorder of refraction had probably existed from birth, and the long-continued muscular strain, for both recti interni were weak, allowing a marked divergence of the eyes, had so irritated the nervous system as to cause the hyperemia of the brain and spinal cord, which, in turn, had produced such woful results. To relieve this eye-strain, I employed prisms worn constantly with their bases inward. I then made use of large prisms held between my fingers before the eyes with their bases outward, for ten minutes at a time twice a day. This gave the eyes a gymnastic exercise. The morphia was at once dropped from twenty grains per day to one and a half grains at night; and after ten days it was wholly discontinued. He was taking thirty grains of sulfonal every night to procure sleep, and this was discontinued at once; and I gave instead bromo-soda, bromo-caffeine, elixir of the valerate of ammonia, etc. A hot tub-bath was given every third evening. I also ordered a hot sponge-bath to the whole spine every night, together with static insulation; and heavy sparks drawn from the back of the neck sufficed to relieve all pain and procure refreshing sleep every night. We gave the patient, the first thing in the morning a large cup of strong coffee without sugar or milk; then after one hour of massage and dry cupping along the whole length of the spine, he was allowed a breakfast of some light, farinaceous food with malt extract and five drops of Freligh's tonic. Three times a day, about an hour after meals, he had a tumbler of warm milk with fifteen grains of potassium iodide. The dinner and supper were eaten with the family, beef and chicken being allowed *ad libitum*, and the malt and tonic medicine being given after meals. Improvement began at once. He could soon use his eyes without fatigue or pain. The headaches gradually went away, the mind became clear, and the aphasia disappeared as the improvement continued. He would now sleep seven or eight hours every night without hypnotics. Exercise

was regularly taken at the gymnasium, all excessive bodily movements being avoided on account of the spinal asthenia. He can now walk five or six miles a day, and has nearly regained his usual health. He has recovered the use of his arms and hands and plays the piano without difficulty. So complete is the restoration, that he will soon be able to return to his business.

SURGICAL TREATMENT OF PANCREATITIS, WITH A CASE.¹

BY J. W. ELLIOT, M.D.

MUCH attention has been given to the cysts of the pancreas, and many cases have been reported as cured by operation. The hope that surgery will be useful in cases of inflammation of the pancreas is based on the following considerations:

(1) The presence of scars in the pancreas found at autopsies shows that a limited pancreatitis may recover. The celebrated case of Trafoyer reported by Chiari,² where after an illness of three or four weeks a slough was discharged from the bowels, which Rokitsansky recognized as the sequestered pancreas, is evidence in the same direction.

(2) Experiments on dogs by Mehring and Minkowski, show that part of the pancreas may be removed without impairment of health, whereas if the whole gland is removed a permanent diabetes is produced and the animal dies.

In man the tail of the pancreas has been successfully removed in one or more cases. Senn refers to a case reported by Kleberg,³ where the pancreas protruded from an abdominal stab-wound. The protruding organ was ligated at its base and cut off; the part removed was examined microscopically and found to be a pancreas. The patient recovered.

(3) Several autopsies have revealed an abscess which could have been operated on with relief, and finally Körte⁴ reports a recovery after operation in a case of suppurating pancreatitis.

Dr. Fitz,⁵ in his now classical monograph, divides pancreatitis into three varieties: hemorrhagic, suppurative and gangrenous. In the recorded cases of hemorrhagic pancreatitis (exclusive of traumatic cases), death has usually followed the first symptoms so quickly that surgical intervention would have been impossible. It is therefore the suppurative, and possibly the gangrenous, pancreatitis, which should properly claim the attention of surgeons at this time. I therefore propose to study the signs and locations of the inflammation with reference to the possibility of recognizing and draining abscesses and thereby limiting the extension of the process.

Dr. Fitz gives the following admirable account of the symptoms based on an analysis of 22 cases:

"The cases of acute, suppurative pancreatitis usually began suddenly, with severe, generally intense, gastric, epigastric or abdominal pain, vomiting, and sometimes great prostration. The vomiting might be incessant and distressing, or it might give temporary relief to the pain. The ejected fluid was sometimes stringy and brown. The bowels were usually constipated, although diarrhea might occur within the first twenty-four hours. This latter symptom was not fre-

¹ Read before the Boston Society for Medical Improvement, January 21, 1895.

² Wiener med. Woch., 1880, xxx, p. 139.

³ Langenbeck's Archiv. für Chir., ix, p. 525.

⁴ Archiv. klin. Chir., 1894.

⁵ The Middleton-Goldsmith Lecture, Boston, 1889.

quent at a later date of the disease. Fever, usually slight, was the next conspicuous symptom, being manifested about the third day. At the same time the upper abdomen, especially the epigastrium, was likely to become distended, tympanitic and sensitive. Hiccough, sometimes quite obstinate, was not infrequent in this stage, and occasional chills were met with. The abdomen in general then became moderately swollen, tense and tympanitic."

When death occurred in the course of a week or more, he sometimes found the pancreas studded with hundreds of small abscesses.

"An acute, suppurative pancreatitis, however, very rarely terminates at this early date. The symptoms already described may persist for three or four weeks, with progressive emaciation and debility, and death occur from exhaustion. Under such circumstances the single abscess has been found surrounded with adhesions."

The local condition, and especially the presence of a tumor, is, of course, a most important consideration for the surgeon. It is also of immense importance in the diagnosis. In the early cases the presence of a tumor was rarely noted.

In the table of cases collected by Dr. Fitz up to 1889, the presence of a tumor is recorded in only one case. According to Balt, as quoted by Körte, Lusana, up to 1882, was the only one who had succeeded in palpating the swollen gland. My small experience does not accord with these facts, as in two out of three cases which have come under my observation a well-defined tumor has been present, and in the case here reported, the tumor corresponded exactly to the position of the pancreas and led at once to a correct diagnosis. Körte,⁶ in a recent article, reports three cases where a tumor was present; and I am indebted to him for a part of what follows.

As the tumor in these cases usually represents a pus collection, we can profit here by a recapitulation of the results of autopsies bearing on this point: The pus is almost always retro-peritoneal in the early stages, and not infrequently remains so to the end. In the traumatic cases the peritoneum may be ruptured at the start, in which case the inflammation may begin in the omental bursa.

The inflammatory process may start at any point in the pancreas. If it is most intense at the tail, a pus-cavity may form in the left upper abdomen near the spleen or kidney. If the process attacks the head of the pancreas, the pus-cavity usually breaks into the omental bursa and becomes encapsuled there. At times the para-pancreatic tissue is involved and the whole gland is surrounded by a pus-cavity which extends from the duodenum to the spleen.

The pus may break into the general peritoneal cavity or into the duodenum, but it more commonly burrows down behind the peritoneum, and is often found in the mesocolon as low as the pelvis, on either the right or left side. It may also extend into the root of the mesentery.

In regard to the positions of the tumors actually observed, Musser⁷ noticed an ill-defined epigastric tumor, which was found at the autopsy to represent a pus-cavity bounded by the posterior wall of the stomach in front, by the pancreas, duodenum and transverse colon below, and by the peritoneum above and

behind. Körte cites four cases beside his own in which a tumor was observed. In two of these cases the tumor was behind the stomach, and in two it was in the left abdomen just below the ribs.

Körte found, in his first case, ten days after the disease began, "a resistance in the left epigastric region which extended to the left loin." He explored this tumor through a cut in the loin, and found it to be a large abscess surrounding a sloughing pancreas, which he removed. At the autopsy a large abscess was found between the stomach, spleen, diaphragm and kidney.

In his second case, a month after the first symptoms, which were characteristic, he found an evidently fluctuating resistance in the outer part of the left abdomen, dull on percussion. This was explored by an extra-peritoneal incision through the loin, and proved to be a large retro-peritoneal abscess which extended from the pelvis up to the kidney and inwards to the spine. A sound could be passed up behind the stomach. This patient recovered.

In his third case, on the seventh day of the disease, he felt a swelling on the left side, deep in towards the loin, and fifteen days later a tumor was felt just below the xiphoid cartilage behind the stomach. This was found by an operation to be an abscess between the stomach, colon and spine. The patient died.

My first case was seen on the fifth day of the attack. There was then present a prominence in the epigastrium which felt like a doughy tumor. This extended, with ill-defined borders, under the ribs on the left side, to the loin; it could be plainly felt in the left upper abdomen. The percussion note was resonant. This tumor was explored by laparotomy, and proved to be a necrotic pancreas with an para-pancreatic abscess running the whole length of the organ.

The second case which came under my observation was seen by the courtesy of Dr. J. C. Warren in his wards at the hospital three and one half days after the first symptoms. A hard tumor was easily felt on the right side, just below the liver. This was found at the autopsy to be the root of the mesentery filled with blood, pus and a hard inflammatory cake. The inflammatory process had also extended into the mesocolon and to the kidneys on both sides.

I saw a third case in consultation with Drs. Minot and Cutler: here the probable diagnosis was made on seeing the characteristic epigastric swelling although no tumor was found.

Here we have ten cases with accurate descriptions of tumors. In three the tumor was epigastric. In three it was epigastric, extending along the ribs toward the left side. In three it was in the left upper abdomen, below the ribs. In one case it was on the right side, below the liver. These tumors were observed from three and a half days to one month after the first symptoms.

From these few cases one can see at once that there are three, and perhaps four, typical forms of tumors which will often be found in these cases: (1) An epigastric tumor behind the stomach, due to pus in the omental bursa; (2) A tumor running from the epigastrium to the spleen, just below the ribs, due to an enlarged pancreas or a para-pancreatic abscess; (3) burrowing of a retro-peritoneal pancreatic abscess may give rise to a tumor in the left loin, or more rarely on the right side below the liver.

These tumors will sometimes be difficult or impos-

⁶ Archiv. für klin. Chir., 1894, Heft iv.

⁷ American Journal Medical Sciences, 1886, N. S., xci, p. 449.

sible to feel on account of a tympanitic and painful condition of the abdomen, also on account of a fat abdominal wall. As the inflammation which causes them is retro-peritoneal, they will usually be indistinct and vague to the touch, and they will also often be tympanitic on percussion, as the bowel may lie over them. Such tumors will best be found by careful and skilful palpation. Inflation of the stomach and transverse colon is useful in determining whether a tumor is in front or behind those organs. I venture to predict that the presence of a tumor will be noted much oftener in the future.

Senn, I believe, was the first to seriously suggest surgical treatment for pancreatitis, although he had done no operation. As the matter stands to-day, there seems to be good ground for surgical interference in proper cases; but only one successful case has been reported. This was done by Körte, and has already been referred to. A second case was reported by Pearce Gould⁸ as a cyst of the pancreas. This case is considered by Körte, on account of the acute symptoms and the character of the fluid found, to have been a case of suppurative, and not a cyst pancreatitis. Lloyd calls attention to the probability of the traumatic cases of so-called pancreatic cysts being effusions into the lesser omental cavity, and not cysts of the pancreas. Fitz⁹ says that "these effusions may represent the extension from the pancreas of an acute inflammatory process to the peritoneal covering, which is the posterior wall of the lesser omental cavity." This point of view would transfer some of the successful pancreatic cyst operations to pancreatitis operations, and thereby make a better showing for surgical interference in pancreatitis. My own opinion is that the traumatic cases should neither be classed as cysts nor as pancreatitis; but as injuries of the pancreas. They, therefore, do not belong to the subject of this paper. Cases of hemorrhage of the pancreas due to an injury have repeatedly been operated on with success.

The possibility of recovery, even when fat necrosis is present, is shown by a case of Osler's referred to by Fitz, where an exploratory operation was done for intestinal obstruction. No obstruction was found; but there was a dense, thick, indurated mass in the region of the pancreas and at the root of the mesentery, and foci of fat necrosis were found in the mesentery and omentum. The patient recovered.

All the authorities — Fitz, Senn and Körte — agree that the acute stage is not a favorable time to operate. This is certainly true when the patient is more or less in a state of collapse, as is often the case. It seems to me, however, not impossible that with an early exploratory incision the diseased part of the pancreas might be removed, or that the disease might be limited by gauze packing.

At present our attention is directed to opening pus-cavities and limiting their extension. If pus has collected in the omental bursa, the incision should be made in the middle line from the ziphoid cartilage down. The bursa should be opened by tearing through the omentum between the stomach and transverse colon. The omentum can be stitched to the abdominal wall before opening, and in this way the abscess-cavity is shut off from the peritoneal cavity. If the abscess-cavity extends along the pancreas, a counter-

opening should be made in the lumbar region just below the twelfth rib. When the pus is evidently retro-peritoneal and burrowing in the lumbar region or in the mesocolon, the opening should be made in the back, as for extirpation of the kidney, then with a blunt dissector the pus-cavity should be searched for without opening the peritoneum.

CASE I. Gangrene of the pancreas, with fat necrosis; operation; death.

The patient, a large and fat man, aged fifty-one, entered the Massachusetts General Hospital, August 1, 1894. He had been well and strong, but had suffered more or less from rheumatism. Five days before entrance he was suddenly taken with an attack of severe vomiting; a few minutes later he felt a hard pain in the left side, which pain had continued ever since. At first it was more general, but later it became localized near the spine of the ilium. He had taken a dozen or more quarter-grain morphia suppositories. He had vomited several times each day, and the bowels had been moved by enemata. There had been no chills nor sweating.

Examination of the abdomen showed a dome-shaped prominence in the epigastrium, which felt like a doughy tumor. This mass extended along the border of the ribs on the left side to a point just above the superior spine of the ilium. Its borders were not at all sharply defined, and it was resonant on percussion. The outer end was decidedly tender. The urine was normal, no albumin or sugar being present. The temperature was 100.5°, pulse 100; tongue coated and breath foul. The diagnosis of pancreatitis was made. He slept fairly well that night without morphia; taking milk and lime-water without nausea or vomiting, and good movements of the bowels followed an enema; but he had the expression of a very sick person.

On August 2d, Drs. Richardson and Mixter saw him in consultation, agreed to the diagnosis, and advised operation.

Operation.—A four-inch incision was made in the median line over the most prominent part of the tumor. The omentum was found much thickened and studded with white spots of fat necrosis. Two openings were made through the omentum — one straight down in the median line, which gave no result; and one down to the left into the doughy tumor to a point corresponding to about the middle of the pancreas. From this opening came a quantity of greasy, bloody fluid. Both openings bled freely, and were packed with gauze.

On the following day the gauze was removed, and six ounces of brown, muddy fluid of slightly foul odor, ran out. A drainage-tube was placed, and the fluid continued oozing out. On examination, Dr. Whitney found that it contained clumps of pus-cells, altered blood corpuscles, free fat, and bacteria in great abundance.

The patient died in three days.

At the autopsy Dr. Whitney found a disseminated fat necrosis, most marked in the region of the pancreas, and gangrene of the pancreas. The following is his description of that organ: "Lying at the posterior part of the mass removed was the pancreas imbedded in slaty, discolored necrotic fat tissue. On dissecting it out, it was necrotic for its greater part. Only a portion of the tail and of the head retained any semblance of normal structure, and these were

⁸ London Lancet, August 8, 1891.

⁹ Pepper's Theory and Practice of Medicine.

sharply separated from the dirty, slaty-colored structureless mass. There were two openings from the ducts, which were normal. The splenic artery was thickened and its coats slightly roughened. The splenic veins contained a recent thrombus continuous with thrombi in the pancreatic veins. There was no evidence of any recent hemorrhage. The spleen was increased one-half in size, firm and dark-red in color.

HEMORRHAGIC PANCREATITIS.¹

BY ELBRIDGE G. CUTLER, M.D.

CASE I. On February 1, 1893, I first saw Mrs. A. H. H., aged about fifty-eight, and obtained the following history: She has had severe attacks of indigestion in the past fifteen years several times, keeping her in bed a month or six weeks with each attack. The attacks have been preceded by constipation, anorexia and insomnia. Vomiting speedily follows and lasts two or three days, all food being ejected and almost all the liquid taken as well. It is impossible to trace the trouble to any one thing. When the stomach gives out it refuses everything. Never any chills, never any tenderness about the abdomen anywhere. Once she had an attack followed by jaundice, lasting two weeks. Has had no attack in the last two years. Says she has had no good movements of the bowels for a month, that is, no large, fully formed ones. "It seems as if at one place it passes through a very narrow passage," as the patient expressed it, pointing at the same time to the left side of the abdomen low down. She has frequently been called up to the water-closet in the morning by gas in the abdomen, but has never had to go several times before being relieved. There has never been slime or blood with the stools. She has lost ground in the last two weeks, and for six days has had more or less pain in the middle of the back.

The patient was short and rather stout, of dark complexion but of good fresh color. Physical examination of the heart and lungs was negative. The abdomen was full, moderately soft, no tenderness anywhere and normally tympanitic. The hepatic area of dullness was not increased. Spleen area normal. Urine healthy. Family history unimportant. With a laxative pill and regulated diet she did very well indeed till May 4th, when she caught a severe cold. She was kept in bed by it for four or five days, when she was able to be up and about.

On May 15th the cough recurred, and gave rise to abdominal pain on the right, just below the ribs, with vomiting two times. There was no tenderness or distention of the abdomen. All food distressed her. She was better the next day, and remained well till about the 6th of June, when I saw her again because food began to disagree, and she had constant pain in the right mammillary line just under the ribs. A single subcutaneous injection of morphia, followed by Carlsbad salts, kept her in comfort for four days. For some time the stools had been screened in vain, looking for gall-stones. On the 10th pain began again; on the 12th it was acute with occasional vomiting, and twice there were chills followed by cold sweats. As she did not improve and morphia was frequently necessary, I

asked for surgical assistance, which was deferred. The next day there was jaundice; the abdomen became distended, especially in the upper part; the patient looked badly, vomited several times, had fever of 102° F. and a weak pulse. There was a slight trace of albumin in the urine; no sugar; considerable bile pigment. That night the patient was a little delirious. There was profuse sweating after sleep. Pain in the epigastrium, with tenderness, became very marked; and Drs. F. Minot and J. W. Elliot saw her with me in consultation. At this time the abdomen had become very much distended, was tender and hard; the pulse was weak and thready; the appearance very bad; vomiting of a black liquid in no large quantity was of frequent occurrence. The diagnosis of gall-stones, with probable secondary disease of the pancreas and peritonitis, was concurred in, and non-interference advised. The patient continued to fail and died next day.

At autopsy there was found a bloody fluid in the abdominal cavity, with peritonitis; very numerous spots of fat necrosis, chiefly about the region of the pancreas (some of them were seen by Dr. Whitney); and an enlarged pancreas surrounded and infiltrated with blood in its middle portion. The liver showed indistinct acini. In the gall-bladder were a number of faceted small stones; one was found at the outlet of the common duct, and one nearly at the end of the cystic duct. Further examination was not made.

CASE II. J. H., fifty-two, married, born in Ireland and living in Boston, entered the Massachusetts General Hospital, September 26, 1894, with the following history: Father dead of gravel; mother and four sisters alive and well. Patient had scarlet fever at seven, and measles and small-pox at ten. Twenty years ago fell and hurt her back, and has had pain and lameness there occasionally since. Dyspnea also for ten years, worse of late. Dizziness, blurred vision, and occasional faintness after exertion. No swelling of feet or abdomen. Paroxysms of coughing when suffering from dyspnea, but no steady cough. More or less "stomach trouble" for five years, especially when overtired. An "all-gone" feeling after meals, relieved by vomiting. Less urine than formerly. Bowels regular.

Her present illness began with a headache on the morning of the 23d. On the 24th, after a breakfast of a pear and some bread, had severe cramp in the stomach, and vomited. Felt better some hours later, and went down town, where she vomited again twice. Later, abdominal cramps again, with continued vomiting and great weakness. Vomited on the night of the 24th and on the 25th. Had abdominal cramps on the 26th, and vomited twice. Pain worse over the epigastrium and both flanks. Tightness in the chest and dyspnea since the 24th.

The patient was very large and fat. Alcoholic look; dull, cyanotic countenance. Respirations rapid and labored. No cough. Heart slightly enlarged to left, slight systolic murmur. Harsh respiration throughout chest, moist râles at bases. Abdomen much distended, especially in upper part; very tense, particularly in epigastrium, about umbilicus and in the right iliac region. Marked tenderness over epigastric and umbilical regions; not extreme, however. Vaginal and rectal examinations negative. Edema of abdominal and thoracic walls, none of legs. Pulse 112, respiration 47, temperature 100.8°. Ordered liquids;

¹ Read before the Boston Society for Medical Improvement, January 21, 1895.

strychnia, one-fortieth of a grain every four hours; whiskey, half an ounce every two hours.

September 27th. Pulse more rapid and weak. First cardiac sound short. More râles in lungs. Abdomen not so distended or tense, no tenderness. Takes liquids well, no vomiting. No cough; labored breathing; much cyanoses. No pain. No result from an enema (the bowels had not moved). Fifteen ounces of urine in twenty-four hours; color, high; acid; specific gravity, 1.032; one-fifth per cent. of albumin; sugar, 6.1 per cent.; sediment contained degenerated renal cells, hyaline and granular casts of both diameters, with renal cells adherent; no blood; Diazo primary and secondary. Indican increased. Tincture of digitalis, ten minims every four hours.

September 28th. Last night, very cold hands and feet, marked cyanosis. Seen by Dr. S. J. Mixter, who advised non-interference, though he considered it an abdominal case. Much weaker this morning. Diffuse, moist râles through both chests. Abdomen less full and less tender. Vomited once last night and again this afternoon — dark, hemorrhagic-looking stuff. Some pain in chest, none in abdomen. Delirious last night, and noisy to-night; seems like alcoholic delirium. Out of bed twice last night. Suds and glycerine enema gave a normal-looking movement.

September 29th. Sent to a private room on account of noise last night. Refused all medicine till twelve. Restless and noisy. Pulse failed gradually, and patient died at 4.40 this morning.

The autopsy was performed by Dr. W. F. Whitney, eight hours after death. Rigor mortis present. Body well nourished. Excessive development of adipose tissue. Marked lividity of face and dependent portions of the body. Head not opened.

Thorax: Pleural cavities contained a little red fluid (serous), surfaces normal. Lungs retracted, dark-red in patches, collapsed, of a bluish-red color; on section, a little frothy sputa came from cut surface of uncollapsed portions. Pericardium: Surfaces normal. Cavity contains a normal amount of straw-colored fluid. Heart large, covered with abundant fat tissue; muscular substance pale, somewhat opaque; valves and cavities normal. Aorta of normal size, intima covered with slightly raised, opaque, irregular, yellow patches.

Abdomen: Peritoneum cavity contained a moderate amount of blood-stained serous fluid. Surfaces without any adhesions and in general smooth, but everywhere marked by white opaque spots from the size of a pin's head to that of a split pea, very slightly raised above the surface, and on section lying wholly within the fat tissue. These were found everywhere upon the subperitoneal fat, the omentum, the mesentery and in the fat about the upper surface of the diaphragm and mediastrium. These changes were most extensive in the fat about the pancreas and in the mesentery there. The pancreas itself was enlarged to about twice its normal size, firm, dry, of a dark blackish-red color, mottled by opaque yellowish-red patches. This appearance was throughout the entire organ. There was no evidence of normal structure anywhere. The splenic artery was of normal size, its internal coat slightly thickened, the openings of the pancreatic branches apparently normal. The splenic vein was normal; over a part of its wall was a recent, slightly adherent mass of fibrin and blood, only partly blocking up its lumen. There was very little clot in it.

The pancreatic duct opened in the normal place, and was followed some distance into the organ; its walls were thin and smooth, and to the eye there was no evidence of any inflammatory condition.

Stomach and intestines presented no marked changes.

Liver was of normal size; the section-surface was pale, slightly opaque, lobular, outlines indistinct. Microscopic examination showed the cells infiltrated with fat drops and quite granular.

Spleen slightly increased in size, very soft; on section, structure not to be made out from the almost diffuent character of the pulp, which was of a pale-reddish color.

Kidneys of normal size; capsule stripped off easily; cortex and pyramids easily differentiated, the former of an opaque, grayish color. Microscopic examination showed the cells of the convoluted tubes filled with small glistening granules.

Uterus and adnexa presented nothing abnormal.

Cultures from liver and spleen showed the bacillus coli communis.

Diagnosis: Acute hemorrhagic pancreatitis, disseminated fat necrosis, acute splenic hyperplasia, granular degeneration of heart, liver and kidneys.

The symptoms of hemorrhagic pancreatitis are oftentimes suggestive rather than distinctive. The most common symptom is pain in the upper abdominal region, which may be very intense and is increased by pressure and deep inspiration. Accessory symptoms are nausea, vomiting, loss of appetite, irregularity of the stools (sometimes constipation, at other times diarrhea), and distention of the gastric region. If the case is about to terminate fatally, very soon there is much loss of strength, collapse supervenes, and the patient dies. The temperature may be normal, only a little elevated, or it may at times be high. The most common complication is peritonitis. Icterus, as in the first of my cases, is more seldom seen. Sometimes the symptoms are those of ileus; and, according to Eichhorst, if the pancreas is enlarged, it may press on the intestine and thus make it impassable. Sugar in the urine has been found in a few instances, as in the second of the above cases; and, as a symptom, it is with our present knowledge merely suggestive.

A probable diagnosis can be made with some certainty only when diseases of the stomach, liver and intestine can be excluded. In the majority of cases hemorrhagic pancreatitis remains either undetected or simply considered in the enumeration of the possible conditions. No material addition to our knowledge of the disease has been made since the publication of Fitz's admirable paper in 1889.

SOME METHODS OF CHEST EXAMINATION SUPPLEMENTARY TO AUSCULTATION AND PERCUSSION.¹

BY EDWARD O. OTIS, M.D., BOSTON,
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the American Climatological Association, etc.

EXPERIENCE gained in the examination of over fifteen hundred chests of presumably well persons has convinced me that the means of determining the condition of the lungs other than auscultation and percussion are exceedingly valuable, and add not inconsider-

¹ Read before the Boston Society for Medical Improvement, January 7, 1895.

ably to the knowledge obtained by the latter methods. Moreover, they are applicable to most cases which consult us for suspected lung trouble.

The means I refer to are in use, some of them at least, in the gymnasiums where physical examinations are made, though probably not exactly with the same end in view which guided me in my investigations. They are:

Spirometry: the measure of the lung capacity, as well as the measure of the ordinary amount of air in the lungs.

Pneumatometry: the measure of the elastic power of the lungs, or strength of the lung tissue.

Thoracometry: the measure of the circumference and diameters of the chest—depth and breadth—both in natural and full inspiration, and tracings of the contour of the chests, also in natural and full inspiration.

These tests are of especial value in those incipient or suspected cases before we obtain any positive evidence of disease by auscultation and percussion. A class of cases in which any and all means of examination which will lead to a diagnosis are of especial value, for, as we all know, the earlier the diagnosis is made and the treatment begun, the better the prospect of arrest. Further, they naturally suggest a valuable means of treatment, namely, gymnastic exercise especially directed to chest and lung expansion.

The capacity of the lungs in health varies in the first place according to age, sex, and stature; and secondly, according to the height, width, and depth of chest, mobility of the chest walls, and also, which is of especial note, according as one has or has not been in the habit of fully expanding the lungs—practising breathing exercises. In 1,000 measurements of my own tabulation for an average height of 67 inches (170.2 centimetres) and an average age of 22.1 years, the average lung capacity was 240.6 cubic inches (3,944 cubic centimetres). In 8,000 measurements of Dr. Hitchcock, of Amherst College, for an average height of 67.9 inches (172.5 centimetres), and at an age of from seventeen to twenty-six years, the average lung capacity was 230 cubic inches (3,770 cubic centimetres). In 15,000 measurements of students, at about the same age as those tabulated by Dr. Hitchcock, collected by E. Hitchcock, Jr., of Cornell University, the average lung capacity was 236.6 cubic inches (3,880 cubic centimetres) for an average height of 67.8 inches (172.2 centimetres). I have also made from my own measurements of males from sixteen to forty years of age, averages of the lung capacity for heights from 66 to 72 inches, each average being the result of fifty observations, with the following results:

Height.	Lung Capacity.	Average for each Inch or Centimetre in Height.
66 to 67 inches, incl. 167.7 to 170.3 cms.	231.62 cubic inches. 3,797 cubic cms.	3.44 cubic inches. 22.4 cubic cms.
67 to 68 inches, incl. 170.3 to 172.8 cms.	237.10 cubic inches. 3,903 cubic cms.	3.46 cubic inches. 22.7 cubic cms.
68 to 69 inches, incl. 172.8 to 175.3 cms.	244.44 cubic inches. 4,007 cubic cms.	3.5 cubic inches. 23.06 cubic cms.
69 to 70 inches, incl. 175.4 to 177.9 cms.	259.34 cubic inches. 4,260 cubic cms.	3.66 cubic inches. 24.06 cubic cms.
70 to 71 inches, incl. 177.9 to 180.5 cms.	261.38 cubic inches. 4,284 cubic cms.	3.64 cubic inches. 23.9 cubic cms.
71 to 72 inches, incl. 180.5 to 183 cms.	261.34 cubic inches. 4,284 cubic cms.	3.5 cubic inches. 23.03 cubic cms.
General average		{ 3.52 cubic inches. 23.19 cubic cms.

From this data we find that in males between sixteen and forty years of age for each inch in height, the lung capacity is 3.5 cubic inches or 22.5 to 23 cubic centimetres for each centimetre of height. From the observations of Hutchinson and Wintrich, Brehmer gives it as between 22 and 24 cubic centimetres for every centimetre in height, but 23 is a good working basis and sufficiently accurate.

For women we have the measurements of about 500 students taken at Mt. Holyoke and Wellesley Colleges by Dr. Colton and Miss Wood, which gives for an average height of 62.6 inches (159.1 centimetres), an average lung capacity of 145.8 cubic inches (2,390 cubic centimetres); and also 50 per cent. of 1,500 Wellesley students, the observations made by Miss Wood for a height of 63.2 inches (160.5 centimetres), giving a lung capacity of 150.3 cubic inches (2,447 cubic centimetres). The average age in each case was about nineteen years. From this we find that, with women, for every inch in height the lung capacity is about 2.3 cubic inches or 15 cubic centimetres for each centimetre. Brehmer makes it a little higher, between 16 and 17.5 cubic centimetres. Hutchinson found in his investigations, made many years ago, that the lung capacity varied from 174 cubic inches for a height of five feet to 262 cubic inches for a height of six, or for every inch of stature above five feet the lung capacity increased eight cubic inches. According to Waldenburg the lung capacity decreases after thirty and up to sixty years of age, nearly $1\frac{1}{2}$ cubic inches per year of age. This I should doubt to be the case provided the individual continues the habit of deep breathing.

With the data then already given, knowing the height, we can estimate pretty nearly how much the lung capacity of each individual ought to be. If, on a spirometric test, it varies to any great extent from this, the man is either better or worse than we thought as to his chest expansive ability and lung capacity. If much below, either his method of respiration is faulty or his lungs are not normal. If the first supposition is true, the measurements of the circumference, depth and breadth of the chest in repose and full expansion will indicate this, for the difference of these three measurements under these two conditions of repose and expansion will be below the average, indicating insufficient mobility of the chest-walls.

Now, this may all happen in the latter case, namely, that the lungs are not normal and some of their tissue is disabled and thrown out of use, but we shall have the evidence which auscultation and percussion give us. If the evidence, however, from these tests is negative, and yet we have certain suspicious general symptoms, the failure of the spirometric test together with these measurements to come up to the average by a considerable degree, will, at least, make one suspicious as to the integrity of the lung tissue. I wish here incidentally to make an especial point upon the amount of air exhaled after an ordinary quiet inspiration, the way one generally breathes when one is thinking nothing about it. This, it seems to me, is a valuable bit of evidence, as showing how successfully and normally one is performing the act of respiration.

In examining patients with incipient pulmonary tuberculosis, the lung capacity was found to be below, and generally much so, the average. According to Waldenburg from 10 to 70 per cent. To illustrate: E. C., of medium stature, in fair general condition as

to strength, appetite, digestion, etc., and attending daily to business, was found to have a small area of tubercular infiltration at the apex of the right lung; the vital capacity was 195 cubic inches, the average being about 235 cubic inches. J. M. with evidence of induration and softening at the apex of the right lung, had a vital capacity of 85 cubic inches. H. A. S. with evidence of a moderate amount of tubercular disease at the left base from old pleuritic trouble, had a vital capacity of 185 cubic inches. W. H. D. with a slight infiltration in the outer clavicular region of the left apex, but with the perfect appearance of health and attending to his usual occupation, had a vital capacity of 150 cubic inches. In all of these cases the diagnosis was verified by the finding of tubercle bacilli in larger or smaller quantities.

Brehmer² goes so far as to say that the physician can with the aid of the spirometer determine whether the individual who comes to him for the first time to be examined, or is seen by him for the first time, has pulmonary tuberculosis or not, and that the spirometer is, *par excellence*, the means, and indeed the only one, to determine with certainty under all conditions the first beginnings of pulmonary trouble. "By it," he says, "we can determine whether or not any, even a very small portion of the lung tissue is inaccessible to air, and whether there exists any induration, although it may be surrounded by air-permeated lung tissue." Says Renzi, in his recent work upon phthisis,³ "spirometry shows a diminution of the lung capacity even in the beginning of the disease."

On the other hand, if the general symptoms were suggestive of tubercular trouble but if the vital capacity was up to or beyond the average, it was a favorable piece of evidence against actual lung invasion. For example, E. J. T., a young woman with a marked family history of tubercular trouble, and with general symptoms strongly suggestive of it, came to me with a communication from her family physician that two months previous he had found the right apex suspicious. She had a vital capacity of 150 cubic inches, the average for a woman, and the examination of the lungs by auscultation and percussion was negative, and no bacilli were found in the sputum.

Wintrich—quoted by Brehmer—narrates two cases in which the spirometer test determined the fact that no lung trouble existed in spite of suspicious symptoms. One was a governess who had suffered from an annoying cough, accompanied sometimes with a little blood. Her general condition was good but her friends were much alarmed, fearing disease of the lungs. The spirometer test, however, gave the average lung capacity for her height, namely, 17 cubic centimetres to one centimetre of height—about 2½ cubic inches to one inch in height—and consequently the cough was considered hysterical. The other, also a young woman, had for a long time a severe, troublesome cough, and it was feared that she also might have some deep-seated lung disease; but the spirometric test gave 2,720 cubic centimetres of lung capacity—her height being 165 centimetres, or 17 cubic centimetres to one centimetre of height—indicating that the cough was not the result of any lung invasion. One might naturally ask why could not auscultation and percussion have as well determined this fact, and

also the examination of the sputum; but Brehmer answers this by saying that examples are by no means rare where neither the subjective symptoms nor the most exact examination by means of auscultation and percussion will, with certainty, reveal infiltration, but where the spirometer shows an important diminution of the lung capacity, and only after a year and a half or two years will auscultation and percussion give evidence of infiltration at the apices; and that the patients have after some years died of lung disease. As to the examination of the sputum—in one of the cases above quoted by Brehmer, there was no sputum, and in the other the slightest amount, if any. And further, a spirometric test requires but the slightest amount of skill and experience, and there are no sources of error if the spirometer is, to begin with, accurate, while examination of the sputum, if there is any, requires experience and skill and expensive appliances.

Further, when the diagnosis of tubercular invasion has been established, the test of the vital capacity is a factor of more or less value in forming a prognosis. As Renzi says: "It has especially a high prognostic worth, for when the breathing capacity is very considerably diminished, the prognosis is unfavorable." There may possibly be a slight danger of hemorrhage in taking this test, but as one would generally apply it only in incipient cases, this, it seems to me, is inconsiderable. It is a test which is very readily made and the sources of error are small. Either a dry or a water spirometer may be used. I am accustomed to both, with a preference for the latter; it seems to me to be rather more accurate and less likely to become disarranged. As illustrative of this part of the subject, I give the lung capacity of thirteen consumptives with more or less advanced disease.

A, male	. . . . .	145 cubic inches.
B, male	. . . . .	115 "
C, male	. . . . .	76 "
D, male	. . . . .	50 "
E, male	. . . . .	75 "
F, male	. . . . .	70 "
G, male	. . . . .	75 "
H, male	. . . . .	132 "
I, male	. . . . .	103 "
J, male	. . . . .	102 "
K, male	. . . . .	95 "
L, male	. . . . .	52 "
M, female	. . . . .	85 "

The average lung capacity for males being 235.7 cubic inches, and for women about 150 cubic inches.

The pneumatometer or pressure spirometer is the instrument used in measuring the so-called strength of the lungs—or the inspiratory and expiratory forces. Under normal conditions, according to Waldenburg, the expiratory force exceeds the inspiratory by 20 to 30 millimetres. In cases of tubercular disease, however, even in the earliest stages, "the inspiratory power is diminished, whilst the expiratory remains normal."⁴ Renzi has repeated Waldenburg's experiments, and finds that both the inspiratory and expiratory forces are diminished in tuberculosis of the lungs, but the former more so than the latter and earlier. In emphysema the expiratory pressure is lowered. I have made a large number of observations upon the expiratory force, "strength of lungs" so-called, and I am unable to find that there is any constant ratio between it and the lung capacity. The test has a certain value, however, I think, as a gymnastic

² Die Chronische Lungenschwindsucht und Tuberculose der Lunge, Dr. Herman Brehmer, Berlin, 1869.

³ Pathogenese, Symptomatologie, und Behandlung der Lungenschwindsucht, von Dr. E. De Renzi, Wien, 1894.

⁴ Powell: Diseases of the Lungs.

exercise. Waldenburg used a mercurial manometer. I have used what is in common use in the gymnasiums, an ordinary steam-gauge made for recording low pressure. Dr. Denison, of Denver, Col., has also devised a mercurial instrument, which I have here.

In thoracometry two circumferences of the chest are taken, one at the level of the nipples, and the other about two inches below, the "respiratory chest" so-called. These may be taken under three conditions: extreme inspiration, extreme expiration, and in calm breathing. I have been accustomed to take them in calm breathing and extreme inspiration only. The important fact to be ascertained in these tests is the mobility of the chest-walls as a whole. To determine the amount of excursion of the chest-walls antero-posteriorly and laterally we measure these two diameters in repose and full inspiration: this is important, for I have often found that the expansion comes almost entirely from the increase of one diameter alone, as the accompanying charts illustrate. I take them at the level of the nipple, the antero-posterior one, by metal calipers—the self-registering ones I think, are more convenient—and the lateral one either with the same instrument or a pair of wooden slide calipers.

These measurements of the circumference and diameters of the chest taken in repose and inflation tell us of its size and mobility, but not of its shape or of the symmetry or asymmetry of the respiratory movements. It is a fact I have frequently verified that the apparent and real shape of the chest often differs very largely; and further we know that it frequently expands unsymmetrically, the amount of excursion of one side of the chest-walls being larger than that of the other, or the expansion being mostly either anteriorly or laterally. In order to make apparent these facts of shape and variations of expansion we can trace the contour of the chest in repose and inflation, which will still further complete our knowledge of the respiratory chest, its movements and contents. For this purpose we can either make use of a simple band of lead with a rubber hinge as I have done, or the more complicated and accurate apparatus of D  m  ny, of Paris. Generally for the purpose of the clinician the simpler instrument will suffice. The contour of the chest is first taken in repose and charted, and superimposed upon this its shape when fully expanded, thus giving us a representation of the shape under the two conditions. By this method, for example, we can see at a glance if the two sides of the chest expand unequally, as in a case of previous pleuritic trouble.

By these additional methods of physical examination, which I have enumerated and briefly described above, I feel convinced that we can often obtain valuable knowledge of the respiratory chest and its contents in addition to that obtained by auscultation and percussion; and in doubtful cases, as I have said, of suspected tubercular trouble, their evidence will often, I believe, render the diagnosis clearer.

I do not by any means consider all these tests of equal value; indeed, taken by themselves some have very limited value, such as the strength test of the lungs and the tape measure of the chest expansion, but the sum total of them does, I believe, very materially supplement the knowledge obtained by auscultation and percussion, as well as suggest to us possible defects in the respiratory function when all other

evidence is negative. Moreover, by an examination of this kind one gets into the habit of looking at his patient from rather a different point of view, a physiological one, if I may so denominate it, in addition to the pathological one. And further, if in an examination of a suspected case we obtain no evidence of disease, we do gain information by these additional methods which we could not obtain, or but indifferently, by auscultation and percussion, namely, how the function of respiration is being performed.

MEASUREMENTS OF THE CHEST AND LUNG CAPACITY.
TABLE I.—Chest Measurements.

CHEST MEASUREMENTS.	Repose, inches.	Inflated, inches.	Difference, inches.
<i>Girth, Muscular.</i>			
MEN.			
Average of Dr. E. O. Otis, 1,000 measurements, between sixteen and forty years of age.	34.0	36.1	2.1
Average of Dr. Hitchcock, of Amherst College, 8,000 measurements.	34.6	36.5	1.9
Average of E. Hitchcock, Jr., of Cornell College, 15,000 measurements.	34.5	36.3	1.8
WOMEN.			
Mt. Holyoke and Wellesley students. Measurements Miss Wood and Dr. Mary Colton.	29.5	31.5	3.0
<i>Chest, Respiratory.</i>			
MEN.			
Average of Dr. E. O. Otis, 1,000 measurements.	31.1	33.1	2.0
WOMEN.			
Fifty per cent. of 1,500 Wellesley students, Miss Wood.	24.6	27.2	2.6
<i>Depth of Chest.</i>			
MEN.			
Average of Dr. E. O. Otis, 1,250 measurements in repose and 362 inflated.	7.5	8.3	0.8
WOMEN.			
Fifty per cent. of 1,500 students at Wellesley, Miss Wood.	6.9	.....	.....
<i>Breadth of Chest.</i>			
MEN.			
Average of Dr. E. O. Otis, 400 measurements.	9.9	10.8	0.9

TABLE II.—Capacity of Lungs.	
MEN.	
Average of Dr. E. O. Otis, 1,000 measurements.	Cubic Inches. 240.6
Hitchcock, 8,000 measurements.	230.0
Hitchcock, Jr., 15,000 measurements.	236.6
WOMEN.	
Mt. Holyoke and Wellesley students, measurements of Miss Wood and Dr. Mary Colton.	145.8
Fifty per cent. of 1,500 Wellesley students, Miss Wood.	150.3

TABLE III.—Comparison of the "Vital" or Lung Capacity and the Amount of Air Expelled after an Ordinary Quiet Inspiration.	
Average of Dr. E. O. Otis. One Hundred and Fifty Measurements.	
Cubic Inches.	
Vital capacity, or the amount of air exhaled after a full inspiration.	230.5
Amount of air exhaled after an ordinary quiet respiration.	129.3
Difference, or "complemental" or "reserve" air.	101.2
Difference as given by Hermann.	97.6

If the vital capacity is low and the expansion poor, we are enabled, by the knowledge of these deficiencies, to warn our patient of possible tubercular trouble in the future encouraged by his faulty habits of respiration, and teach him how to correct them by gymnastic exercises arranged to obviate these deficiencies. As Renzi says, in speaking of spirometry, "One can in some degree form a reliable opinion as to a possible

future lung invasion, and, therefore," he adds, "it is important that this means of examination should be used in the schools and gymnasiums."

These methods of examination are of value also in keeping before one's mind this valuable means of treatment and prophylaxis, namely, lung-expanding exercises, a treatment all too much neglected, it seems to me, but which, when properly arranged and supervised, can produce striking results.

Says Dr. Butler in his conclusions to a recent paper read before the American Climatological Association, upon "The Methods and Value of Supervised Exercise in the Prophylaxis of Pulmonary Phthisis": "Among many therapeutic agencies for imminent or incipient phthisis, one of the most useful is respiratory exercise. . . . Of all methods of obtaining increase of respiratory strength, capacity and nutrition, supervised exercise secures the most permanent and lasting results."

I give, on the preceding page, a table, previously published, of measurements and averages of the chest and its vital capacity. I also present a variety of chest contours with the vital capacity and expansion.

Medical Progress.

REPORT OF PROGRESS IN PUBLIC HYGIENE.

BY S. W. ABBOTT, M.D.

INDUSTRIAL HYGIENE.

THE Consulting Committee of Public Health of France, in its last annual report,¹ publishes the text of a proposed code of regulations for the protection of industrial labor. The proposed code is divided into two parts, the first pertaining to the health of operatives, and the second to their security from accident and harm. These are to be carried out with penalties under the provisions of an act of June 12, 1893.

The following is a digest of the hygienic regulations:

(1) The places used for work, and all their appurtenances are to be kept constantly clean. The floors to be thoroughly cleansed at least once a day before the beginning, or after the closing of work, but never during work. The cleansing to be done by washing unless the character of the work forbids it. The walls and ceilings also to be frequently cleansed and kept in good order.

(2) In establishments where organic materials are used, the floor should be impervious and level. The walls to be either plastered or glazed, or covered with a good coat of zinc paint. Floors and walls to be washed as often as is necessary with a disinfecting solution. In every case a washing with strong alkali should be conducted at least twice a year. Decomposing material must not be allowed to remain in places where work is done, nor should much material be used in the processes of work. It should be taken away, or in case of deposit, should be carefully disinfected.

(4) The air of workshops must be kept constantly free from all emanations from sewers, drains, vaults or other sources of infection. Establishments connecting with a public or private sewer must be provided with an efficient trap on the main drain, to be fre-

quently cleansed and flushed with water at least once a day. Operations in sewers, along gas mains, smoke flues, vaults and similar places likely to contain harmful gases, must only be undertaken after the air has been purified by efficient ventilation. Workmen in such places must be provided with safety-belts.

(4) Water-closets must not be in direct communication with closed places where workmen are employed. They must be provided with an abundant supply of water for flushing. The floor and walls must be of impervious material, zinc paint only to be used and of a light color. There should be at least one closet for each thirty persons, and urinals in sufficient number. No drain, cesspool, or any other mode of sewage-disposal is to be permitted without the proper sanction of the authorities.

(5) Closed places used for work must not be tightly closed. The air-space for each workman must never be less than eight cubic metres (about 280 cubic feet). These places should be well ventilated; and in cases where the character of the work does not allow ventilation, and where the materials used are harmful, artificial ventilation must be furnished, of such sufficiency that each man shall have a minimum of 24 cubic metres of fresh air per hour (about 840 cubic feet). Workrooms, as well as adjoining halls and stairways must be well lighted.

(6) Dust, noxious gases and harmful powders must be forced out-of-doors as soon as they are produced, and must not be allowed to mix with the air of workrooms. In the case of vapors, gases and light dust, connection must be made with chimney-shafts, or some other effectual method must be employed. For the dust powdered by mills, crushers, grindstones and other similar mechanical appliances, blowers must be furnished, connecting with a strong ascending current of ventilation. In the case of heavy gases, such as mercurial vapors, bi-sulphide of carbon, etc., ventilation must be effected by downward currents, each working-table being put in direct connection with the ventilator. Noxious gases and dust must not be let loose into the out-door air; gases and vapors must be condensed or burned, and dust must be carried to furnace fires or into collecting chambers. The powdering of irritating and poisonous substances, and similar operations, such as the sifting and packing of these materials, must always be done by machinery, and in closed apparatus when possible.

(7) During the interruption of work for meals the workrooms should be cleared of their occupants, and the air of these rooms entirely renewed.

(9) Workmen must not take their meals in the workrooms, nor in any of the places used for work. Proprietors of establishments must put at the disposal of their employees the means for ensuring personal cleanliness, and furnish dressing-rooms with wash-bowls, as well as water of a good quality for drinking.

The second division of the code relates to the means of insuring workmen against accidents from falls, revolving machinery, belts, elevators, electric dynamos and wires, sharp tools, the oiling of machines when in motion, etc.

QUANTITATIVE DETERMINATION OF THE DUST IN THE AIR.

Dr. Carl Arens, of Wurzburg,² has devised a method of estimating the amount of dust in the air of factories,

² Archiv. für Hygiene.

¹ Recueil des Travaux du Comité Consultatif d'Hygiène publique de France, 1894, June 23, p. 148.

etc. The apparatus consists of a bellows-like arrangement, capable of holding five litres of air. In place of a nozzle, it has a Y-shaped tube provided with taps, so that the air drawn in by one of the arms may be expelled by the other. To make it air-tight the edges were smeared with soap and water, and the apparatus tested, to see if bubbles escaped.

The end of the Y-tube through which the air is to be expelled, is fixed to a glass tube 8.1 cubic metres long, stuffed with cotton-wool. Two hundred litres can easily be made to pass through the cotton-wool in a half-hour or more, and the difference in the weight of the tube (after drying), before and after the experiment, represents the amount of dust in the air drawn through. He obtained the following results, the figures representing the number of milligrammes of dust per cubic metre of air:

Dwelling-room . . . . .	.1
School-room	8.0
Horse-hair manufactory	10.0
Sawmill	17.0
Woollen factory	20.0
Snuff-factory (during working-hours)	72.0
Cement factory	224.0

The author has also devised a contrivance to catch the dust in a horse-hair factory, consisting of a box in the air-shaft, containing overlapping ledges stretching diagonally from side to side, covered with flannel. These ledges are kept wet with a small stream of water. The dust sticks to the moistened flannel, and the air freed from dust passes through.

THE DUST OF DIFFERENT TRADES AND ITS EFFECTS ON THE WORKMEN.

Dr. Wegman³ contributes a paper on the dust of different trades, with reference to its shapes and mechanical action on workmen. The paper is fully illustrated with plates showing the microscopic appearance of different sorts of dust. The effect of dust upon the eyes, skin and lungs are portrayed. The author believes that consumption caused by inhaling dust differs materially from tubercular consumption, although it undoubtedly predisposes to a condition of the lungs which makes them eventually succumb to the tubercle bacilli. Removal from an atmosphere of dust will allow the lungs to recover in a great measure, and lungs which have become black with inhalation of soot will, if the exciting agent be removed, gradually recover their normal condition, even after a year of inhalation. The dangers of dust-inhalation are diminished if we lessen the amount of dust in the air, or if, for varying periods, the dust in the room is diminished in quantity. He mentions the following prophylactic measures:

(1) Dust can be prevented in many industries by moistening or wetting the materials to be worked, as for instance, in the substitution of wet grinding for dry in the case of metal, glass and stone.

(2) The introduction of machinery instead of hand labor.

(3) Unavoidable dust to be dealt with, and led away at its source by special fans.

(4) Protective personal measures on the part of the workmen, as, for instance, by wearing spectacles, sponges, respirators, etc.

(5) Shortening the hours of labor, or introducing pauses in the work.

(6) Passing laws dealing with the subject of dust.

³ Archiv. für Hygiene.

EXPERIMENTS UPON SEWAGE FILTRATION.

Sidney R. Lowcock, C. E., contributes a paper to the Proceedings of the British Institution of Civil Engineers,⁴ in which he gives the results of experiments upon sewage filtration with a filter tank, seven feet six inches square and four feet deep, filled with different filtering materials at different successive experiments. The object of the experiments was to determine the possibility of constructing and working a filter which should follow the operations of nature, and promote the growth of the nitrifying organisms and the consequent purification of a sewage effluent, when working continuously.

After giving a *résumé* of the earlier experiments in this direction, and commenting upon the importance and value of the more extended experiments of the Massachusetts Board of Health at Lawrence, he considers that the following conclusions have been established:

(1) That filtration is not only a mechanical but also a chemical and biological process, when it is properly carried out and when sufficient aeration is provided for.

(2) That no practicable chemical process yet devised will, alone, do more than remove the suspended matters in sewage, and a very small portion of the dissolved impurities.

(3) That dissolved impurities can only be removed by the action of micro-organisms, that is, by nitrification; and this can only be effected subsequently to the decomposition of the organic matter and the formation of ammonia, and in the absence of undecomposed organic matter.

(4) That organic matter cannot be destroyed or converted into plant food until it has been dissolved.

(5) That, as nitrification proceeds far more rapidly in a moistened and aerated porous soil than in a liquid, and as the nitrifying powers of soil are capable of cultivation, the process should be carried on by means of filtration, so that the organisms can be cultivated and be supplied with food in the filter.

(6) That the most important factor in the processes of decomposition and nitrification, and the subsequent preservation of the nitrates formed, is an ample supply of air.

(7) That the suspended matters in sewage should not be allowed to pass on to the land or filter-bed, as they clog the surface and have to remain until they are decomposed before they can be destroyed.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting Monday, January 24, 1895, Dr. C. J. BLAKE in the chair.

DR. GOLDTHWAIT showed

A SECTION OF A SPINE

from a patient of forty-five, who had had a malignant tumor of the breast removed four or five years previously.

⁴ Vol. cxv, p. 237.

DR. WARREN: I have here

A FIBROID TUMOR OF THE UTERUS,

which I removed on Friday. The specimen is interesting partly from its size, and partly from the peculiar attachment of the growth. The specimen and the uterus are also enlarged, and a smaller additional fibroid tumor attached to it weighed about sixteen pounds.

The first thing of interest in opening the abdominal cavity was the appearance of a congeries of large varicose veins and lymphatics. They were tortuous and greatly enlarged, many of them having the calibre of the little finger. It was apparent that they belonged to the omentum owing to the thinness of the membrane in which they ramified. With some difficulty several of them were tied, and the hand passed through in order to examine the tumor which occupied the greater part of the abdominal cavity; and after trying to tie them separately, I came to the conclusion that the best way was to deliver the tumor, adhesions and all, the omentum being everywhere adherent to it. It was lifted out of the abdominal cavity more easily than I expected, and was found attached to the fundus of the uterus by a narrow pedicle, the tumor obtaining the greater part of its nourishment from the omentum, the vessels of which had been enlarged evidently for the purpose of nourishing the tumor. The omentum and the pedicle of the tumor were tied, and the tumor quickly removed. The uterus was afterwards removed, and the stump was sewed in beneath the peritoneum, and everything left in a satisfactory condition; but in the middle of the night the patient suddenly failed and in spite of infusion did not rally. At the autopsy it was found that hemorrhage took place from some of the large vessels in the omentum. It seems to be an illustration of one of those cases of separation of a fibroid from the uterus, so that in a comparatively short time it might have floated off in the abdominal cavity.

DR. WHITNEY: As Dr. Warren has said, the especial interest is in the condition of the lymphatics which are so enormously distended in this veil of omentum which passes over and is adherent to the tumor. It is perhaps easy to understand why a vein should enlarge, but I do not see why the lymphatics should to such an extent. We know that fibroids have enormous lymph spaces in them at times, and some of them have cavities as big as a walnut which contain this clear serous fluid evidently of lymphatic character. This tumor is very solid and has very small lymph spaces. I do not remember to have noticed in other uterine fibroids enlargement of the lymphatics of the broad ligament.

DR. F. G. MORRILL reported

THE SUCCESSFUL USE OF ANTITOXIN IN CHECKING AN ENDEMIC OF DIPHTHERIA AT THE CHILDREN'S HOSPITAL.

DR. E. G. CUTLER read a paper on

HEMORRHAGIC PANCREATITIS.¹

DR. J. W. ELLIOT followed with an article on the
SURGICAL TREATMENT OF PANCREATITIS.²

DR. W. F. WHITNEY then considered the

PATHOLOGICAL ASPECTS OF PANCREATITIS.

DR. WARREN: Cases of pancreatitis seem to be sufficiently numerous to make this disease one of practical interest to the surgeon. At first I think it was generally supposed that it was very rare indeed and certain symptoms only were associated with it. Perhaps that accounted for the fact that many cases went unrecognized. The acute hemorrhagic type I presume was the type first recognized, and was associated with severe pain and sudden death. I have had three cases of pancreatitis. I think all of them have been alluded to, and two of them reported before.

One was a case connected with injury, and I think it has been reported by Dr. Fitz,—traumatic pancreatitis. The condition was discovered only at autopsy; and numerous injuries had been inflicted on the individual.

One of the cases I saw was certainly interesting from the surgeon's point of view of operative interference. It was the only one that seemed to hold out any chance of improvement by operation. This case has been reported by Dr. Whitney and Dr. Bush already. It may be of interest perhaps to the members to have me say something about the case in a general way. I saw the case after it had been previously seen by another consultant, and the trouble had existed already for perhaps ten days. The feature of that case was intense pain in the epigastric region; no large amount of fever; no symptoms of general peritonitis, but a severe pain. There was also vomiting of greenish vomitus. The question of an exploratory operation was raised, but as the patient stoutly refused to have it considered, it was not pursued with any vigor on our part. No diagnosis was made. There was a sense of resistance in the left hypochondrium extending to that region from the median line and some dulness and evidence of a tumor in that region. The patient improved a good deal in the next few days, and I saw nothing of the case for over a week. I was then called again, the patient being in a state of collapse and approaching a moribund condition, and it seemed that operative interference would be useless at that time. The autopsy was performed by Dr. Whitney, and the specimen is here this evening. The interesting features brought out at autopsy were that there was no peritonitis, but a large pus-cavity existed containing about two quarts of pus, in the middle of which the pancreas floated in a gangrenous condition. Here was a case in which, if the peritoneum had been stitched to the abdominal wall and an opening made, this cavity could have been readily drained. Whether the patient would have lived without any pancreas, having gone through such a severe ordeal as that I am not able to say, but in the light of the two cases of which Dr. Elliot speaks it seems possible.

The last case occurred a few weeks ago at the hospital. It was seen by quite a number of surgeons and physicians. The opinions of these gentlemen were that there was disease of the liver. The symptoms in this case were in the right hypochondrium. There was dulness and tenderness; also vomiting. The patient was seventy-four, of temperate habits, and had been well up to the time of this illness, with the exception of about a month before, when he was doing some work in the cellar he had felt faint and had to sit down. He was helped up stairs. The condition passed away and was forgotten, but was recalled by his wife in his last illness. He went to town as usual. He was taken suddenly with pain and nausea and

¹ See page 354 of the Journal.

² See page 351 of the Journal.

took a drink which he threw up and went home. We saw him at the hospital about a week after the beginning of the sickness. Most of the surgeons thought it disease of the liver. I thought it was likely to be a cancer of the hepatic flexure. That was Dr. Homans's diagnosis, and I inclined to that. The peculiarities of this case were its somewhat chronic course, and the absence of any very severe pain in the epigastric region, but as I have heard the cases reported to-night the presence of severe pain does not seem to be a *sine qua non* for the diagnosis of pancreatitis. At the autopsy Dr. Whitney found the hemorrhagic condition which has been described this evening, and then a burrowing of it along the root of the mesentery, and what finally seemed to carry the patient off was perforation through the mesentery into the lower portion of the abdominal cavity. I will read what is said by Dr. Whitney about the peritoneum.

I think discussions of this kind are of value as they will call the attention of the profession to this disease, and it is possible that here and there a case may be found capable of being saved. I ought to add that in this last case the question of pancreatitis was considered. In regard to the second case and also the last two cases which I alluded to, the specimens are here, and Dr. Whitney, I think, might perhaps show the one of abscess of the pancreas which is distinctly different from the others, and might be interesting to look at.

DR. CUTLER: Pancreatic hemorrhage is a thing that occurs so suddenly, sometimes so violently, that the patient usually dies at once, and the physician who is called to see it is able to make the diagnosis by exclusion. The hemorrhagic pancreatitis lasts longer and has a set of symptoms in common with quite a number of other conditions, and these conditions may be such that a man may not be able to differentiate and make anything more than a probable diagnosis. The kind of case which Dr. Elliot and Dr. Warren spoke about, is accompanied by the presence of tumors and definite conditions which aid very materially in the diagnosis. Such cases last longer than the ones I have spoken of. It seems to me the most difficult to diagnose is the hemorrhagic form of pancreatitis because there are so many other things which may exist which have symptoms in common with the condition.

DR. M. H. RICHARDSON: I have no doubt that there are more cases of acute disease of the pancreas than we suspect, because of the large number of deaths following acute abdominal symptoms in which no diagnosis can be verified by exploration, either before or after death. We can all recall cases of this kind in which a rapidly fatal end has followed the onset of acute abdominal pain.

My experience with the diseases of the pancreas has been limited to cysts, either congenital or acquired. The pancreatic cyst, even if purulent, seems to be too far removed from acute pancreatitis, both as to etiology, as to treatment, and as to prognosis, to be properly discussed this evening.

The question of probable inflammation of the pancreas always arises in the course of acute abdominal symptoms in which most other and common conditions can be excluded. I can recall several cases in which the question has been fully discussed, but in which, unfortunately, the exact condition must always remain obscure. Epigastric tumors containing pus, even if they have appeared some weeks after the

initial pain, always suggest the possibility of a pancreatic source. I recall one case in particular in which such a tumor slowly appeared after the onset of acute pain at the pit of the stomach. The patient, a young girl, had been in the habit of swallowing daily the rubber gum she had been chewing. She was finally seized with acute pain, with fever, in the epigastrium, where I found some weeks later a boggy tumor. I supposed that the gum had formed a ball in the stomach, and that nature was taking this way for its expulsion. Deep exploration of the tumor down far enough to feel the abdominal aorta, failed to reveal anything but an infiltrated, boggy mass containing small cavities of pus. No foreign body was detected. The pancreas was never thought of as the possible source of the tumor, yet I dare say the trouble may have originated there.³

The diagnosis of acute pancreatitis in the stage of operable abscess seems to me necessarily obscure. An acute inflammation, to be positively made out, must be explored in its early stages, before the involvement of the secondary parts conceals effectually the exact origin. A localized abscess that is reached by separating the omentum, and that is found situated in the exact region of the pancreas, may fairly be said to be of pancreatic origin, in the absence of a stomach or of an intestinal perforation. In the case of a perforation of the posterior wall of the stomach, one would expect to find a very extensive collection of foul-smelling pus filling the lesser cavity of the omentum.

Perforations of the intestine in the immediate region of the pancreas, the posterior wall of the transverse colon, perforation of the third portion of the duodenum, or of the beginning of the jejunum—these might simulate septic collections from the pancreas so closely that no positive differentiation could be made out.

The subject is of extreme interest to the surgeon as well as to the physician and to the pathologist. It needs careful attention on the part of those who see these cases in the beginning, for early interference may be rewarded by as brilliant results as are now obtained in the early hours of appendicitis.

We have only to recall the early discussions in appendicitis, in which no one could report a successful case of removal of the gangrenous appendix, to express the hope that one day we may report as favorable progress in acute pancreatitis.

DR. CUTLER: I should like to ask Dr. Mallory if as pathologist at the City Hospital he has seen cases of this kind of late. During seven years in which I was pathologist I think a single case only occurred.

DR. MALLORY: Personally I have never seen a case at the City Hospital. I believe they have had one case in the last year. I have seen one case in private which was diagnosticated as hemorrhagic pancreatitis, but which proved to be an ulcer of the

³ March 12, 1895. Another case more suggestive of the pancreas has come to my notice since Dr. Elliot's paper was read. Mrs. B., aged fifty, a patient of Dr. C. S. Cahill, of Cambridgeport, was taken six weeks before February 19th, with what she called a bilious colic and a sharp diarrhea. For two days she had nausea and vomiting. Dr. Cahill first saw her February 17th. She then had a temperature of 102°, and a pulse of 120, with respirations at 31. There had been no jaundice. She was a very stout woman. I found a large, hard, smooth, tender tumor in the epigastrium, rather to the right than to the left of the median line. Aspiration showed very foul, fecal-smelling pus. I took her to the Massachusetts General Hospital, and two days later explored the tumor. It contained superficially several ounces of fetid pus. By carefully exploring with the finger, I came upon a very considerable cavity in the depths of the epigastrium, directly towards the pancreas. She has made a good recovery. In this case the possibility of a pancreatic source was first suggested by Dr. Elliot after the operation. The more I think of the case the more likely the explanation seems. The foul odor to the contents of the abscess suggests also some intestinal contamination.

duodenum extending round the pancreas. Fat necrosis was present.

DR. WHITNEY: The necrotic and gangrenous forms of pancreatitis seem to be sequelæ of the hemorrhagic. In all such cases I have always found indications of more or less hemorrhage about or in the region of the pancreas, in the form of black clumps of pigment or black shreds of necrotic tissue. The subject is a very interesting one, and aside from those of anemic necrosis of the cells of the pancreas I have not seen evidences of an inflammation of the parenchyma of the organ. The changes have always been in the interstitial tissue. The hemorrhage is always primarily, as far as I have seen, between the lobules of the pancreas and has extended from there into the cells of the pancreas, and when not necrotic these have always stained well. It is possible that disturbances of circulation play a more important rôle than has been assigned to them, in producing at first small areas of hemorrhagic infarction in the interlobular fat tissue, on which the pancreatic juice acting in some way forms a toxine, which acts as an irritant and causes necrosis of the fat tissue. It has been argued that this fat necrosis cannot be dependent on pancreatic juice because it is found scattered all throughout the peritoneal surfaces and not in lines extending out from the pancreas. I do not see why if there is a chemical irritant formed it may not be selective in its action, just as toxins of certain bacteria produce necrosis only in certain spots although present everywhere in the blood.

NEW YORK ACADEMY OF MEDICINE.

A SYMPOSIUM ON ANTITOXIN.

At a crowded meeting of the New York Academy of Medicine, held April 4th, DR. JOSEPH E. WINTERS, Professor of Diseases of Children in the University Medical School, made an elaborate and violent attack upon the use of antitoxin in the treatment of diphtheria, as well as upon the bacteriological department of the Board of Health. The occasion which afforded him the opportunity to give vent to his bitter invectives was a sort of symposium on antitoxin which had been arranged by the authorities of the Academy.

The discussion was opened with a paper by DR. HERMANN M. BIGGS, entitled, "Experiences in the Production and Use of Diphtheria Antitoxin," in which he described the good effects of the remedy in its use at the Willard Parker Hospital under the control of the Board of Health. He had personally observed the effects of antitoxin in 252 such cases. In 30 cases in which it was applied on the first day after the appearance there were but two deaths; in 77 cases in which it was first used on the second day after the appearance of the disease there were seven deaths; in 67 cases in which it was used on the third day there were 11 deaths; in 31 cases in which it was used on the fourth day there were seven deaths; and in 46 cases in which it was used on the fifth day there were 13 deaths. His experience went to strongly confirm the opinion generally held that the more promptly the agent was resorted to the more efficacious it would prove. The antitoxin treatment of diphtheria, he said, was now conceded to be the greatest discovery of the century in therapeutics.

DR. WILLIAM H. PARK read a paper describing

the method of producing antitoxin through the inoculation of horses with diphtheritic virus.

DR. C. H. PECK, of the county branch of the New York Infant Asylum, at Mount Vernon, described the good results obtained from antitoxin in a recent serious outbreak of diphtheria in that institution.

DRS. GEORGE P. BIGGS and IRA VON GIESON, of the Board of Health service, followed with short papers describing the method employed and the good effects obtained, together with the results of autopsies on the bodies of children who had died at the Willard Parker Hospital after being treated with antitoxin.

There then followed a general discussion, which was participated in by DRS. WINTERS, GEORGE L. PEABODY, L. EMMETT HOLT, W. P. NORTHRUP, W. L. SOMERSET, and others, most of whom agreed with the previous speakers as to the efficacy of the antitoxin treatment.

DR. WINTERS said, in part: "Some months ago I hoped and expected, in company with the rest of my associates here, that a specific for the toxine of diphtheria had at last been discovered. My experience of the past three months, a personal experience dealing with 150 cases at the Willard Parker Hospital, has been a sad — an extremely sad — disappointment. I am here as the result of that experience — and I regret extremely to say it — to oppose the antitoxin treatment of diphtheria. I have watched for three months, and I say that not a single case of septic diphtheria has shown one sign of improvement under antitoxin treatment. I have asked Dr. White at the hospital — and he is here and will bear me out — not to use any treatment in this case and that case, saying the patients would recover without it. And they did recover. Statistics seem to be the principal part of the papers here to-night, but I wonder if you have noticed that a larger part of the statistics consist of elimination. 'We exclude this and we except that,' they say. Dr. Biggs did not tell you that in December we had eight consecutive recoveries in diphtheria without antitoxin. I can show you by the records that Dr. Biggs has, that in a group of eight cases two were given the first injection on the eighth day, and they recovered. Two more were given the first injection on the fourth day, two on the fifth day, and two on the sixth day; and they all died. I can show you further by the record that the stronger the dose, the worse the result; the weaker the dose, the better the result.

"I have daily examined every case sent to the Willard Parker Hospital for three months. I have seen many cases on the list which Dr. Biggs quoted in which there was not the slightest clinical evidence of diphtheria. . . . There are more than a score of cases of that sort. There may have been the bacteria of diphtheria, but not the clinical evidence of the disease. Almost every case examined bacteriologically comes back from the Board of Health as diphtheria. This is the general statement made to me by physicians in every part of the city. The statements made here to-night are absolutely worthless — they show nothing. . . . There is a difference between individuals in their susceptibility to the same quantity of the same drug. But we have assumed that we are treating animals — that the serum will act on all alike. This difference in susceptibility explains the unfortunate death of Miss Valentine, of Brooklyn. It explains the deaths in all the fatal cases I have alluded to. When a bacteriological diagnosis, in the absence of

any clinical diagnosis, can force the poor and unfortunate into a contagious disease hospital, then I say that such a diagnosis becomes a crime. Antitoxin is dangerous in its immediate effects on the kidneys and the nervous centres, dangerous in its effect on the blood, dangerous to life."

Dr. Winters then proceeded to describe in detail the unfavorable effects of antitoxin as they have come under his observation — the great rises in temperature, the unnatural position of the head, the severe pains in the joints, etc. — and mentioned several deaths which he believed were due to the remedy and not to the disease for which it was employed.

In reply, Dr. BIGGS characterized many of the statements and inferences made by Dr. Winters as distinctly untrue, and stated that no cases of diphtheria were sent to the hospital which were not reported to the Board of Health by practising physicians as diphtheria. He said, in part: "He (Dr. Winters) has omitted to explain why the mortality from diphtheria is still 10 per cent. lower in this city than it was last year. How and why are diphtheria epidemics milder all over the world this year than ever before? Why has the mortality been reduced in every city in the civilized world?"

At this meeting of the Academy of Medicine a fine oil-painting of the late Dr. Valentine Mott was presented to the Academy by his daughter, Mrs. Isaac Bell, the presentation speech being made by Dr. A. H. Ely. A resolution, proposed by Dr. Wm. M. Polk, was adopted providing that the first meeting of the Academy in May should be devoted to memorial exercises in honor of Dr. Mott. On this occasion addresses will be made by Dr. L. A. Stimson, Chancellor McCracken, of the University of the City of New York, and Ex-Mayor Abraham Hewitt.

Resolutions, presented by Dr. Smith, were also passed, asking the Legislature to divide the present Department of Charities and Correction into two separate departments.

At the last meeting of the Section on General Medicine of the New York Academy of Medicine, the paper of the evening was by Dr. LOUIS F. BISHOP, entitled

A REVIEW OF THE PRESENT STATE OF OUR KNOWLEDGE OF GOUT, AND A DISCUSSION OF ITS COMPARATIVE FREQUENCY IN AMERICA.

In it he expressed the opinion that the disease was infrequently met with here in comparison with its prevalence in England. One reason for this he believed was because the country was so much younger, and another was the comparatively small amount of sour wine consumed here. "Unfortunately," he said, "the drinking of sour wine is becoming more frequent with the growth of American vineyards and the manufacture of native wine."

In the interesting discussion which followed the paper Dr. WILLIAM H. DRAPER spoke on the theory of the nervous origin of the disease which had been referred to by Dr. Bishop. Although it was as yet very incomplete, he considered it of very great importance, and thought this must be admitted by every one who has seen much of the gout. It seemed to him that there was a very striking analogy to a purely nervous disease in the mode of attack, especially its suddenness. He thought that the importance of the

uric-acid theory was possibly exaggerated, and that there was a tendency on the part of many to draw too sweeping conclusions from chemico-pathological examinations. Personally, he had met with many persons who had an inordinate amount of uric-acid in their blood, and yet who did not suffer from gout; and other persons whose systems contained very little of it, who did suffer from the disease.

The gouty habit, he remarked, was a constitutional vice. This he believed was clear, because it was hereditary — just as hereditary as form and feature. Another characteristic of the habit was that it was apt to be associated with one other important disease in the same individual, not often in members of the same family. This disease was diabetes, which he considered to be unquestionably a gouty affection.

As to the treatment of gout, he said he was not in accord with the popular notion as to the efficacy of abstinence from meat diet. He had met with numerous cases in which a meat diet proved to be the best. At some future time he supposed it would be discovered why persons who ought not to eat animal food, but do eat it, cannot take the carbo-hydrates, which they ought to eat. As to the use of alcoholic beverages, it was his experience that gouty patients find that if they drink spirits they meet with no inconvenience, but if they take malted liquors or wine, they suffer. As to the efficacy of various mineral waters which had been vaunted in the treatment of this disease, it seemed probable to him that perhaps, after all, the most effective thing about such waters was the water part. In other words, pure water taken in the quantities that persons who go to the so-called medicinal springs usually drink of mineral water would do just as much good as the latter.

Dr. F. P. KINNICUTT expressed the opinion that gout was considerably more prevalent in America than was generally supposed. As regards the diet for gouty patients, he had found that in some cases animal food and carbo-hydrates did not go well together, but that either kind did well by itself.

Recent Literature.

Text-Book of Hygiene. A Comprehensive Treatise on the Principles and Practice of Preventive Medicine from an American Standpoint. By GEORGE H. ROHÉ, M.D. Third Edition. Philadelphia: F. A. Davis Company. London: F. J. Rebman. 1894.

Dr. Rohé's work comes to us revised and considerably enlarged, and in every way improved. Public and private hygiene receive due attention, the progressive character of preventive medicine is fully recognized, and the book has been made to conform to recent advances in sanitary science.

The book is prepared with a series of questions following each chapter, to adapt the work to class-room use.

The chapters on quarantine and marine hygiene have been revised by Surgeon-General Wyman and Dr. Geddings of the Maine Hospital Service and by Medical Director Gihon of the U. S. Navy. The added chapters upon examinations of air, water and food have been contributed by Prof. Seneca Egbert, as well as that which relates to vital statistics.

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PSYCHOLOGICAL INTERPRETATION OF HYSTERICAL ANESTHESIA.

PIERRE JANET, known for his investigations on automatic states and works on the psychology of the hysterical,¹ has attempted an explanation of hysterical anesthesia accepted by Dutil in his monograph on hysteria² as the best yet given. He refers the anesthesia, as well as other of the paralytic stigmata of hysteria, to an enfeeblement of the higher functions of the cortex; in fact, there is now a general consensus in attributing this disease to anemia and malnutrition of the cortical centres. The idea of a narrowing of the field of consciousness, corresponding to the contraction of the field of vision, as the basis of the anesthesia, is peculiar to M. Janet's "interpretation." In brief, his explanation is substantially as follows:

Hysterical anesthesia is a species of *distraction*. In the normal individual under the influence of voluntary abstraction phenomena are witnessed not entirely differing from those which characterize the anesthesia of the hysterical. A person is engaged in his ordinary occupation and does not hear the din of the crowded city or perceive objects or contacts; he is, we say, busy with other things. When the attention is strongly applied to a subject of interest, even violent sensations may fail to elicit any response. Pascal forgot his physical sufferings while endeavoring to solve a problem. Now, hysterical persons have such distractions intensified. It is easy to produce in them by diverting their attention momentary insensibilities which have all the characters of their permanent anesthetics.

At the same time, the permanent *stigma*, the hysterical anesthesia, cannot be altogether likened to a distraction pure and simple. It is more enduring and is more clearly defined. It exists even when the attention of the person is not engrossed by a fixed idea or some external object. It does not disappear when he desires it, as in the case of the transient insen-

sibilities which accompany distraction in the normal individual. The latter, it is true, does not hear the noises of a large city, the ticking of a clock near him, etc., and yet he can hear them if he tries to. There is, then, in hysterical anesthesia, which is a pathological phenomenon, something more than there is in distraction, a normal phenomenon.

In order to understand the differences which distinguish these two states, as well as their resemblances, it is necessary to have well in mind the psychic mechanism of the *perception of sensations*. We may represent this as an operation occurring in two stages. In the first stage various sensory impressions come to the cortex, constituting the elementary psychic phenomena, the consequence of multiple peripheral excitations (tactile, visual, auditory, etc.). These are the elementary sensations — primary states of consciousness. So far the notion of the personality of the subject does not come in. In the second stage a reunion, a synthesis, is effected of these elementary phenomena with the vast notion of personality, that is, with that aggregate of memories, of past sensations, of facts previously acquired, which constitute the idea of personality, the consciousness of the ego. It is this assimilation of new sensations by the conscious personality which enables the subject to recognize, that is, *perceive* them as like or unlike. Janet calls this *personal perception*.

Now the man best endowed is incapable of thus re-grouping together, at each instant, in one same personal perception, all the elementary sensations awakened in him by the innumerable excitations which constantly assail his various senses. A great many of these elementary sensations are not included in his personality. They have not passed the threshold, and remain thus, *unperceived but real*, in the state of *sub-conscious* sensations. The maximum quantity of sensations which the subject can at a given moment assimilate, re-group in his personal perception, will give the measure of the *extent of his field of consciousness*.

Suppose the case of a normal individual listening to a lecture. He will perceive a certain number of sensations, auditory, visual — the words, the voice of the lecturer, his attitude, his gestures; but all the rest, the tactile, thermic, muscular impressions which he may receive at the same instant, will pass unperceived, and remain in the state of sub-conscious sensations. If instead of listening to a lecture, he undertakes immediately after the solution of a problem in algebra, his field of consciousness will be occupied by another series of sensations and images, all other sensations remaining in their turn in the state of sub-conscious phenomena. But by reason of the alternation of perceptions, as fast as he applies his attention to different objects furnishing different sensations, he will be able at last to perceive all the impressions. By this we can understand what is distraction, simple and normal.

Suppose now the case of a patient whose mental activity is enfeebled, whose field of consciousness is in a certain sense contracted to the point that he can no longer perceive at once more than a very small num-

¹ Pierre Janet: *L'état mental des hystériques*, etc. 2 vols. Paris, 1894.

² *Traité de Médecine*, t. vi.

ber of sensations; this person will neglect little by little to attend to the sensations which are least important for his habitual duties — the tactile sensations, for instance — applying himself to those, more indispensable, of hearing and of sight. During a certain period he will still be capable of heeding those neglected sensations and of rearranging them momentarily in the field of his personal perception when his attention is directed to them; but at length the "bad psychologic habit" is formed, and the time comes when he no longer can perceive them consciously; we prick his arm and to his surprise he does not feel the prick. After having been "distracted" (*un distrait*) with regard to these sensations, he has finally become anesthetic. The anesthesia of hysterical persons is then a symptom of weakness, of mental torpor; it is the consequence of the narrowing of the field of consciousness. These patients being able to grasp and include within their personality only a very small number of sensations, insensibly accustom themselves to direct their personal perception always toward the same group of sensations, and they come at last to the point where they can no longer apply it to the group of sensations which they have formed the habit of neglecting.

These theoretical considerations enable us to understand why at the onset of their malady, young hysterical patients have no anesthesia. They have only transient insensibilities, mobile at will, which the least distraction brings into being and which a little attention suffices to dissipate; at a more advanced stage, these insensibilities tend to become fixed and permanent. A more forcible appeal to the attention is then necessary to bring back momentarily the personal perception of sensations becoming more and more faint. Those sensations which are not perceived by the personality are nevertheless real; they are not entirely lost. They persist and continue to act in the latent state beneath the horizon of consciousness. In this sub-conscious state they may still have motor effects and influence other ideas. Most hysterical patients under hypnotism recover these impressions which were not consciously experienced during the waking state.

If we apply to hysterical anesthesia these essential notions, we may say that this morbid condition consists in an enfeeblement of the personal perception, which is limited to a certain order of sensations, to the exclusion of others. The other sensations unperceived and remaining in the sub-conscious state are nevertheless real, persist, act, and take part in the automatic functioning of the person's mind. We can understand why these anesthetics are sometimes systematic, elective and mobile; why they disappear temporarily by suggestion, or when by any means the attention of the subject is forcibly directed to certain of these sensations apparently lost; also why these anesthetics are aggravated when the patient is distracted by a reverie, by the obsession of a fixed idea, etc.; why, in fact, since the sensations which seem not

to be perceived exist in reality in the sub-conscious state, these anesthetics do not entail grave perturbations in the automatic functions of these patients; finally, why these anesthetics are a matter of indifference to the patients and sometimes exist without their knowledge. Janet thinks that the interpretation which he has proposed of the tactile anesthetics may equally be applied to all the sensorial anesthetics, and that it makes comprehensible the particular characters of hysterical amblyopia. It is quite natural that the patient should neglect from the first the sensations which correspond to the eccentric parts of the visual field, and that he should perceive only the images the nearest the point of fixation. Hence the concentric form of the contraction of the visual field.

INSPECTION OF MEAT.

DR. LEGGE, in a paper entitled "Notes on some Continental Abattoirs," contributes certain valuable information to *Public Health*¹ upon the inspection of meat. He acknowledges that England is about twenty years behind the Continental cities in this matter. It is unnecessary to estimate how much behind some of our own American States would be placed; but the subject has its interest in connection with bills to promote or hinder inspection of food products now or lately before State Legislatures.

In Paris the seizure of meat is considered justified and is made (1) when deprived of all edible qualities; (2) when the eating of it might be followed by injurious consequences; (3) when from some reason or other it has derived qualities rendering its taste repugnant.

Under the first head comes the flesh of animals that have been killed too young, and of those that are either dropsical or cachectic; under the second that of animals affected with disease, such as fever, septicæmia, anthrax, tuberculosis, etc.

The signs which guide the inspector in condemning the flesh of cachectic animals are chiefly the wasted condition, the absence of fat about the omentum, and the lack of resistance in the muscular tissue. With regard to animals that have died of inflammatory diseases the signs are: (1) a general tarnished coloration, more or less deep red; (2) a capillary injection of the fat, which in extreme cases is penetrated deeply by it; (3) aborescent markings on, and a tendency to a livid coloration of the serous membranes; (4) a violet tint of the kidneys; (5) a brown or blackish coloration of the spongy bone, seen best in the vertebræ; (6) loss of firmness in the muscular tissue. In Brussels the conditions under which the flesh of tuberculous animals is seized, no matter how good its general condition, are —

I. (a) Tubercle having its seat in both the thorax and abdomen. (b) Tubercle, whether it be thoracic or abdominal, with presence of tubercles in any other

¹ *Public Health*, vol. vi., September, 1894, p. 402.

part of the body outside these cavities. (c) Tubercle generalized in the following organs: lungs, pleuræ, peritoneum, liver or mesenteric glands. (d) Tubercle of the lungs or pericardium involving the pleura extensively. (e) Tubercle of any organ of the abdomen involving the peritoneum extensively.

II. Tubercle observed in no matter what part of the body, or what the number of tubercles, when the animal is markedly wasted.

No slaughtering can take place in Berlin except at the abattoir, and no meat can be sent away from the abattoir without first being stamped as having passed the expert examination. The inspection is entirely in the hands of veterinary surgeons. They make first a rough inspection of the carcase, and cut into the glands of the neck, especially the retro-pharyngeal. The liver and lungs of every animal must also be cut into by the veterinary surgeon. If the appearances are suspicious, he further examines the spleen and the various glands of the body.

The flesh of all animals affected with tubercle, but not so extensively as to justify total seizure, and of those in which only a few cysticerci are found, is cooked for two hours in boiling water, and twice a week sold to the poor for a trifle.

In Copenhagen, also, a slaughter of animals can take place only at the abattoir, where the veterinary inspection also is made. All the animals are first inspected as they stand in the market, and any animal found with dangerous infectious disease is isolated and slaughtered apart from the others. None of the organs may be removed until the veterinary surgeon has been his rounds. The latter, after a general inspection of the carcase, cuts into the glands of the neck, examines the pleuræ, peritoneum, lungs and liver, and should there be nothing wrong with them, allows the meat to be stamped with a blue mark as of good quality. If he finds any inflammation or suppuration about them, he undertakes a methodical examination, not only of those of the neck, but also of the submaxillary, axillary, bronchial, mesenteric, inguinal and lumbar glands. Cysticerci are always looked for by cutting into the muscles at the root of the tongue. Tubercle when generalized, is deemed a sufficient cause for seizure, but not when localized. A black stamp is freely used to mark meat as of second-class quality, which is not considered sufficiently diseased to warrant total seizure.

MEDICAL NOTES.

EPIDEMIC OF CEREBRO-SPINAL MENINGITIS. — A representative of the Kentucky State Board of Health, who was sent to investigate an epidemic recently prevailing in Floyd County, reports that the disease was cerebro-spinal meningitis. There were twenty-five cases (with twenty deaths) in an area of four miles in a low country between two creeks. The epidemic occurred among a very poor class of people, living under the worst sanitary conditions.

MORTALITY IN THE JAPANESE ARMY. — According to *La Médecine Moderne*, the *Official Gazette* of Japan reports that from July 16 to December 6, 1894, the total number of killed and wounded was about 350, and the deaths from sickness but 430. Although the losses of the navy are not included in these figures, it is not probable that they would bring the total losses for the first five months of the war to a number greater than between 1,200 and 1,300, which is certainly remarkably small, when one considers the magnitude of the scale upon which operations have been carried on. The Japanese disposed of the bodies of their dead by cremation rather than interment.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, April 10, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 33, scarlet fever 38, measles 215, typhoid fever 6.

A BILL TO PROHIBIT CHILD INSURANCE. — The Committee on Insurance of the Massachusetts Legislature has reported to the House of Representatives a bill to prohibit child insurance in this Commonwealth. The bill is the same as that asked for by the petitioners; it fixes the age limit at ten years, with the exception that a penalty of one hundred dollars is attached for every violation of the act.

MEDICAL REGISTRATION ACT. — The Committee on Public Health reported to the Massachusetts Senate an amendment to the present law relating to the registration of physicians and surgeons by providing that Section 10 shall read as follows: "Whoever not being registered as aforesaid, shall advertise or hold himself out to the public as a physician or surgeon in the Commonwealth, or appends to his name the letters 'M.D.' or uses the title of doctor, meaning thereby a doctor of medicine, shall be punished by a fine not less than \$100 nor more than \$500 for each offence, or by imprisonment for three months, or both."

NEW YORK.

DIPHTHERIA ANTITOXIN NOT THE CAUSE OF MISS VALENTINE'S DEATH. — Dr. John M. Clayland, coroner's physician, who made the autopsy on the body of Miss Valentine, of Brooklyn, has made the following report: "Puncture on the left side of the abdomen, not penetrating the cavity; brain congested, lungs normal, blood fluid, left heart empty, right heart containing a small amount of fluid blood, liver and kidneys congested, especially the latter. No edema. Larynx normal. The fauces contained diphtheritic false membrane. Cause of death, convulsion, due to the injection of diphtheria antitoxin." Dr. Wilson, Chief Bacteriologist to the Brooklyn Board of Health, has reported officially: "Speculative theories may be advanced as to the cause of death in this case, the true cause not having yet been determined; but my experiments, conforming as nearly as possible to the actual

condition, demonstrate that the cause was not inherent in the antitoxin." Dr. Wm. H. Park of the bacteriological department of the New York Board of Health, has also reported: "My experiments lead me to express the opinion that the unfortunate results which followed its administration in this specified case cannot be attributed in any way to the antitoxin which was employed."

ANTI-VACCINATION LEAGUES.—At one time during the past winter there were a considerable number of cases of small-pox at Newburgh-on-the-Hudson, and unvaccinated children have been excluded from the public schools. The legality of this proceeding was strenuously opposed by the Anti-Vaccination League of Newburgh. On April 3d Judge Barnard refused the application of the League for a mandamus requiring the Board of Education to permit children who had not been vaccinated to attend the schools. The court held that the law of 1893, requiring vaccination, was not repealed by the compulsory education law of 1895. A despatch from New Haven, dated April 5th, announces that Harold Wilson, a Yale student who is a son of the president of the Newburgh Anti-Vaccination League, was ordered by the Faculty to leave college because he refused to be vaccinated after a chamber-maid at the house at which he boarded had been taken down with small-pox.

SATURDAY AND SUNDAY HOSPITAL FUNDS.—The Distributing Committee of the Hospital Saturday and Sunday Association met at the mayor's office on April 3d and distributed the undesignated fund of the collection of 1894. The sum distributed (after deducting necessary expenses and exclusive of the special amounts, aggregating \$7,314, designated for particular hospitals), amounted to \$40,000. The distribution was made, as usual, on the amount of free care bestowed by the various institutions during the year. The sums awarded to hospitals receiving over \$2,000 were as follows: Montefiore Home for Chronic Invalids, \$4,794; St. Luke's Hospital, \$4,783; Mount Sinai Hospital, \$4,714; German Hospital, \$3,877; Roosevelt Hospital, \$3,319; Hospital for Ruptured and Crippled, \$2,861.

Miscellany.

A SUCCESSFUL CASE OF CARDIOCENTESIS.

DR. ALLAN T. SLOAN¹ reports a case in which the right ventricle was accidentally tapped during a hurried attempt at paracentesis of the pericardium, on a patient in extreme collapse.

The patient was a woman nineteen years old, in whom a sharp attack of facial erysipelas was followed by acute rheumatism, and finally by pericarditis with effusion. The collapse was so extreme that although there was marked increase of cardiac dulness, it was not thought safe to perform paracentesis. When this condition of things had persisted for two days, Dr. Sloan was hastily summoned by the report that his

patient had just died. He found her with a pulse that could not be counted and barely could be felt, the pallor of the skin and expression of the face indicating approaching death. After two subcutaneous injections of ether the pulse and respiration stopped. The rest of the story is best told in Dr. Sloan's own words:

"In the moment of excitement I jumped up, seized the aspirator, and plunged the needle into the fourth interspace, about half an inch to the left of the sternum and a little below the left nipple. To my astonishment, from eight to ten ounces of pure blood flowed rapidly into the bottle of the aspirator and then suddenly stopped, and to my dismay I found I had penetrated a cavity of the heart. As I was slowly withdrawing the canula, regretfully telling the nurse that it was all over, and to close the patient's eyes, to my surprise the heart made first a feeble, irregular movement, then gave a sudden strenuous jump, and finally, like a pendulum regaining its swing or a runner his stride, it started to beat again in the race for life. In moments of intensity, it is difficult to estimate time, but I should say fully half a minute had elapsed between the introduction of the needle and the restarting of the heart-beats. It was an extraordinary sensation to feel the heart beating more and more forcibly against the point of the canula, which was gradually withdrawn so as not to further injure the heart-wall. I was standing thus, with my thumb on the puncture made by the needle, when Drs. Bramwell and Smith made their welcome appearance. My uppermost feeling at first was one of regret that I had converted a patient practically dead into one apparently dying, and sincerely did I lament she had not been left to pass away in peace, for a most pitiful scene was now enacted for an hour. Occasionally there was given a heart-rending shriek; quantities of frothy mucus were half-coughed, half-vomited, and had to be swept out of the mouth with a towel; the blood went ebbing and flowing from the cheeks, which were first ashy-gray then purplish in hue; the pupils were dilated to their fullest extent; the running, following pulse was quite uncountable; and the patient had every appearance of one dying asphyxiated."

To make a long story short, the cardiocentesis was followed by free stimulation with ether given subcutaneously, under the influence of which the patient became maniacal, and required morphia to quiet her. This treatment was soon followed by marked improvement. Under free stimulation with brandy and champagne, the improvement continued, and two days after the operation, the temperature fell to normal and the pulse to 40.

Within two months the patient was well enough to be sent into the country, and six months later was in perfect health.

The cure of a case of acute rheumatism, apparently of septic origin, by draining off ten ounces of blood directly from the heart is certainly a most brilliant therapeutic success. Whether the same favorable result would have followed the tapping of the pericardium, which was the operation actually attempted, of course will never be known. The stimulation of the heart-muscle by the needle puncture probably had more effect in reviving its enfeebled action than the actual abstraction of blood from its cavity. It is an interesting question whether the actual stimulation of the heart-wall by the needle or canula does not contribute

¹ Edinburgh Medical Journal, February, 1895.

perhaps as much to the success of pericardial paracentesis as the relief of pressure by the withdrawal of fluid.

In going over the literature on the subject, Dr. Sloan finds that in 1872 Roger accidentally thrust the needle through the right ventricle while tapping the pericardium for effusion, withdrawing six ounces of blood. The patient (a child) recovered, but died five months later from failure of compensation.

Other cases of cardiac puncture have been reported, some resulting in relief, but none in permanent cure. In view of these facts, and of the numerous reported cases of the survival for a longer or shorter time, and even in rare cases of recovery after wounds of the heart-wall, Dr. Sloan concludes that, in all cases of asphyxia, such as suffocation by drowning, carbonic-acid poisoning, accidental hanging, and chloroform narcosis, after other remedies have failed, this one should be tried. If an aspirator needle is not at hand, puncture with a hypodermic syringe might give surprising results. In all desperate cases of engorgement of the right heart, where death is imminent, even when due to pneumonia or bronchitis, when other remedies have failed, Dr. Sloan thinks that "a possible chance of saving life might be lost if cardiac aspiration were not attempted."

Correspondence.

LETTER FROM DENVER.

COMMONPLACE FACTS FOR PROSPECTIVE SOJOURNERS.

DENVER, COL., March 28, 1895.

MR. EDITOR:—I read with much interest, in a recent number of the JOURNAL, a communication from Redlands, Cal. Your correspondent touches also upon a point which seems to me much neglected by many physicians in sending their patients to distant health-resorts. The ways and means of living in such places are too often overlooked, even by physicians who are professedly acquainted with various resorts, in favor of a theoretically perfect climate. This oversight is even more marked in the published articles of climatologists, which, valuable as they are in other respects, often fail to tell the facts most desired by the general practitioner. A table of mean temperatures and relative humidity may point to the speedy death of tubercle bacilli, but it may be equally poor diet for a man; and the warmest, dryest air may not compensate for greasy and unsuitable food.

Having had occasion to spend the past winter in Denver, many of the ways of living here have come under my notice. It may be of interest to your readers to know some of these unstatistical, practical facts.

Denver is about twelve miles east of the foothills of the front range of the mountains, and lies domestically, though not municipally, on both sides of the South Platte River, which runs from south to north. In the middle of its way through the city, it trends about thirty degrees to the east. The westerly bank rises in a sharp slope about one hundred and forty feet, while this elevation is not reached on the east till about two miles from the river. The valley along the river is naturally given over to factories and the numerous railroads. The smelter works are about two miles and a half to the northeast and in the river basin. As the prevailing winds are from the south and southwest, they drive the smoke from the increasingly numerous factories, all of which burn soft coal, down the valley through the city. This is ordinary smoke, though plentiful. A change of wind to north or east drives this back, and with it sends the suffocating acrid smoke from the smelters into the city. Clean linen is here a virtue, a struggle and an expense. To get clean fresh air one must live out of the

city at least two miles to the east. To the west the quick rise makes a less distance needful, but the west side is not the desirable district for a residence.

Now, accommodations for living in such parts of the suburbs as are free from smoke are not easy to find. There are boarding-houses in abundance, of course, but few suitable for an invalid, as a large proportion of the families who take boarders have members suffering from pulmonary disease. There is consequently the infected air of the house and the depression of sickness.

Aside from the fine residences of the wealthy, most of the houses are small. They rarely have a veranda at all suited for an invalid; and by actual count over many blocks more than half were on the north side of the house. A surprisingly large number of the moderate-sized houses have but one window on the south side and all the chambers on the north. In a country where there is so much strong sunshine this is of less importance but it is still a disadvantage.

Far harder than to find a pleasant house, is it to find fit cooking. There are good cooks in Denver, as I know from kind hospitality; but they do not abound in the homes of those who take boarders, general or "private." Fried and fatty, is the rule. I have personal friends here this winter who have changed from one good "first-class" house to another four times in as many weeks, jumping each time literally from the frying-pan. For a person of limited means it is even more difficult to get good food. It is not the fault of the material, for meats are excellent and cheap, but of the western custom of cooking. This difficulty of getting a good boarding-place is not confined to Denver, and is probably less here than elsewhere; but, where even the best are poor, one should come prepared to spend no short time in getting settled. I was considered exceptionally fortunate in doing so after two weeks' hunt.

Should one desire to keep house, there is less trouble. There are many small houses to be had. A comfortable house of six or seven rooms, in a locality both socially and atmospherically good, rents for from twenty-five to forty dollars a month. All the houses are of brick and few have an air-space between the bricks and plastering. The wood-work, no matter how well done, soon shrinks and pulls away, so that the cracks are many and large. The soil is so dry that few cellars have any flooring. Within the city there is both electric light and excellent gas. Most of the suburbs have electricity, but between them and the city there is a limbo of kerosene twilight.

Domestic service is high and poor. A servant to do general housework for a small family gets twenty or twenty-five dollars a month, and for good help more must be paid. There is the usual difficulty in getting them to live out of town, and help of the ranch variety is hardly trained to cook for invalids.

The subsequent cost of living does not vary much from that in the East. Meats are very cheap and of first-rate quality. Game is plentiful and of low cost. Groceries are higher than in Boston. Vegetables are abundant. The fuel is soft coal and lignite, and costs about four dollars and a half a ton. Anthracite brings nine dollars a ton.

The most important single feature to be sought in choosing a house should be a veranda or balcony sheltered from the wind and with a southerly exposure. On such a piazza an invalid can sit with light wraps for from four to seven hours a day all through the winter, even when the temperature of the air is as low as twenty. Being out of the wind, the thermometer in my south loggia has often been forty degrees higher than the air around. For one who does not succeed in finding such a house, the large and attractive City Park gives opportunity for sitting out-doors away from the street. It is abundantly supplied with comfortable seats, and is in the part of the city suited for an invalid.

For occupations the visitor has, first, the street-car rides. They are many and interesting. The cars, run by cable or electricity, are in pairs, one open and one closed; and there are few days in the winter when the open car can not be used. With a rug over one's knees the riding is

no exposure provided it is not windy. For ten cents one can ride fifteen miles in view of the magnificent mountain range. A generous system of transfers allows many changes of route. Horse-hire is cheap, if not taken from large livery-stables. In the outskirts of the city where we are living, I can have a saddle-horse kept for nine dollars a month. At many of the small ranches you can hire a buggy for an occasional drive. At present I have the use of a saddle-horse every morning, as the ranchman uses it only in the afternoon, for a dollar and a half a week. Another member of my family has a much better horse for which we pay thirty cents an hour. Such bargains are readily made if you live away from the city.

Society in Denver itself is delightful, but living away from town here is not like living in Brookline. It means more or less complete isolation, according to the distance. We have one house within half a mile of us, though we live within five miles of the City Hall. The school facilities, for one who has children to bring with him, are most ample and excellent. There are two good libraries whose privileges are generously open to strangers. There is a fine athletic club and the beginnings of a country club.

A few features of the climate are worth mention, though they seldom appear in the climatological schedules. Many days, though warm and sunny and statistically perfect, are far too windy for any but the strong to be out in. While the wind may last but a short time it rises suddenly, and the exposure in reaching home may be great. The dust-storms are less frequent, but more trying. The changes in temperature are marked and sudden, and while they have little effect on the total thermal result of the month, they are a tax on the vitality of an invalid. I do not speak of the extreme cold this winter, which is unusual, but of the alternations on single days which have been called to my attention as typically fine days. It is no safer here than in Boston to go far from home without a wrap. March here is warm, to be sure, but it is blustery.

The attractions of Denver as a city, and the advantages it offers of several suburbs, such as Montclair or University Park, which are entirely free from smoke, make it an excellent headquarters for an invalid. The tables of climatologists tell us the therapeutic value of the climate, but they can give no picture of the charm of continued sunshine and soft dry air, or of the wonder and joy of each successive fine day. They give us few facts beyond the averages of meteorological conditions; and yet these commonplace facts play a large and important part in an invalid's life. It is in hope of being of aid to some prospective sojourner, that I venture to send you so plain a tale.

Yours truly,

CARROLL E. EDSON, M.D.

IN MEMORIAM. J. M. CHARCOT.

MR. EDITOR:—We wish to call the attention of the physicians of Boston to the fact that a fund is being raised to commemorate by a suitable memorial the remarkable services of the late Dr. Charcot, and that, although no special committee has been formed to receive subscriptions in Boston, the undersigned gladly undertake this office.

Charcot was one of the physicians through whose name and work this century will stand distinguished. Unknown and penniless at the beginning of his career, his industry early gained him the honors of a trained observer, while his genius and imagination enabled him to throw light into the dark corners, not of neurology alone, but of many departments of pathology and medicine.

To his intelligence and energy it is due that the Salpêtrière was transformed from an almshouse unknown to physicians, into a great hospital, to which young men, ready to work hard at original research, were eager to flock, with what results for the progress of medicine we all know well.

We believe that the physicians of our city will be glad of this opportunity to honor the memory of a great man and a great physician.

The amount subscribed here, however, is still considerably less than that subscribed in New York and Philadelphia.

Subscriptions have been received from the following gentlemen, in sums varying from two to twenty dollars: R. T. Edes, G. L. Walton, George B. Shattuck, H. P. Bowditch, Walter Channing, James J. Putnam, J. B. Ayer, H. B. Howard, F. B. Greenough, F. C. Shattuck, P. C. Knapp, and the Medico-Psychological Society.

Dr. C. A. Herter, of New York, is Secretary of the Committee having charge of the subscriptions in this country.

The memorial will consist in part of a statue, to be placed in the Salpêtrière.

JAMES J. PUTNAM, M.D., 106 Marlboro' St., Boston.

PHILIP COOMBS KNAPP, M.D., 33 Marlboro' St., Boston.

VIVISECTION: A REPLY TO H. C. WOOD, M.D.

BOSTON, April 8, 1895.

MR. EDITOR:—Although most physicians might deem themselves competent to act without advice in the matter of replying to the temperate appeal of the American Humane Association, words of wisdom and solemn warning addressed to us in a judicial spirit by those eminent in the profession should be treated with consideration and due deference. In his communication in the last number of the *JOURNAL*, Dr. Wood does not fail to appreciate that he has assumed a somewhat delicate task; and the preliminary excuse which he deems it incumbent to offer for tendering gratuitous counsel, though not very flattering to our self-pride, may upon the whole be accepted, and perhaps in a spirit of thankfulness. He should certainly be encouraged in all reasonable efforts to guard us from committing indiscretions such as might make us appear eccentric or ridiculous in the estimation of the laity. When, however, he makes delinquencies upon the part of distant colleagues a pretext for observations not strictly in harmony with facts, he must not be surprised if we subject him to a little catechising.

Does he really believe that New England physicians are likely to be taken in by allegations which involve the "wildest fanaticism?" If not, what emergency then calls for this unsolicited advice?

Dr. Wood, who is an erudite and experienced teacher and writer, understands that novel, sweeping assertions should be backed by some well-authenticated evidence, especially when addressed to medical men upon scientific questions; and he therefore begins by putting forward a proposition designed to meet just this requirement. But, strangely, in the single paragraph cited to reinforce his philanthropic appeal, and which, by the way, I have searched for in vain in the documents mailed to me, he utterly fails to designate an erroneous or even inaccurate statement. It is perfectly true, precisely as stated in the paragraph quoted by him with unqualified disapproval, that in most of our States scientific experimentation has not yet been hampered by restrictive legislation; and for the reason most creditable to our profession, that vivisection has been practised, as I believe, humanely with intent to minimize suffering. Hence attempts at prohibitory or restrictive legislation have generally been ineffective; and Dr. Wood, who writes not without premeditation or careful preparation, does not advert to a single State law directed against experiments upon animals. Indeed, shying from this point, he falls back with tinsel logic upon the general laws against cruelty which are not under consideration.

Now, is it not possible that this advocate of decorum has underrated our intelligence when he expects us to acquiesce in his declaration that "the college instructor or student is just as liable to punishment as is the carter or huntsman who abuses the horse or dog?" For why should we not know, just as well as he knows, that while all are indeed amenable alike to general laws, there can be no comparison between the liability to apprehension and punishment for

acts of manifest brutality committed in public, and cruelty, perhaps legitimate and justifiable, inflicted by physiologist or students in pursuit of scientific investigations and within the walls of the private laboratory?

From the tenor of the circulars issued, and in view, moreover, of the high standing and intelligence of many who have seen fit to identify themselves with this organization, I can conceive of no ground for the unsympathetic imputation of present or future dishonesty or bad faith. Over-enthusiastic reformers, as well as some officious counsellors, are too apt to base their extravagant protests upon fictitious reports or perhaps a misapprehension as to essential facts, and thereby unwittingly furnish ammunition to the adversary. All such emotional effusions, whether emanating from reckless agitators or distinguished scientists, may with propriety be treated with indifference, as the product of a morbid psychological state forming one of the manifold manifestations of hysteria. In the exceptional instance of the circular in question, the object appears to be an honest attempt to elicit from medical men a recorded expression of opinion in a matter concerning which they are especially qualified to judge and in which their views may therefore carry more than ordinary weight.

Yours with respect,

ARTHUR H. NICHOLS, M.D.

A REPLY TO PROF. H. C. WOOD.

CAMBRIDGE, MASS., April 6, 1895.

MR. EDITOR:—It is not in accord with my ideals of professional honor and veracity, to quote from a printed document, a garbled extract, and—omitting all mention of the proofs that immediately follow on the printed page—to boldly denounce it as a “lie.” That offence Prof. H. C. Wood has unfortunately permitted himself to commit in the letter which appeared in your issue of this week. I shall not follow his example, and call his untruths by the Saxon word “lies,” because falsehood implies deceitful intent,—and Professor Wood is a member of the medical profession, to which I have the honor to belong. It is more probable, I fancy, that, blinded by the white heat of his well-known enthusiasm for that unbounded liberty which led Magendie and Claude Bernard into infamous cruelty, he forgot, in his zeal, that as an apostle of science, his first duty was absolute accuracy and fidelity to fact; and that no skill in the laboratory excuses forgetfulness of the decencies of debate. Still, “it is astounding, that even the wildest fanaticism” should permit a man of his standing to be guilty of perversions so easily detected and so absolutely unfair.

(1) Professor Wood makes no quotation from either of the two circulars issued by the *American Humane Association*, though he speaks of their “positive false statements.” The slip from which he prints an incomplete extract is simply a letter from the President of the Association, and it formed no part of the general investigation.

(2) *His quotation from this letter was garbled.* “To garble,” says Webster, is “to pick out such parts as may serve a purpose,” and that is what he did. Permit me first to quote the few words which so unduly inflamed him, and to follow them with that proof of their accuracy which Professor Wood most carefully omitted in his letter to you:

“While State laws generally prohibit cruelty, yet, in the great majority of cases, there is no law, no college rule, or regulation even, preventing the infliction upon living animals of the utmost conceivable torture, so long as it is done within the walls of the college laboratory and by permission of the instructor.”

This statement Professor Wood stigmatizes as false. But why did he omit and evade the evidence on which it rested, and which immediately follows?

“The proof of this statement rests upon replies made by different college presidents to letters of inquiry.”

President Harper of the University of Chicago writes: “We have not thought it wise to place any restriction upon experimentation involving prolonged or severe pain.” President Pat-

ton of Princeton said: “The College of New Jersey has not defined or limited the extent to which a living animal may be subjected to pain.” President Dwight of Yale answered: “We have had no occasion to lay down any definite restrictions as to the matter to which your refer.” President Jordan of Stanford University, going still further, says: “I am decidedly of the opinion that no restrictions should be put upon the student except those which the professor may lay upon him.” This then finds wide acceptance that infliction of extreme pain is simply a question for the instructor to decide. “We have seen that the matter could be safely left to the discretion of the professor,” says President Rogers of the Northwestern University. President Carter of Williams College states that “the principle has always been to trust the professor wholly unless there seemed reason for distrust.” “We leave the decision to the judgment of the investigator,” says President Day of Syracuse University. These quotations by no means exhaust the list, but they indicate the freedom that now exists.”

So far from being false, the one statement to which Professor Wood specifically objected is absolutely, accurately true. When he asserts that a college student or instructor “guilty of cruelty,” would be amenable to the laws of the land, he fights windmills; for who has ever doubted it? How does the law of the State affect in any way the bungling experimentation of a student, on the nervous system, by permission of his superior and in the privacy of the laboratory?

Apparently Professor Wood assumes that I am an anti-vivisectionist. He is wrong. Not only do I believe in vivisection within certain limits, but I have practised it. Of the four statements presented by the *American Humane Association*, I have signed with slight alterations—the one favorable to vivisection restricted by utility to mankind. What, then, have I opposed for the last fifteen years? *The introduction into America of the foreign ideal of scientific research*; the widening opportunity for abuse. Does one say that at the hands of a learned and expert scientific investigator “abuse” is impossible? Permit me to quote from a letter received but yesterday from a Massachusetts physician and one of your subscribers:

“When I was studying medicine in Paris, it was the custom of a distinguished physiologist to illustrate his lectures by operations on dogs. Some of these dissections were not very painful, but others were attended with excruciating, long-continued agony; and when the piteous cries of these poor brutes would interrupt his remarks, with a look of suppressed indignation, he would artistically slit their windpipes, and thus prevent their howling! Curiosity prompted me to inquire of the janitor, whether after this period of torment, these creatures were mercifully put out of misery, and I ascertained that such animals as did not succumb to the immediate effects of their mutilations were consigned to a cellar, to be kept, unattended and unfed, until wanted for the following lectures, which occurred on alternate days. . . . I never noticed the slightest demonstration of sympathy in their behalf, except on the part of a few American students. These dogs were subjected to needless torture, for the mere purpose of illustrating well-known, accepted facts, capable of being taught satisfactorily by drawings, charts and models. . . . I entertain no doubt that barbarous cruelty was practised at that time in all the Parisian physiological laboratories, though it is probable that for novel and horrible experiments, none could rival the infernal ingenuity of that master-demon, Claude Bernard.”

Who was this “master-demon?” The most renowned physiologist in Europe; a man honored with prizes by the French Academy, with a public funeral at the cost of the government, and for whose monument subscriptions were asked in England and America. But for one, much as I love scientific truth, I do not believe in methods like these, nor in that secrecy which makes them possible in American laboratories. And when Professor Wood denies that abuses occur in this country, permit me to refer him to the editorial pages of *The Therapeutic Gazette*, a journal with which he is familiar: “Vivisection is grossly abused in the United States. . . . We would add our condemnation of the ruthless barbarity which is every winter perpetuated in the medical schools of this country. History records some frightful atrocities perpetrated in the name of religion; but it has remained for the enlightenment and humaneness of this century to stultify themselves by tolerating the abuses of the average physiological laboratory,—all conducted in the name of Science.” (August, 1880.)

I am, sir, etc., ALBERT LEFFINGWELL, M.D.

METEOROLOGICAL RECORD,

For the week ending March 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-meter		Thermom-eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'ath'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S..24	30.34	42	52	32	60	76	68	S.W.	S.W.	12	10	F.	O.	.10
M..25	29.94	42	50	34	81	79	80	S.	S.W.	8	9	O.	C.	
T..26	29.76	42	49	36	59	60	60	W.	N.W.	10	20	C.	F.	.31
W..27	29.78	37	46	28	50	51	51	N.W.	W.	16	7	F.	C.	
T..28	29.42	36	40	32	92	59	76	W.	N.W.	11	19	O.	C.	.04
F..29	29.92	36	44	29	50	44	47	N.W.	W.	20	11	C.	O.	
S...30	30.06	33	38	28	58	44	51	N.W.	N.W.	22	15	C.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ning; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 30, 1895.

Cities.	Estimated popu-lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal Diseases.	Diphtheria and croup.	Scarlet fever.
New York	1,956,000	900	332	12.65	16.61	.88	5.83	2.31
Chicago	1,600,000	—	—	—	—	—	—	—
Philadelphia	1,139,457	—	—	—	—	—	—	—
Brooklyn	1,043,000	411	140	11.28	17.04	.72	6.72	1.44
St. Louis	540,800	—	—	—	—	—	—	—
Boston	501,107	242	63	9.02	23.78	—	5.33	1.23
Baltimore	500,000	—	—	—	—	—	—	—
Washington	285,000	—	—	—	—	—	—	—
Cincinnati	325,000	143	40	4.90	19.60	—	.70	—
Cleveland	325,000	—	—	—	—	—	—	—
Pittsburg	272,000	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	42	7	4.76	35.70	—	—	2.38
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	45	14	6.66	22.22	—	—	—
Fall River	92,233	39	19	17.92	30.72	7.68	—	7.68
Lowell	90,613	37	16	5.40	18.90	2.70	—	—
Cambridge	79,607	20	5	10.00	10.00	5.00	5.00	—
Lynn	65,123	—	—	—	—	—	—	—
Springfield	50,284	24	8	16.64	29.12	—	4.16	—
Lawrence	49,900	—	—	—	—	—	—	—
New Bedford	47,711	20	6	—	20.00	—	—	—
Holyoke	43,348	—	—	—	—	—	—	—
Brocton	33,939	—	—	—	—	—	—	—
Salem	33,155	14	4	14.28	7.14	—	7.14	—
Haverhill	32,925	14	5	—	14.28	—	—	—
Malden	30,209	10	5	20.00	20.00	—	10.00	10.00
Chelsea	29,606	9	0	11.11	11.11	—	11.11	—
Fitchburg	29,363	10	3	—	30.00	—	—	—
Newton	28,837	5	1	—	20.00	—	—	—
Gloucester	27,293	—	—	—	—	—	—	—
Taunton	26,954	10	2	—	—	—	—	—
Waltham	22,058	6	1	—	66.66	—	—	—
Quincy	19,642	—	—	—	—	—	—	—
Pittsfield	18,802	6	3	16.66	16.66	—	—	—
Everett	16,565	4	1	—	—	—	—	—
Northampton	16,331	2	1	—	—	—	—	—
Newburyport	14,073	—	—	—	—	—	—	—
Amesbury	10,920	4	0	25.00	—	—	—	—

Deaths reported 2,112; under five years of age 706; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 228, acute lung diseases 402, consumption 250, diphtheria and croup 103, measles 27, scarlet fever 40, diarrheal diseases 19, cerebro-spinal meningitis 12, erysipelas 9, whooping-cough 8, typhoid fever 6, malarial fever 2, small-pox 2.

From measles New York 14, Brooklyn 7, Cincinnati 3, Springfield 2, Boston 1. From cerebro-spinal meningitis New York 6, Somerville 2, Boston, Fall River, Pittsfield and Amesbury 1 each. From erysipelas New York 8, Boston 1. From whooping-cough Brooklyn 3, New York 2, Boston, Worcester and Salem 1 each. From typhoid fever New York and Boston 2 each. Cincinnati and Lowell 1 each. From malarial fever New York and Nashville 1 each. From small-pox Cincinnati 2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 30, 1895, TO APRIL 5, 1895.

The following named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the American Medical Association to be held at Baltimore, Md., May 7 to 10, 1895:— LIEUT.-COL. WM. H. FORWOOD, deputy surgeon-general; MAJOR CHARLES K. WINNE, surgeon; MAJOR WALTER REED, surgeon, and CAPT. HARRY O. PERLEY, assistant surgeon. They will proceed from their respective stations in time to reach Baltimore on May 7th, and upon the adjournment of the meeting will return to their proper stations.

The following named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the Association of Military Surgeons of the United States, to be held in Buffalo, New York, May 21 to 23, 1895:— LIEUT.-COL. DALLAS BACHE, deputy surgeon-general; MAJOR PHILIP F. HARVEY, surgeon; CAPTAIN DANIEL M. APPEL, assistant surgeon. They will proceed from their respective stations in time to reach Buffalo on May 21, 1895, and upon adjournment of the meeting will return to their proper stations.

CAPTAIN RUDOLPH G. EBERT, assistant surgeon, relieved from duty at Fort Huachuca, Arizona, and ordered to Fort Columbus, New York, for duty at that post.

CAPTAIN PAUL SHILLOCK, assistant surgeon, relieved from duty at Fort Wingate, New Mexico, and ordered to Madison Barracks, New York, for duty at that post, to relieve CAPTAIN ROBERT B. BENHAM, assistant surgeon.

CAPTAIN BENHAM on being relieved by CAPTAIN SHILLOCK, will report in person for duty at Fort Wingate, New Mexico.

The leave of absence on account of sickness, granted LIEUT.-COL. JOSEPH R. GIBSON, deputy surgeon-general, is still further extended six months on surgeon's certificate of disability.

Leave of absence for three months, to take effect on the expiration of his present sick leave, with permission to leave the United States, during May and June, 1895, is granted CAPTAIN WILLIAM C. SHANNON, assistant surgeon.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library on Monday evening, April 15th, at 8 o'clock.

Dr. J. A. Tanner will report "A Case of Spontaneous Perforation of the Heart, with Obscure Symptoms."

Dr. W. T. Whitney, Dr. H. F. Vickery, Dr. J. Homans and Dr. F. B. Mallory have been asked to take part in the discussion.

Dr. E. E. Jack will present a paper on "Ophthalmoplegia Externa, total, bilateral." Discussion opened by Dr. M. Standish.

JAMES G. MUMFORD, M.D., Secretary.

MASSACHUSETTS MEDICAL SOCIETY, SUFFOLK DISTRICT.—The Section for Clinical Medicine, Pathology and Hygiene, will meet at 19 Boylston Place, on Wednesday evening, April 17th, at 8 o'clock.

Dr. A. K. Stone: "Clinical Notes from Hospital Service."

Dr. Edw. Wyllys Taylor: "A Case of Tabes Dorsalis with an unusual Complication."

JOHN L. AMES, M.D., Secretary.

RECENT DEATH.

DR. PETRONIO, Professor of Surgical Pathology and Teacher of Surgery in the University of Naples, died on March 1st at the age of fifty-five. He published several works, including "A Guide to Clinical Surgery." He was Director of the Hospitals della Pace and Pellegrini, and of the lunatic asylum. He also took an active part in politics, and was Radical deputy for Caserta.

BOOKS AND PAMPHLETS RECEIVED.

Proceedings of the American Microscopical Society, Seventeenth Annual Meeting held at Brooklyn, N. Y., August 13, 14 and 15, 1894.

Cylindroma Endothelioides of the Dura Mater causing Localizing Symptoms and Early Muscular Atrophy. By L. Bremer, M.D. and N. B. Carson, M.D., of St. Louis, Mo. Reprint. 1895.

Left Hemiplegia followed by Loss of the Deep and Superficial Reflexes, Considerable Muscular Atrophy, Marked Anesthesia in the Distal Portions of the Limbs, Loss of Faradaic Irritability and Reaction of Degeneration of the Muscles on the Paralyzed Side. By J. T. Eskridge, M.D., Denver, Col.; with remarks by Frederick Peterson, M.D., New York. Reprint. 1895.

Original Articles.

METHODS OF TREATMENT OF EMPYEMA.¹

BY S. G. BONNEY, A.M., M.D., DENVER, COL.,
Visiting Physician to St. Luke's Hospital.

It is generally recognized among the members of the medical profession, that the treatment of empyema in all cases should be that of surgical interference, and yet there exists a wide diversity of opinion as to the best methods of operative procedure. To afford a study of these various methods, as advocated by men of authority, to compare their relative advantages, and to note the peculiar conditions, under which each is applicable, or contraindicated, is the object of this paper.

A not unimportant preliminary consideration is the influence of the etiology upon the prognosis and treatment of the disease.

Modern investigations in bacteriology have demonstrated the development of intrathoracic pus-accumulations to be occasioned by the presence of pyogenic micro-organisms; that the bacterial agents vary in their nature and properties, and in the character of the changes induced by their presence in the pleural cavity.

The principal microbes involved are the pneumococcus, the streptococcus, the saprogenic organisms and the tubercle bacillus.

The pneumococcus is recognized as the most benign organism, and occurs almost exclusively in the empyemas of children, and in the effusions following pneumonia in adults. These cases are, therefore, the most amenable to treatment, responding frequently to the simplest measures.

The streptococcus, which is present in more than half the cases in adults, and occasionally in children, is associated with a decidedly destructive tendency, progressive in nature, and giving rise to a condition requiring more positive interference.

The saprogenic organisms produce foul-smelling accumulations of pus, and furnish the necessity of still more radical measures.

Save in extreme cases, a general tubercular infection never contraindicates an operation, from which satisfactory results are frequently obtained.

The value or the recognition of the precise micro-organism involved in any instance, would seem to be more theoretical than practical. Even the effort to approximate a diagnosis of the exact species, by the gross appearance of the pus, as suggested by Germain Sée, possesses little of clinical value. The important practical thought to be emphasized in this connection, is the recognition of the existence of several species of bacteria in the exudate, endowed with varying properties, and possessing marked differences in their virulence, that the most benign of these characterize the empyemas of children and the meta-pneumonic pleuritis of adults, and thereby furnish to the physician a justification for not resorting immediately, in all instances, to the more radical and mutilating measures of treatment. In a very considerable number of cases, however, absolute certainty of diagnosis established by an early exploratory puncture with an irreproachable needle, commands the observance of the following generally accepted therapeutic indications:

(1) Prompt and thorough evacuation of the pus.
 (2) Prevention of a reaccumulation by means of free and continuous drainage and by the maintenance of asepsis.

(3) The final obliteration of the pus-secreting cavity through adequate provision for the expansion of the lung and the collapse of the chest-wall.

In but few instances in medical practice, can the responsibility in case of delay be greater. The recognition of the occasional absorption and encapsulation of the pus, renders the demand for operative interference no less imperative.

The choice of the precise method of surgical procedure involves a careful consideration of all factors having a possible bearing upon the prognosis, namely, the age of the patient, the history of the case, the recent or remote origin of the disease, the existence of complicating affections, the probable degree of atelectasis resulting from prolonged compression, the presence or absence of old adhesions, the general character of the pus, and anatomical conditions of the chest-wall, such as the flexibility of the ribs and the width of the interspaces.

A conscientious estimate of the relative significance of the preceding considerations should enable the physician to choose wisely from the following general methods of treatment: simple aspiration, aspiration with irrigation, permanent drainage through a canula or rubber tube, drainage through two openings, syphon drainage, pleurotomy, thoracotomy, and thoracoplasty.

Simple Aspiration provides merely for the fulfillment of the first indication, the removal of the pus, ignoring the necessity for further interference. The knowledge of its theoretical and clinical insufficiency, and the realization of the disastrous results of delaying the adoption of more rational means, combine to impose much responsibility upon him who makes use of this method, except under certain conditions and limitations.

Aspiration is applicable to the early treatment of the empyemas of children, in whom a much more favorable result may be expected than in adults, both on account of the comparative benignity of the bacterial organism involved and the greater absorptive power of the system.

That there exists in children a natural tendency toward recovery, following aspiration, by means of the greater faculty of absorption, has been remarked by Godlee, Garland, Cabot, Matas and Huber. A justification of their conclusions is found in the experience of Holt, who reports 23 cases cured by aspiration in early life, out of a total of 121.

Jacobi, Branthorn, Blake and many other clinicians have recorded a considerable number of successful aspirations in children.

The simple nature of operation, the avoidance of an anesthetic, and the slight degree of shock experienced, may be urged in its favor.

It is my opinion, however, that there are three distinct objections to the indiscriminate adoption of this method:

(1) The difficulty of the complete removal of the effusion. A protracted period of convalescence is thus established during the absorption of the residue, and in the event of its inspissation the patient is exposed to a possible focus for future tubercular infection.

(2) The opportunity offered for the formation of firm pleuritic adhesions, thus preventing the fullest

¹ Read before the Colorado State Medical Society in Denver, June 20, 1894.

expansion of the lung and rendering the conditions less favorable in the case of any subsequent operative measures.

(3) The frequent reaccumulation of the pus, thereby necessitating indefinite repetitions of the operation and meanwhile subjecting the child to the manifold dangers of delay.

Authorities differ as to the number of times it is advisable to repeat the aspiration. Successful cases are reported following an astonishing number of operations, the largest of which we have cognizance being 122. This reflects great credit upon the patient. It is the consensus of opinion that recourse should be had to the more radical measures not later than the second or third unsuccessful aspiration. I am impressed with the conviction, however, that it is unjustifiable to resort to this method more than once in children, and never in adults, unless to be followed immediately by more radical measures.

It is interesting to note in this connection the views of Ashhurst, contained in a paper recently read before the American Surgical Association at Washington. He states, "No operation is justifiable unless the presence of pus is certain, unless thorough treatment by medical agents, blisters, etc., has failed, or unless the symptoms, dyspnea, etc., are so urgent as to demand immediate relief."

He objects to the preliminary use of the aspirating needle for diagnostic purposes, for fear of thereby converting a serous effusion into a purulent one. Not until the development of urgent or dangerous symptoms, does he consider it justifiable to confirm the diagnosis or to involve the aid of surgical measures.

He remarks: "The first operation should consist of simple aspiration, with antiseptic precautions. This tells us whether we have made a mistaken diagnosis or not, and if so, prevents an open operation. There is no less danger from the use of the exploring or hypodermic needle, and we should therefore always use the aspirator."

Again, he states: "When the fluid has partially reaccumulated, as it almost certainly will do if purulent, incision and drainage should be practised, which is much better than frequent tapping, which exhausts the patient without giving much, if any, permanent relief."

It is very apparent from the foregoing statements that his choice of simple aspiration is not based upon any faith in the adequacy of the measure to effect a cure, but is made with an aim to afford temporary relief from the urgent symptoms and at the same time to establish a diagnosis, admitting that the purulent nature of the effusion, particularly in adults, almost invariably demands subsequent operative measures.

In view of the facts, namely, that absolute certainty of diagnosis can be obtained only by means of an exploratory puncture, that this, under antiseptic precautions, presents but slight risks of converting a serous effusion into a purulent one, and that the delay of operative interference, until the advent of distressing symptoms, affords additional elements of danger, it is my strong preference to make use, strictly according to the principles of asepsis, of an early exploratory puncture, to be followed, if the effusion be purulent, by the prompt and thorough evacuation of the pus, in accordance with methods to be described. To accomplish the immediate removal of the effusion however, the temporary employment of simple aspiration, pre-

liminary to more radical measures, is recommended by Senn² and others.

Aspiration with irrigation, although considerably in vogue for a time, is now virtually obsolete, and requires but brief mention to demonstrate its impracticability. Its employment has been largely limited to children. The injection of the various antiseptic solutions through an aspirating needle following the removal of the pus, was presumably designed to prevent the reaccumulation of the effusion by the action of the irrigating fluid upon the pus-secreting surface. A consideration, however, of the mechanical and therapeutic principles involved, coupled with the observations and experience of others in regard to the employment of this method, has led me to the following conclusions, namely, that irrigation performed in this manner is exceedingly incomplete, that it is usually superfluous, and that it is frequently attended with certain dangers. I refer to the possibility of shock, and the sudden onset of nervous disturbances to be mentioned more in detail later, as well as to the liability of poisonous absorption, on account of the extreme susceptibility of the child, and the difficulty of entirely withdrawing the fluid injected.

Permanent Drainage through a Canula or Rubber Tube.—The underlying principle in this as well as in several of the succeeding methods to be described, is based upon the observance of the second indication, the prevention of a reaccumulation, and consists in the adoption of measures to promote a free and continuous discharge. The degree of success attained, with a few rather insignificant exceptions, is directly commensurate with the sufficiency of the drainage. The general recognition of the manifest incompleteness of the discharge effected by the introduction into the chest of a trocar with canula or rubber tube, precludes anything here beyond a simple reference to the method.

Drainage through Two Openings, in different portions of the chest, has been revived by the endorsements of Michael and others, who have employed this method with frequent success. A single fenestrated rubber tube enters the pleural cavity through the upper anterior orifice, and emerges lower down from the posterior opening, the object being to induce freer drainage than by a single puncture and to secure more thorough irrigation. This plan has not received general commendation, however, on account of the imperfect evacuation of the cavity affected, the irritation of the pleura produced by the tube, and the additional opportunities offered for the development of sepsis.

Syphon Drainage has received much attention, and is worthy of more extended consideration. Various forms of apparatus based upon this principle have been devised, the best known and most popular of which are perhaps those of Potain and Bülan. Potain's method consists in passing a rubber tube about thirty cubic metres in length, and filled with an antiseptic solution, through the canula into the chest, until the end of the tube touches the wall of the cavity. The canula is then withdrawn over the tube, which remains firmly held in place by the contraction of the soft parts around it. A clamp is placed upon the tube near the opening in the chest, and another at the end, which is immersed in water. A branch tube, connecting with the portion entering the chest, is used to introduce within the cavity the various irrigating solu-

² Principles of Surgery.

tions, which are subsequently withdrawn by the syphon action in the lower tube.³

I cannot conceive, however, that any practical benefit is to be derived from the opportunity thus ingeniously offered for the washing out of the cavity, for in simple cases the irrigation is unnecessary, and in the more aggravated cases with odorous discharges, more radical measures are demanded.

Bülan uses a long single tube in like manner as the above, provided with clamps and connected with a glass tube, which passes through a rubber stopper to the bottom of a bottle filled with an antiseptic solution. If rendered necessary by the presence of clots in the tube, suction can be made by means of a glass mouth-piece inserted through the stopper.

Immerman, an ardent advocate of this method, states that "the patients are soon able to go about, carrying their bottle with them."⁴ At the Ninth Congress of Internal Medicine, held in Vienna in 1890, he reported 49 cases directly cured by this method, out of a total of 57. Upon the same occasion Curschman reported 63 excellent results out of 75 cases.⁵ Eberle has since recorded generally satisfactory results from an experience of 19 cases.

The aim to be obtained in all methods making use of this principle has been to secure the proper continuous drainage without permitting the entrance of air to the pleural cavity. By this means it was designed to produce the fullest expansion of the lung and favor the obliteration of the pus-cavity by restoring the parts as fully and as quickly as possible to their normal conditions. The application of this theory, however, has been demonstrated by experience to be exceedingly disappointing and the method does not, therefore, meet with general favorable acceptance. Its chief disadvantages are the occasional entrance of air around the tube, destroying at once the syphon action; the necessarily slow and imperfect drainage accomplished on account of the weak aspirating force employed; and the liability of the occlusion of the tube by large masses of coagula.

Even Immerman, the most enthusiastic advocate of the measure, admits that "this method gives good results only in recent empyemas, in which the pus is not too thick."

Matas concludes that "the syphon method may be adopted only in recent cases, in which the expansile power of the lung is not lost, and in which a preliminary aspiration reveals the presence of a thin, liquid, inodorous pus, free from large flocculi of fibrinous masses."⁶

I would suggest, however, that it is well nigh impossible to demonstrate the presence of those fibrinous masses in the exudate by the preliminary use of the aspirating needle, and also that it is in cases of precisely this class with organic *débris* or coagula, as well as in the more simple conditions, that are exhibited the most satisfactory results of the method to be next considered.

Pleurotomy consists in the free opening of the pleural cavity, and provides for the immediate and thorough evacuation of its contents. A complete exit is offered to the clots and organic *débris*, and perfect facilities for a continuous discharge.

It is my opinion, that this method is indicated as an

initial procedure in the treatment of all cases of empyema, excluding only the use of the single aspiration in children previously alluded to. It is admitted that pleurotomy alone, will not always suffice for the later treatment of old protracted cases, owing to the existence of certain complicating conditions.

Were this method, however, more frequently employed in the early stages of the disease, before an opportunity be given for the development of unfavorable conditions, the necessity for recourse to the severer operative procedures would result far less frequently.

It was Küster's wise motto, "Never allow an empyema to grow old."

The opening by incision into the pleural cavity may be accompanied in some instances, if necessary, by the resection of a small portion of a single rib. This should be distinguished from the multiple rib-resection, which of itself, constitutes a separate method, is subject to different principles, and indicated by other conditions. The prime object of the resection of a single rib is to enlarge the opening.

This is indicated when the ribs are too near together to otherwise allow a sufficient orifice for the escape of the pus. An additional indication is the presence of a putrid accumulation, as revealed by the aspirating needle, in which condition the provision for the discharge must be perfect.

Jacobson⁷ remarks, "It cannot be too strongly insisted upon that fetor calls for a freer opening, not for washing out."

While there can be no doubt of the justification of resorting to resection in all cases associated with an offensive discharge, there may occasionally be room for discussion as to its universal expediency under other circumstances; thus in children, although the rib-spaces are narrow, I would seriously question the wisdom of invariably performing resection, although such has been the sanction of high authority. I should not consider the operation indicated in such cases until it is ascertained that a moderate-sized, soft-rubber tube will be compressed between the ribs to such an extent as to seriously interfere with drainage.

Garland states that, "when an inch of rib is removed, the cut ends immediately drop together, so that no more space is left than previously existed, and a broken rib is added to the other casualties of the case."⁸

The performance of pleurotomy, with or without resection of a rib, should be accompanied by an observance of strict antiseptic precautions, the skin, the hands of the operator and the instruments demanding most scrupulous attention. Upon the antiseptic details of the operation and of the subsequent dressings, will depend to a great extent the degree of success attained.

An important consideration is the choice of an anesthetic. Although the condition of the patient is never too desperate or extreme to preclude the question of operation, or even to justify delay, it may in some instances positively contraindicate the administration of an anesthetic.

In adults a sufficiently local anesthetic effect may frequently be secured by the employment of cocaine hypodermically, or by a spray of ether or rhigolene. If the patient is excessively nervous, however, a general anesthetic is desirable, in the absence of any specially contraindicating condition.

³ Donaldson: *Pepper's System of Medicine*, vol. iii, page 555.

⁴ *Annual of Universal Medical Sciences*, 1888, vol. iii.

⁵ *Boston Medical and Surgical Journal*, May 15, 1890.

⁶ Matas: *Hare's System of Practical Therapeutics*, vol. ii, page 665.

⁷ *Surgical Operations*, page 518.

⁸ *Treatment of Pleurisy and Pneumonia*, page 44.

In children, profound general anesthesia is usually necessary. Chloroform should be preferred to ether, if the condition of the patient is such as to justify its administration; it is more agreeable, more rapid in its action, possesses less danger of dyspnea from abundant secretion of mucus, is less irritating to the bronchial mucous membrane, and is not associated with a period of excitement or violent intoxication.

The coughing and strangling, incident to this stage of ether anesthesia, complicating the condition of distended pleura, and crowded or displaced organs, furnishes a source of danger too obvious to be ignored, the rupture of a bronchial tube. Two fatal accidents of this nature have been recorded by Holt. Upon the other hand, the dangers are apparent of the full anesthetic effect of chloroform upon a heart whose action is already embarrassed by compression and displacement. It is manifestly true that while a large number of cases satisfactorily undergo the anesthesia, its general employment is nevertheless attended with assured possibilities of exceedingly disastrous results.

The site of the operation is a subject of much interest, involving a consideration of certain anatomical and mechanical conditions. It is frequently urged that the incision be made in the more dependent and posterior portion of the chest, in order to secure as perfect drainage as possible. The fallacy of this is rendered clear by the appreciation of the fact that the pus does not escape *solely* in accordance with the law of gravity, but owing as well to the constant action of the intra-thoracic forces, the expansion of the lung and the pushing of the diaphragm impelling it in the direction of the least resistance. The positive objections to opening the lower portion of the chest are: the danger of wounding the diaphragm, which rises higher in children than in adults, the irritation of the diaphragm produced by the incessant rubbing of the end of the tube, and the possible occlusion of the orifice, subsequent to partial evacuation, by the ascent of the diaphragm which returns to its normal position more readily than the lung.

In view of the preceding, and in the absence of specially contraindicating signs, I should prefer the fifth or sixth space in the mid or posterior axillary line.

In this region the chest wall is thinner, the intercostal spaces are wider and the ribs are more fixed, offering less opportunity for their approximation.

The mode of performing the operation will necessarily vary somewhat according to the nature of the anesthesia and the thickness of the chest-wall. The incision, about two inches in length, should be made as nearly as possible in the centre of the interspace, parallel with the ribs.

A single plunge of the knife is hardly advisable. The use of the grooved needle devised by Cabot, which is inserted into the cavity and serves as a guide to the knife, affords a rapid method of opening the chest, particularly adapted to those cases in which local anesthesia is used. I should generally prefer, however, the most careful method of incising quickly through skin, subcutaneous and muscular tissues, forcing an entrance into the pleural cavity by means of a sharp-pointed instrument, and dilating the opening by an aseptic finger, the flow being occasionally interrupted in order to secure the gradual escape of the pus.

Drainage may be effected by the insertion of two soft-rubber tubes, of as large size as may be admitted

between the ribs. These should be only of sufficient length to project slightly within the cavity.

Irritation of the pleura in the event of the subsequent expansion of the lung, may be avoided by withdrawing the tubes a little, and cutting the ends. Care should be taken to prevent the tubes from slipping within the chest. This mishap may be avoided by piercing the tubes with one or two large safety-pins, separated from the skin by a small plate of rubber or oil-silk. The use of an external continuous shield, designed to prevent the inward escape of the tube, necessitates the complete withdrawal and subsequent replacement of the tube, in order to effect its shortening.

Irrigation of the Pleural Cavity has attained exceeding popularity, and is being used extensively under the sanction of eminent authority, either as a simple initial procedure following evacuation, or as a regular part of daily routine.

Gaston remarks: "It is evident from the numerous reports of cases in which medicated irrigation has been resorted to during the past year, that it is growing in favor with the medical profession in different parts of the world."⁹

It is my conclusion, however, drawn from a comparative review of the experience and observations of many, that this measure, unless subject to certain limiting conditions, merits much criticism. It should never be recommended except in cases exhibiting much fetor, which exists notwithstanding an abundant provision for drainage. Save under such conditions, the injection of various sterilized and antiseptic solutions into the cavity should be discountenanced as superfluous, and positively contraindicated as possessing certain elements of danger.

Owing to the admirable drainage usually incident to pleurotomy, the liability of toxic absorption from the use of the more powerful antiseptics is indeed slight, although disastrous results have occasionally followed their use.

A much more serious development from the irrigation is the occurrence of shock, which is sometimes fatal, and the sudden onset of severe nervous manifestations resulting from irritation of the pleura.

Sears has called the attention of the profession in this country to the experience of Jeanselme in a series of forty-five cases of this nature.¹⁰ A great variety of disturbances of nervous origin was noted. He mentions the occurrence of syncope, convulsions, hysterical and epileptic attacks, monoplegia and hemiplegia, delirium, vaso-motor or trophic changes, strabismus, disturbances of vision and inequality of the pupils, the latter being a premonitory symptom. These manifestations took place regardless of the nature of the fluid injected and rendered a necessarily grave prognosis, as over half the cases proved fatal.

The prevention of shock during irrigation, may be assisted somewhat by proper attention to the temperature of the fluid and to the manner in which it is injected. Extremes of heat or cold are to be avoided, a temperature of about 100° being the most desirable. Only the slightest degree of force should be employed in the introduction of the solution, preference being given to the gentle steady flow from a fountain-syringe or siphon.

From among the numerous antiseptic fluids recom-

⁹ Annual of Universal Medical Science, 1893, vol. iii.

¹⁰ Boston Medical and Surgical Journal, August 31, 1893.

mended for injection, my choice would be either solutions of boric or salicylic acids in sterilized water, or a dilute solution of peroxide of hydrogen, to the exclusion of carbolic acid, corrosive sublimate or iodoform.

The correct application of the dressings after pleurotomy requires the observance of strict antiseptic precautions. The demand for the most scrupulous care in this respect remains continuously and rigidly in force till the final closure of the wound.

An adherence to these principles during each subsequent dressing should prevent the pus-cavity from assuming the condition of sepsis.

An appropriate dressing may also be of material assistance in favoring the distention of the lung. It is very desirable that the lung be made to expand as quickly as possible and to the fullest extent.

Should the lung become bound down by the formation of pleuritic adhesions, when in a state of only partial dilatation, its subsequent expansion is rendered extremely difficult if not impossible.

By reviewing the mechanical principles involved in the process of lung-expansion, it becomes apparent that one function of the dressing should be to provide for the ready passage of the air from the pleural cavity, and to obstruct as far as possible its re-entrance.

The possible valve-like action of the dressing has been ably discussed by Dr. Cabot¹¹ who recommends the employment, external to a thick layer of antiseptic gauze, of mackintosh, sufficient in size to project upon the skin in every direction, to which it is held closely applied by the elastic pressure of the outer dressings, consisting of more gauze, carbolated cotton and a flannel bandage.

He explains: "When air is forcibly driven out of the chest by a cough, or other effort, it lifts the edge of the rubber and escapes, but as the elastic outside dressings immediately press the mackintosh again to the side, the air which could lift it from within cannot get beneath it from without. It acts, in short, as a valve, and with the aid of the movements of the chest, pumps the fluid and air from the pleural cavity. Under this form of dressing, if the lung is not already tied up, so that it cannot expand, we may look for its rapid dilatation and the quick closure of the cavity."

While several other theories have been presented to explain the expansion of the lung after entrance of air to the pleural cavity, their elucidation involves a consideration of the principles of dynamics, which does not fall within the scope of this paper.

It is sufficient for my purpose to show that at least one element among the several that may combine to promote rapid lung-expansion is the application of an appropriate dressing. The use of the mackintosh, as described, commends itself highly in theory. It may be properly questioned, however, if a generous occlusive aseptic dressing may not answer quite as well.

In the after-treatment, systematic "lung gymnastics" may be of considerable service in aiding the distention of the previously compressed lung.

Osler¹² recommends the use of the James method, which consists in the transfer of water from one large Wolff bottle to another by means of the expiratory effort of the patient.

It occasionally happens, however, owing either to the presence of firm adhesions or to the result of an

unduly long period of compression, that the lung does not expand sufficiently to fill the chest. In this condition, the further obliteration of the cavity may be aided to a greater or less extent by the retraction of the chest-wall. The realization of this is particularly simple in children, in whom the flexibility of the ribs is well known. In later life, however, when the parts have become more stiffened and rigid, the shrinking in of the chest-wall and the consequent approximation of the pleural surfaces of the cavity, can only be affected by radical surgical measures.

It is under these conditions that *Thoracotomy*, the multiple resection of ribs, is indicated. This method, with which the name of Estländer is frequently associated, consists in the removal of portions of several ribs with an aim to produce a collapse of the wall of the chest. While attempting no detailed description of the technique of the operation, a few points of practical interest may be considered.

The rapidity with which the operation may be performed by expert surgeons, renders possible the use of simple local anesthesia, as almost invariably employed by Abbe and Beck of New York. The latter states,¹³ "Resection of the rib itself is by no means painful, and the whole operation can be done in two or three minutes." He also remarks, "I have had but little trouble from the patient or his friends, regarding the performance of the operation without an anesthetic. It has come chiefly from the objections of the attending physician."

Notwithstanding this, it would seem that the operation as usually performed, would suggest the advisability of the employment of a general anesthetic unless specially contraindicated.

The determination of the precise number of ribs to be resected, as well as the length of each section, should be made with reference to the depth and extent of the cavity. Should the cavity be covered by several ribs, resection should be made of a variable portion of each overlying rib, the largest section removed corresponding with the point of greatest depth of the cavity. The operation may include the resection of from two to eight ribs according to the conditions present, the portions of bone removed from each varying from one to eight inches in length.

While it is frequently the custom to make use of several horizontal incisions, parallel with the ribs, a preferable method is the employment of a single sub-axillary vertical incision extending from the upper to the lower rib involved.

The ribs having been exposed and stripped of the periosteum, resection is readily accomplished by means of a bone-forceps.

The pleura may be freely opened to provide for the removal of fibrinous masses and *débris*, which are scraped away, if necessary, with a blunt spoon. In some cases the condition of the cavity renders advisable a systematic curetting, coupled with an antiseptic irrigation and followed by a light packing with sterilized gauze.

A question of some importance is the length of time that should be allowed to elapse after an unsuccessful pleurotomy before recourse be had to this method.

Estländer advises against an early operation in order that sufficient opportunity be given the pleural surfaces to become transformed into "thick, firm, connective tissue."

¹¹ Keating's Cyclopedia of the Diseases of Children, vol. ii.

¹² Practice of Medicine, page 571.

¹³ Post-Graduate, February, 1894.

Berger has shown, however, that the most satisfactory results have attended those cases in which an early operation was adopted.

In accordance with this view, Matas recommends that thoracotomy be delayed not longer than three or four months after pleurotomy in the absence of signs of healing. It is evident that the operation should be performed, provided the general condition of the patient is favorable, as soon as the natural forces applied to produce an obliteration of the cavity have become exhausted.

Complete *Thoracoplasty* is a truly heroic method of treatment, advocated by Schede and Tillmans. As this provides for the removal of the entire chest-wall, with the exception of a skin-flap only, its general application is contraindicated, and its justification in special cases very exceptional.

My conclusions may be briefly summarized as follows:

Absolute certainty of diagnosis by an exploratory puncture with an aseptic needle; use of a single aspiration in children, followed in the event of a reaccumulation, by open incision and drainage; no justification for aspiration in adults, except as a mere preliminary to pleurotomy; the performance of pleurotomy in all recent cases, excluding only the employment of aspiration as an initial procedure in children; avoidance of general anesthesia when practicable; a single opening for drainage, not located in the most dependent portion of the chest; double drainage-tubes to extend but slightly within the cavity; the resection of a small portion of a single rib in case of a fetid discharge, or of marked approximation of the ribs; no irrigation of the cavity, unless in the presence of considerable fetor, the irrigating solutions to be introduced slowly, of proper temperature, and non-poisonous in nature; observance of scrupulous asepsis during each dressing from the beginning to the end of the case; adoption of multiple rib-resection in the event of an unduly prolonged continuance of the pus-cavity; number of ribs resected and size of section to correspond with the depth and extent of the cavity; exceedingly rare justification for the employment of complete thoracoplasty.

REPORT OF CASES OF CASTRATION FOR THE RELIEF OF PROSTATIC HYPERTROPHY, WITH REMARKS.¹

BY FRANCIS S. WATSON, M.D., BOSTON.

SINCE Prof. J. William White, of Philadelphia, experimented on dogs, as to the effect of castration on the prostate, in December, 1892, and reported June 1, 1893, as the result, that rapid atrophy of the prostate followed the operation, and upon these results, and upon the well-known effect of oöphorectomy on certain forms of uterine fibroids, based the suggestion that atrophy of the senile hypertrophy of the prostate might reasonably be expected to follow castration, and urged that the experiment be tried, his suggestion has been carried out; first by Ramm of Christiania, then came reports of cases from Haynes of Los Angeles, Smith of St. Augustine, White of Philadelphia, Moullin of London, and of others from Dresden, etc. During the last year experience has been steadily increasing; and

now, so far as I know, the number of reported cases is 18. The uniformity of the results in these cases is so striking that while it is as yet too early to form a final judgment as to the value of the operation, it is at least very suggestive and of great interest, and if their promise should be fulfilled, old age will have been robbed of one of its most distressing infirmities.

In regarding this claim to practically uniform success of a new surgical step, our attitude should be, as in other similar cases, critical, rather than credulous or sceptical. One thing that is noticeable is, that the record of reported cases does not contain a single failure, and that the reports do not come from one individual or one locality, but from widely separated places, such as Christiania, California, Florida, Philadelphia, London, Dresden, etc.; also that the reporters are all surgeons of high standing and are not men who are likely to record hasty judgments. I must say that when I read the report of Dr. Smith's case last year, in which he described the condition of the patient, an old man, who had had for a considerable time serious symptoms due to urinary obstruction from a typical senile hypertrophy of the prostate, and who at the time of operation had cystitis, sepsis, and beginning uremia, and was in a very dangerous condition, and in whom very speedy relief of most painful symptoms and prompt subsidence of the grave conditions (sepsis, etc.) followed the operation, and who fifteen weeks later had gained forty-five pounds in weight, urinated freely and spontaneously, and had no urinary symptoms whatever, I was strongly inclined to be sceptical with regard to this almost magical result.

The first case in which I had the opportunity to watch personally the effects of the operation was that of a patient operated on by Dr. Gavin, who has kindly offered me the opportunity of showing him here to-night, and whom I am going to ask to give you his own impression of what the operation did or did not do for his relief. [The report of this case is reserved for publication by Dr. Gavin in the Boston City Hospital Reports. I will only say that the result was brilliantly successful.]

Since Dr. Gavin's case I have operated on three patients; the opportunity to do so I owe to the kindness of my colleague, Dr. H. L. Burrell. The observations of these cases were confirmed by Drs. Thorndike, Dwight and others.

CASE I. The first patient was fifty-eight years old, he had suffered from symptoms of urinary obstruction for several years. One year ago he had retention of urine, and again three months ago. Since then he has used the catheter more or less regularly. Previously to doing so, he was threatened with attacks of retention from time to time. There was gradually increasing frequency of urination, and pain attending the act. After beginning the use of the catheter these symptoms were not relieved, but, on the contrary, became gradually worse, until during the three weeks preceding his entrance to the hospital he became an example of the most suffering form of the malady, having a painful desire to urinate every fifteen minutes day and night. This state was, I think, in part due to friction of the deep urethra by his catheter which had become roughened; but it is certain that it was not wholly referable to this cause, since well-marked symptoms of urinary obstruction had been present for several years before he had ever used a catheter, and had already reached a distressing stage.

¹ Read before the Boston Society for Medical Improvement, February 4, 1895, but now printed with changes and addenda.

When the patient entered the hospital he was unable to pass the catheter, and had retention. Between the times of passing the instrument he had been voiding a few drops of urine every fifteen minutes or so, with much straining and vesical tenesmus, and was beginning to show constitutional exhaustion from the effects of sleeplessness and pain. The urine contained a considerable quantity of blood and mucus, but was not foul, nor did it show evidence of disease of the kidneys. The patient was kept in bed and regularly catheterized five times daily with a proper instrument, and the bladder was washed with a hot solution of boracic acid at the same time. During the five days at the hospital which preceded the operation, he was unable to void spontaneously more than an ounce or two of urine in the twenty-four hours, and that only a few drops at a time, and with great pain. No benefit followed the palliative treatment, and castration was done on the sixth day. [Continuous drainage of the bladder by a catheter in the urethra was not tried before operating.]

Operation, January 3, 1895. The condition of the prostate, as noted by rectal examination, was as follows: The upper border of the prostate could not be reached by the finger. Both lateral lobes were markedly hypertrophied, and were both, the right more than the left, exceptionally dense and hard; this was especially marked in the lower half of the gland. The surface of the right lobe was somewhat uneven; and in the course of the vas deferens there was a hard, round body of the size of a pea, which was movable. The prostate did not project very prominently into the rectum, nor was it tender to the touch. It was unquestionably a typical example of senile hypertrophy of the gland, and had nothing whatever of an inflammatory character. Castration was performed through two incisions, one over each testicle, the operation being somewhat prolonged by the presence, on one side, of an encysted hydrocele of the cord, which was dissected out carefully in order to preserve it intact as a specimen. There was no constitutional disturbance whatever after the operation, and the wounds united by first intention.

All treatment, including the use of the catheter, was omitted immediately after the operation, in order not to confuse the result. Previous to the operation retention had followed immediately if the catheter was omitted. In the first twenty-four hours, although the bladder filled up considerably, it did not become over-distended, and the patient during this time voided at each urination more than he had done previously. There was no change in the frequent or painful desire to urinate; and at the end of thirty-six hours, however, he had an interval of one hour and a half without either pain or desire to urinate, and during the second night after the operation he slept undisturbed for two hours. On the sixth day he passed from two to four ounces at each urination spontaneously; there began to be much less pain on urination. Since then he has passed from four to six ounces at each urination. On the tenth day he was entirely free from pain, and the urine contained less pus and mucus. The patient slept two hours at a time at night, and the intervals between urination were from an hour to an hour and a half in the daytime; the residual urine was but three ounces.

Three weeks from the time of operation there was but an ounce and a half of residual urine, and the

urine was almost free from pus; the patient's general condition was excellent. At this time a distinct diminution in the size and hardness of the prostate was for the first time noticeable. Within the next nine days the atrophy advanced much more rapidly; the left lobe then was smaller than normal, was flat and soft, and the right was but a little larger than normal; the gland throughout was much softer and the intervals of urination had lengthened to two and a half hours in the day and to three at night.

At this time Dr. H. W. Cushing examined the patient by rectum for the first time, and the statement I have just given of the contour and condition of the prostate is that which he made to me after he had done so. The patient was again examined two months from the time of operation. The prostate was distinctly smaller than normal. There was but one ounce of perfectly clear residual urine. The patient slept five hours at a time undisturbed. In the daytime the calls to urinate are but once in three or four hours. The patient states that he feels ten years younger, and that he can work at his trade (that of a stone-cutter) as hard as he ever could in his life. This case is another example of the complete success of the operation.

CASE II. This patient, sixty-nine years old, I operated upon January 21st, removing both testicles through a single median incision, which was suggested to me by one of my students. This incision seems to me to make a neater and quicker operation than the double one usually practised.

There was but very moderate hypertrophy of the lateral lobes; the catheter passed nine and a quarter inches before entering the bladder. This patient had been using the catheter regularly for a year previous to the operation, and had had symptoms of urinary obstruction for three years. The flow of urine as it passed through the catheter was very feeble. For the past six months he had been suffering a good deal of pain, which could not be relieved by palliative treatment; the catheter could not be omitted without producing retention; the patient could pass but a few drops at a time, spontaneously. The obstruction in this case was due to hypertrophy of the median portion of the prostate. The urine contained a considerable amount of pus, but was acid, of good specific gravity, and there was no evidence of renal disease. The patient was losing flesh, strength and appetite.

After the operation the catheter could not be omitted, the wound did perfectly well, and the patient made a rapid recovery from the operation. There has been less pain, but no other improvement in the urinary symptoms, up to the present time, forty-four days after the operation. There is no perceptible change in the size of the prostate, the character of the urine remains the same, the general condition of the patient is unchanged; so that, *so far*, the second case is a failure. It is too soon, however, to judge of the final result.

CASE III. Patient, aged seventy, entered the hospital with retention of urine. He had had symptoms of urinary obstruction for several years, and an overflow bladder for several months. He was beginning to be uremic, and his condition was critical. Operation was postponed for several days, during which time he improved somewhat.

Operation, February 21st. The patient had double inguinal hernia of long standing. The gut was easily reducible, but the sacs were very thick and so closely

adherent to the testes and cords that it was impossible to separate them. The sacs were therefore divided and tied, the gut being retained within the rings by firm bandages and pads. The patient was slightly delirious before the operation, and continued to be so afterward. The prostate in this case was much enlarged; the sulcus between the lateral lobes could not be reached by the tip of a very long finger in the rectum; the lateral lobes projected prominently into the rectum. There was constant and painful desire to urinate, and at times violent bladder tenesmus, the urine being expelled involuntarily, a few drops at a time, with much force; there was also frequent dribbling of urine in spite of the regular use of the catheter; palliative treatment had failed to give any relief.

During the night following the operation, the patient tore off his bandages, got out of bed, and in a violent fit of coughing forced down the hernias, distending the scrotum, and putting the wounds on the stretch. On the following day when this condition was first discovered, it was found to be impossible to reduce the hernias. The patient's uremic symptoms became more marked during the next few days; and on the ninth day he died. At the time of operation the testes were examined for spermatozoa, but none were found. There was decided relief of bladder tenesmus and pain from the third day.

Autopsy.—The autopsy showed very marked enlargement of the lateral lobes of the prostate, and a small median enlargement. The hypertrophy was in the form of distinct fibro-adenomatous tumors, each lateral lobe containing within a much thickened capsule, a growth about the size of a large horse-chestnut. So far as could be judged, no atrophy of the prostate had occurred. The vesiculæ seminales contained no spermatozoa. The bladder was the seat of chronic cystitis. The ureters were much dilated, as were also the pelves of the kidneys, and there was an extensive pyelonephritis of both kidneys.

In closing this short note upon this new and most interesting subject, let me say that it is, of course, of great importance for the future of the operation that these earlier cases should be carefully discriminated and thoroughly examined before and after operation by two or more competent observers. Special care should be taken not to confuse cases of inflammatory, tuberculous or cancerous enlargement with those of true senile hypertrophy, and to select for operation patients in whom the symptoms are due to this cause alone and not to other complicating conditions.

It will be interesting to see, as the number of operations increases, in which special classes of cases it is to prove successful and in which it is to fail; whether, for example, it will succeed better when there are distinct fibroid tumors imbedded in the substance of the prostate—a condition, that is, resembling that of an intra-mural uterine fibroid—than when there is a more diffuse form of growth; whether the presence of spermatozoa in the testes, indicating functional activity, or their absence, will affect the result; whether median hypertrophy will atrophy as readily as lateral hypertrophy, etc. And, finally, it will be important to note whether or not there will result later any consequences injurious to the patient that can be referred to castration *per se*.

The length of time after operation at which atrophy begins varies very much in different cases. The relief to the distressing symptoms, however, is often

very rapid, sometimes beginning within twenty-four hours; this is presumably due to local circulatory changes.

The question of whether unilateral atrophy of a bilaterally enlarged prostate occurs after the removal of one testis, and if so, whether that operation may not so modify in some cases the form of the gland in such a way as to allow of the free passage of urine, has been recently raised—there is evidence both for and against the view that this may occur. The author has seen the destruction of one testis by an acute suppurative process, followed by atrophy of the lobe of an hypertrophied prostate, on the same side, and the power of partial voluntary urination restored, in one case.

CASES OF RETRODEVIAION OF THE PREGNANT UTERUS, INCLUDING A CASE OF PREGNANCY IN AN INCARCERATED CORNU AND A CASE COMPLICATED BY AN OVARIAN TUMOR; WITH REMARKS.¹

BY W. L. BURRAGE, M.D.

I PRESENT brief histories of six cases of retroversion of the pregnant uterus and fuller histories of two other cases that have come under my observation during the last five years, eight in all. The diagnosis of pregnancy was well established in every case.

The first five cases were treated as out-patients, and their subsequent histories are necessarily incomplete.

There were five cases (I to V) of uteri about two months gone and in the second or third degree of retroversion; four were treated by replacement by means of bimanual manipulation, or by packing and a pessary. There was one case (V) of an incarcerated uterus three and a half months pregnant, that, having been replaced, carried the fetus to term. Two years later the woman appeared with the uterus in the third degree of retroversion and two months pregnant. Of the two cases reported in full, Case VII was pregnancy of three months' developing in the incarcerated right cornu of the retroflexed uterus. In this and in the following case it was necessary to give ether to make clear the diagnosis and to replace the uterus. Case VIII was a retroflexed and incarcerated uterus four and a half months pregnant, with prolapse of the cervix at the vulva, and an ovarian cyst the size of a cocoanut. It was treated by bimanual replacement of the uterus and by ovariectomy, with the result of an uneventful convalescence and a living child at term.

CASE I. S. B., twenty-seven, married eighteen months, sterile. First seen June 1, 1891. Complained of vomiting every morning, and weakness for two months. Last catamenia March 20th. Diagnosis: retroversion, third degree; pregnancy, two months. The uterus was replaced by means of traction on the cervix with a tenaculum, and pressure on the fundus with a finger in the rectum. June 4th, a Thomas soft-rubber retroversion pessary was fitted. July 16th, the uterus was high up in the pelvis, and the pessary was removed.

CASE II. L. C., twenty-five, married eight months, sterile. First seen May 19, 1892. Last catamenia May 5th. Diagnosis: retroversion, uterus somewhat enlarged. She was packed for fourteen treatments, twice a week. Vomiting of pregnancy began June 1st, and continued. July 18th, there was no question as

¹ Read before the Obstetrical Society of Boston, Jan. 12, 1895.

to diagnosis of pregnancy. August 11th, the vomiting had ceased, and the uterus was so high in the pelvis that no support was necessary.

CASE III. A. O., thirty-two, married twelve years; one child, two and a half years old; no abortions. First seen March 12, 1894. Catamenia irregular for the last two months; constant pain in the right inguinal region for the last week. Catamenia always regular until two months ago, and since then has flowed one day about every week. Diagnosis; retroversion, third degree; pregnancy, two months. The fundus uteri was replaced bimanually. March 19th, the uterus was again replaced, with the patient in the knee-chest position, and a Thomas soft-rubber retroversion pessary fitted. Patient not seen again.

CASE IV. A. E., twenty-one, single. First seen March 15, 1894. No catamenia for two months; morning sickness and pain in the breasts. All the signs of pregnancy. Diagnosis: retroversion, third degree; pregnancy, two months. Not treated.

CASE V. A. C., thirty-eight, married fourteen years; six children, the youngest four; two abortions. First seen May 23, 1890. Last catamenia, February 8th. Complained of difficult micturition and pain in the small of the back for two months. Diagnosis: retroversion and incarceration of uterus; three and a half months pregnant; lacerated cervix; cystocele and rectocele. The cervix was high up under the pubic arch, and the fundus jammed in the hollow of the sacrum. With the patient in the knee-chest position the uterus was replaced. April 28, 1891, she reported that she had carried the child to term, and that it had been removed dead (by version probably). The uterus was in good position.

March 17, 1893, she again came under observation. The uterus was then in the third degree of retroversion and two months pregnant. It was treated by replacement and packing for six treatments, and then it remained in place without artificial support.

CASE VI. K. McC., twenty-eight, married seven weeks, sterile. First seen Dec. 6, 1894. Backache for a year, associated with dyspepsia and constipation. Leucorrhœa. Catamenia regular, of four to five days' duration, using six to eight napkins but accompanied by increased backache. Last catamenia October 26, 1894. In November flowed slightly one day. Backache very bad since marriage, also almost constant nausea and indigestion. Pains in stomach and breasts. Unable to work. Diagnosis: retroversion, axis of vagina; pelvic inflammation; cervix long and soft; uterus large, immovable and tender; breasts, suspensions of pregnancy.

She was treated by light packing with ichthyol and glycerine cotton for five treatments. Pain somewhat relieved by bromide. December 31st, the uterus being free from adhesions and having increased in size to that of two months' pregnancy, it was replaced by traction on the cervix with a tenaculum and lifting the fundus out of the hollow of the sacrum with a finger in the rectum. A little bimanual manipulation then restored it to a normal position. Cervix very soft. Discoloration of vagina. No question as to diagnosis. The uterus being so large, it was thought that there was little danger of its becoming reincarcerated and no pessary or packing was used.

January 3d, she returned and the uterus was again wedged in the pelvis in retroversion. It was again replaced, the patient being in the knee-chest position,

and an Albert Smith retroflexion pessary placed. She is now wearing the pessary with comfort, and the uterus is in good position. She has been partially relieved of her nausea.

CASE VII. M. X., twenty-six, wife of a physician, married three months. First seen November 23, 1893. Last catamenia September 8th. Catamenia usually regular and painless. Suffered with severe pain in left ovarian region on September 29th, after getting her feet wet. Nausea and vomiting began the latter part of October, and had persisted with great severity up to the time when I saw her. Early in November, after she had been vomiting persistently for ten days and was losing flesh and strength very rapidly, her husband introduced a bougie four inches into the uterus, and left it there over night. Next day he put in another. As a result, there was some flowing (one napkin) for a day, and relief from the symptoms for a week. A week before my visit the vomiting began again with renewed force. She could keep nothing on her stomach, vomited froth and bile every few moments, had lost fifteen pounds in weight and was becoming very weak.

Dr. X. made use of a large number of drugs without much avail. Morphine and bromide controlled the vomiting for a short time, but were poorly tolerated. November 21st, he dilated the cervix with a Palmer dilator to a one-inch spread of the blades. Since then there had been slight flowing, but no relief of the symptoms. The urine was negative. Temperature 100°.

When I saw Mrs. X., two days later in consultation, I found a tall, well-developed, dark-complexioned woman of a neurotic type. The abdominal walls were reasonably lax, so that the bimanual examination was as satisfactory as is usual in nulliparæ who are not too fat. There was some mucus and blood in the vagina. The uterus, which was enlarged to the size of three months' pregnancy, was retroflexed in the second degree and immovable. In the cul-de-sac to the right there was a mass the size of a hen's egg, that I took to be a cystic right ovary, or an extra-uterine pregnancy. The cervix appeared to be very long and the os was patulous.

It seemed best to me to give an anesthetic, in order to make a more thorough examination. Ether was given accordingly. With the aid of the anesthetic I was able to determine that the mass in the cul-de-sac to the right was not the right ovary, nor the products of extra-uterine fetation, but the enlarged right horn of the uterus that had somehow become incarcerated in the bottom of the pelvis. After considerable vigorous bimanual manipulation, I succeeded in rocking the large horn by the promontory of the sacrum, and put the uterus into its proper position. Then it was possible to map out the asymmetrical uterus and also both ovaries normally placed and of normal size. Diagnosis: pregnancy at three months in cornu; retroflexion and incarceration. A half-grain suppository of morphine was put in the rectum, and the patient put to bed.

The relief from symptoms was marked. With the exception of a slight relapse to vomiting on November 30th and December 1st, pregnancy was from this time uncomplicated; and Mrs. X. was delivered of a living girl baby, weighing five and three-quarters pounds, on April 28, 1894. I saw Mrs. X. again August 31, 1894. The uterus was then symmetrical, in good

position, and of normal size. Left ovary small. No evidence of rudimentary uterine horn.

CASE VIII. D. H., twenty-six, married two years; one child, thirteen months; no abortions. First seen October 25, 1893. Had an attack of flowing in August, 1892, two weeks after her baby was born and had not flowed since until she had a normal menstruation of five days, May 10, 1893. Was in labor five days; ether and forceps used; baby weighed ten pounds and a quarter; in bed three weeks after labor; nursed child. She noticed prolapse of the parts at the vulva as soon as she got up, and the condition persisted in spite of treatment by her doctor with packing and a ring pessary.

Early in September she thought she might be pregnant, being unable to eat her usual articles of diet, and having cravings as at her previous pregnancy. Accordingly she weaned her child. She noticed at this time that the womb came outside the body; and she suffered with dysuria and was unable to sit or walk with comfort. She also suffered from constipation and from pain above the pubes, that had been increasing in severity ever since. She complained chiefly of this pain when I saw her at the Carney Hospital, October 25, 1893. I found the cervix uteri enormously elongated, with as much as an inch and a half projecting from the vulva; deep laceration of the perineum; pelvis filled with a semi-solid tumor, apparently the retroflexed uterus about four and a half months pregnant. Above and on the right, lying on the pelvic brim, was a tumor of indefinite outline and the size of a cocoanut.

By forcible bimanual manipulation I was able to partially dislodge the pelvic tumor, and the patient was kept in bed until six days later, October 31st, when she was given ether and a thorough examination made. Dr. F. W. Johnson kindly saw the case with me in consultation. We found the fundus uteri out of the pelvis, and the cervix high; and we also made out a cystic tumor apparently of the right ovary, the size of a cocoanut.

On account of the limited space in the abdomen, and the rapidly growing uterus, it seemed best to remove the cyst by abdominal section. Having allowed a sufficient time to elapse after the etherization to prevent all fear of miscarriage, I performed ovariectomy November 10, 1893. The patient made a normal convalescence, and was delivered of a living child March 23, 1894. I saw her and her child at my office May 9th, and the uterus was then in good axis but low in the pelvis, which was justo-minor to a slight degree. I shall report the case in more detail at some future time.

In looking over the literature of the subject of retrodeviations of the pregnant uterus, I got the impression that the condition is of fairly common occurrence, and also that its early detection and treatment are of much more importance than one would be led to expect from the cursory manner in which the subject is treated by the text-books.

The most recent and most complete work on this subject that I have found is an article by Dr. Sigmund Gottschalk, of Berlin,² "Zur Lehre von der Retroversio uteri gravidi." Gottschalk contrasts a statement made in the last edition of Schroeder's text-book, to the effect that retroversion of the pregnant uterus is seldom found, and that most cases right themselves

during pregnancy, with a statement of Chrobak's that in his (Chrobak's) experience the retroverted pregnant uterus only seldom rights itself, whereas the retroflexed gravid uterus, in a vast majority of cases, does not right itself at all.

Gottschalk makes a strong plea for the distinction of retroversion from retroflexion, and sides with Chrobak in his views as to the spontaneous righting. He thinks that it is only those uteri that were retroverted before becoming pregnant that we can expect to right themselves, and with them there is much doubt. Those becoming retroverted or flexed during pregnancy have a much more unfavorable prognosis.

To show the gravity of the condition he collected sixty-seven cases of death due to retrodeviation of the pregnant uterus; the causes of death including uremia and exhaustion, gangrene of the bladder, tearing of the bladder, peritonitis in consequence of gangrene of the bowel, and occlusion of the bowel from torsion of the uterus on its axis.

I have found a case of hemichorea in pregnancy caused by acute retroflexion of the gravid uterus, the chorea disappearing on the replacement of the uterus.³ Also, a case of pregnancy in a retroverted uterus, with distension of the bladder and sloughing of the vesical mucous membrane, in which the patient miscarried at five months; recovery.⁴

W. S. Stewart reported before the International Medical Congress at Washington, in 1887,⁵ the history of a case of retroflexed pregnant uterus, first seen when two and a half months along, which was allowed to go to term. The uterus was replaced during labor; after the os was dilated it fell back, but was again replaced, and the woman was finally delivered of a living child, and made a good recovery.

This case is to be contrasted with one reported by Wenning,⁶ of dextrotorsion of the pregnant uterus simulating extra-uterine pregnancy, in which he did celiotomy at the sixth month, and the patient aborted and died of sepsis; and also with a case reported by Gottschalk,⁷ where there was acute obstruction of the bowels due to a retroflexed pregnant uterus at four months. He performed celiotomy when the patient was practically moribund, and she died in twelve hours.

It is plain to my mind that retrodeviation is a complication of pregnancy that is very likely to endanger the mother's health, or even her life; and the earlier in pregnancy it is diagnosed and treated, the better the prognosis.

As to treatment, one must distinguish clinically between the retrodeviations (1) *non-incarcerated*, and the uterus that has grown so large that the fundus cannot rise by the promontory of the sacrum, or the (2) *incarcerated*.

As to the first class, it is admitted that a retroverted and pregnant uterus, although firmly adherent, may rise up into the pelvis without artificial aid, such is the softening effect of pregnancy on adhesions. That is to say, it is possible it may not enter Class 2. It is seldom that the attending physician is able to diagnose a retrodeviation occurring during pregnancy from one originating before pregnancy. When seen in the early months, especially when adhesions are present, the presumption is that the malposition antedates the

² Cameron, J. C.: Montreal Medical Journal, 1891-2, xx, 493-501.

³ Corkhill, J. G. G.: Lancet, 1887, ii, 1311.

⁴ See Transactions, ii, 446.

⁵ American Journal of Obstetrics, 1890, xxiii, 155-167.

⁷ Loc. cit., p. 361.

² Archiv für Gynäkologie, 1894, xlvii, 358-383.

pregnancy. Such a distinction is, to my mind, of no importance as far as treatment is concerned.

I contend that it is safer and that the danger of abortion is less, to treat all retroverted pregnant uteri as soon as diagnosed, with packing and pessaries until such time as the organ has become so large that it cannot fall backward into the pelvis. This will be between the third and fourth month.

I think that there is a belief in the profession that pregnant uteri should not be treated by vaginal packing, and that packing the vagina causes abortion. This I believe to be erroneous. Certainly such treatment did not cause abortion in the cases I have reported. When the uterus is replaceable and has been replaced, it should be held in the normal position by a suitably-fitted pessary. It is well to leave out packing during the times that would be the menstrual periods.

As regards Class 2, the incarcerated uteri, the treatment is to dislodge the fundus and put it in its proper position as soon as possible. To this end ether may be necessary, although in a majority of cases the replacement is readily performed by placing the patient on her back with knees drawn up, seizing the cervix with a tenaculum and pulling downward on this, and at the same time pushing the fundus up with one or two fingers in the rectum.

When the fundus is emerging from the pelvis, I let go with the tenaculum and pushing the cervix backward with a finger in the vagina, massage the fundus forward, with my other hand on the abdomen. When this method proves unsuccessful, I put the patient in the knee-chest position and repeat the procedure.

In Case VIII, which exhibited a most unusual combination of pathological conditions, the uterus was so large, being four and a half months pregnant, that very forcible manipulation succeeded in only partially dislodging the fundus. Several days later, however, it was found in its proper position.

The small size of the child in this case is of interest. It seems probable that the surgical interference and the cutting off of the ovarian artery on one side was accountable in a measure for this. It is safe to say that had the case been allowed to take its course without surgical aid, she would either have aborted or had a difficult labor.

In Case VII, it occurs to one as strange that the introduction of two bougies four inches in the uterine cavity and subsequent dilatation of the cervix did not produce abortion. The explanation is found in the fact that the products of conception were located in the uterine horn and were not reached by the bougies.

Cases VII and VIII are striking instances of the great tolerance of the pregnant uterus; and their happy outcome, as well as the results of my investigation of the literature of the subject, confirm me in my belief that all retrodeviations of the pregnant uterus should be treated by replacement as soon as diagnosed.

Symptoms of exaggerated backache, dysuria, intractable nausea and vomiting, or pelvic pains occurring during early pregnancy, should lead at once to a biannual examination, and the physician should satisfy himself that the uterus is in proper position.

SULPHUR FROM IRELAND.—Sulphur was once a lucrative product of Ireland, and mines were worked at Ballymontagh in the County Wicklow. It is now believed that the mines can still be worked on profitable terms, and it is likely that they will be re-opened.

Clinical Department.

A CASE OF EMBOLISM OF THE RIGHT FEMORAL ARTERY APPARENTLY FROM CARDIAC WEAKNESS.¹

BY SAMUEL L. ABBOT, M.D.

THE patient was a middle-aged married woman, in comfortable circumstances, who up to the time of the attack was in fair health. There was no history of previous rheumatism or influenza. Her health had not been robust at any time, but she was not an invalid. She was in the habit of drinking beer moderately every day.

The first intimation of the attack was a moderate pain in the right foot, coming on in the afternoon. Towards night the foot became very white and extremely cold. The next morning while walking across the room the patient's leg gave way under her and she turned her right ankle painfully. There was some purple discoloration above the ankle, and the leg below the knee had become quite cold. She was still able to walk with some difficulty. The following morning, on coming down stairs, she was seized with a very acute pain in the outer cords of the popliteal space, which led her to suppose that she had ruptured something at this spot. From this time she was unable to walk. On this day I saw her for the first time, and found the outside of the leg from the knee down of a deep purple color, exactly like that of a venous clot, and there were several spots of purplish ecchymosis on the inside up to the knee. The whole leg from the knee down was extremely tender to the touch and considerably enlarged from edema; the circumference at the calf of fourteen and five-eighths inches, being two inches greater than that of the left calf. The outer hamstring tendons and the popliteal space were exquisitely tender to the touch, but no evidence of special local injury could be detected. Pain was felt on movement from the knee to the toes. Except for the local trouble the patient considered herself to be in her usual health. Her appetite was natural and her skin was cool. Her temperature, on the only occasion on which it was taken was 100°.

No pulse could be felt in the femoral artery at the groin, nor in that of the left groin. The left leg was apparently in its normal condition.

On examination of the heart its action was found to be extremely weak, pulsation 160 beats to the minute. There was a distinct want of emphasis to the second sound, and it was nearly as long as the first, the rhythm being very like that of the fetal heart. There was no abnormal cardiac murmur, no local tenderness or enlargement of the organ. At the wrist the pulse was extremely weak.

The leg was kept flexed at the knee as extension was extremely painful. Warm foot-baths were prescribed, the limb in the intervals being wrapped in several thicknesses of cotton wadding. A pill of one-thirtieth of a grain of sulphate of strychnia was prescribed, to be taken every two hours, with one minim of a one-per-cent. solution of glonoin. Five-grain tablets of Dover's powder were prescribed, to be taken, *pro re nata* for sleeplessness.

On the next day the limb was perfectly cold from two or three inches above the knee down, and the swelling was increasing upwards. The leg was not

¹ Read before the Boston Society for Medical Improvement, January 7, 1895.

painful when at rest, and was considerably less tender to the touch and somewhat less cold. The pulse had fallen to 120, but was somewhat intermittent, although stronger. The patient ate her usual amount of food with relish. The dose of strychnia was increased to one-twentieth of a grain and the solution of glonoin to two minims.

On the fifth day of the attack there was considerable edema of the *left* leg, extending half way up to the knee, without pain or discoloration, or apparent reduction of temperature. The ecchymosis of the right leg was increasing and passing around to the calf on the inside. Pulse 111, stronger and more regular. The heart-sounds were also stronger, and the rhythm was much better. There had been no uncomfortable feeling in the head from the glonoin, and the dose was increased to three minims of the solution, with five minims of the tincture of digitalis; the strychnia was continued.

On the next day the pulse had risen to 132; temperature 100°. Ecchymosis extended above the knee, with swelling and tenderness. Below the knee the leg was somewhat smaller, apparently from a constant exudation of bloody serum from behind, the cuticle being somewhat detached, perhaps owing to hot applications to the part at the outset of the trouble. The patient had had a good night under the influence of thirty grains of Dover's powder in divided doses. Her appetite was good and she had eaten a chop for breakfast.

On the seventh day there was a little twitching of the tendons of the wrist, and the strychnia was directed to be given at intervals of four hours. Pulse 102, a little irregular. Sole of foot warm. The next morning the patient was moribund, there being no pulse at the wrist.

I am led to report this case, as it must be one of great rarity. It is only the second that I have seen in a long professional experience. The first was under my care in the Massachusetts General Hospital and occurred in a patient affected with malignant endocarditis. In that case there was evidence of obstruction at the mitral valves, probably from a thrombus. In the course of the case embolism of the right femoral artery occurred, with disappearance of the cardiac souffle and the pulse in the right femoral artery at the groin. Under the use of glonoin the pulse returned to the groin, the embolus evidently being forced down the artery from the increased freedom of the circulation below, and the spots of venous ecchymosis turned to a raspberry color from the increased force of the circulation. In this case also the patient died.

In the present case there was no autopsy, and the only probable cause of the symptoms seems to have been the heart weakness. There was no gangrene in either case.

CANCER OF RIGHT KIDNEY; NEPHRECTOMY; NO RECURRENCE AFTER EIGHTEEN MONTHS.

BY WILLIAM N. SWIFT, M.D., NEW BEDFORD, MASS.

A. G. T., forty-seven years old, butcher. No history of malignant disease in the family. Three sisters died of phthisis pulmonalis. Well until two years before, then began to run down. No definite symptoms until spring of 1893. Began to have night-sweats, and noticed a bunch in right side of abdomen.

I saw him in June, 1893. The patient was anemic, but showed no other symptoms except a tumor in right side of abdomen, about the size of a small cocoanut. It was just below the ribs, and extended back to the loin. Was slightly movable and somewhat tender on pressure. The patient complained of distress in the region of the tumor, but no sharp pain. Also distress in the right side of back, most marked when stooping over. Could not lie on left side at night, as it increased distress. Micturition frequent and little at a time. Marked sagging feeling in both testicles, and at times some pain in right testicle. The patient complained of weakness and profuse sweating. Urine normal in quantity, but contained small amount of urea. No albumin or abnormal deposit.

A diagnosis of probable tumor of the kidney was made, and operation advised. The patient decided to wait.

During the summer his weakness and sweating became more marked, and also the distress in his side.



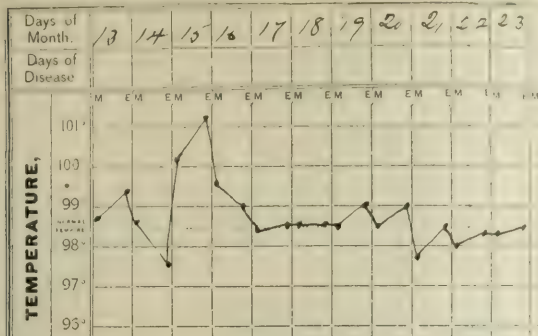
Operation, September 13, 1893, at St. Luke's Hospital. An incision, five and a half inches long, was made over the middle of the tumor three and a quarter inches from the median line. The tumor at once presented. It seemed to contain fluid, but a needle showed it to be a solid growth. It was enucleated without difficulty, and was found to come from the lower part of the right kidney. The kidney and tumor were removed. The ureter was tied, and its free end touched with strong carbolic acid. The vessels were tied with silk by transfixing the pedicle. The abdominal wound was sewed up in layers with catgut. Every precaution was taken to make the operation aseptic. No antiseptic solutions were used except for washing the patient's skin and operator's hands.

The tumor was as large as a good-sized cocoanut. It originated from the lower and outer part of the kidney, and was completely encapsulated. Microscopic examination showed it to be a carcinoma.

The patient did perfectly well, and left the hospital on the twenty-third day.

The amounts of urine passed on the days following

the operation were: September 13th, 12 ounces; 14th, 16 ounces; 15th, 16½ ounces; 16th, 22 ounces; 17th, 15 ounces; 18th, 28 ounces; 19th, 22 ounces; 20th, 30 ounces; 21st, 36 ounces; 22d, 31 ounces; 23d, 31 ounces.



After the operation the patient at once began to gain, and now considers himself in perfect health. He has driven a butcher's cart all winter, and has not missed a day's work. His urine at present is normal in quantity, contains a normal amount of urea and no albumin or abnormal deposit.

Medical Progress.

REPORT OF PROGRESS IN PUBLIC HYGIENE.

BY S. W. ABBOTT, M.D.
(Concluded from No. 15, p. 360.)

THE SANITATION OF THE ROMAN CAMPAGNA.⁵

THE malarial character of the Pontine marshes has been known for centuries. The region has become deserted on account of its poisonous exhalations, due to imperfect drainage, and the peculiar character of its undulating volcanic soil. Soon after the unification of the Kingdom of Italy, the reclamation of this region began to receive careful consideration from the government, and various measures were proposed to remedy the evil. At one place plantations of eucalyptus trees were made, which proved a failure so far as an effectual amelioration of the miasma was concerned.

The drainage of the soil finally was believed to be the proper remedy, and the work was entered upon soon after the enactment of a law of 1878 providing for the carrying out of the scheme.

The basin, fringing the ancient, but now disused southern arm of the Tiber estuary, on which once stood the city of Ostia, contains a low-lying tract having the following area:

	Acre.
a. Permanently submerged	1,600
b. Inundated in winter	768
c. Saturated and useless	2,008
d. Higher ground, fairly dry	227
A total of 4,603 acres, or about 7 1-3 square miles.	

The upper levels are to be drained by gravitation, and the lower areas by pumping. The high level drains comprise a total length of nearly 79,000 feet. Two engines pump the water of the low levels. The pumps were started in December, 1889, with the water about twelve inches above the marshes; and after 116 hours of intermittent working, the water-level was reduced over the whole marsh 19½ inches.

⁵ *Giorno del Genio Civile* 1893, p. 265.

After this the work was continued at different times till the water-level was reduced six feet lower. The average working period is 1,200 hours per year.

The cost of the whole works, including working expenses and maintenance has been about \$115 per acre.

The reclamation of the whole area has now been effected; the district is becoming repopulated, and plentiful crops of wheat, barley and oats are now raised upon the land.

MUNICIPAL SANITATION.

In the literature of sanitary science one of the most noted papers of the half-century nearly closed, was the report of the Chief Medical Officer of the Privy Council of England,⁶ in which it was shown that a marked decrease in the mortality of certain English cities was coincident with important improvements in municipal sanitation, consisting mainly of the introduction of pure water-supplies, systems of sewerage, disposal of offal, etc.

A discussion has recently occurred in the Berlin Medical Society, in which similar facts were brought out in regard to the effect of the magnificent works now in operation in that city upon the health of its inhabitants. One writer (Zadek) had attempted to prove that this improvement or decrease in the death-rate was due to a decrease in the birth-rate and to changes in social conditions, and not to sanitary improvements. Dr. Oldendorff answers him very fully in a paper bristling with figures, proving very conclusively, the fallacy of Zadek's views, and taking a similar position to that which Dr. Farr had taken many years earlier in regard to the decline of the death-rate of London.

Dr. Oldendorff⁷ shows that the improvement in the health of Berlin is chiefly manifest in the decline of infant mortality in the past ten years. This decrease is a measure of the improvement in the health of the city and is shown not only among the children of the poor but among all classes.

He presents a table, in which the general death-rates, the death-rate of children under one, as compared with the total population, and with the births for each of the thirteen districts of the city, are given for the four years, 1876, 1880, 1885 and 1890; and in each and every instance the decrease is shown.

The two decades, 1871-80 and 1881-90, are then compared with each other with reference to the mortality per 10,000 from each of ten causes of death, showing an improvement in all except measles and whooping-cough. The figures are as follows:

MORTALITY PER 10,000 OF THE POPULATION, FROM CERTAIN DISEASES, IN BERLIN.

Causes of death.	1871-80.	1881-90.
Measles	2.3	5.1
Scarlet Fever	5.7	3.5
Small-Pox	8.1	0.1
Typhoid Fever	7.3	2.0
Dysentery	2.0	0.6
Diarrhea and Cholera Morbus	48.1	32.8
Diphtheria and Croup	16.0	14.3
Whooping-Cough	3.2	3.3
Phthisis	35.3	32.3
Acute Lung Diseases	17.0	16.1

⁶ Ninth Report of the Privy Council, 1866. Report by Dr. Buchanan on the results which have hitherto been gained in various parts of England by works and regulations designed to promote the public health.

⁷ Die Sterblichkeitsverhältnisse Berlins mit besonderer Berücksichtigung der Verhandlungen der Berlin. Med. Gesellschaft über den Einfluss hygienischer Massnahmen auf die Gesundheitslage. Von A. Oldendorff. Centralblatt für Allgemeine Gesundheitspflege, xlii, 1894, p. 327.

Comparing Berlin with the sixteen Prussian cities having over 100,000 inhabitants, it had advanced from the twelfth rank in relation to mortality in 1876, to the sixth place in 1891.

When compared with the 92 cities of over 20,000 people it had the twenty-eighth place in relation to the general mortality, and the ninth in regard to the mortality of infants under one year.

While, in Berlin the mortality of infants had decreased by 34 per 100 births, in the surrounding province of Brandenburg it had increased 12 per 1,000. The greatest improvement in infant mortality had been in the decrease of deaths from diarrhea and cholera infantum.

There has also been shown a very marked decrease in the death-rate from typhoid fever—from 6.3 per 10,000 living in 1876 to 0.9 in 1890.

One of the most convincing of the many tables presented is that which gives the mortality, after the introduction of a thorough system of sewerage, of the inhabitants living in houses connected with the public sewers as compared with those which were not thus connected. The houses are divided into three groups, according to the number of tenants; and the improvement in health, of the well-sewered houses is distinctly shown.

The author concludes that the improvement of the health of Berlin is mainly due to the introduction of these great public measures; the well-filtered water-supply, and the removal of the sewerage by the radial system to irrigate fields outside the city.

INFANT MORTALITY.*

In a paper upon the maintenance of helpless infants, Dr. Krisowski gives many facts relating to infant mortality in general. He quotes a summary of Wappaeus and Oesterlen of from fifteen to sixteen million deaths in all Europe—in which it is stated that the mortality of infants under one year averages 20 per cent. of the total mortality in the whole of Europe, the extremes being 10.4 per cent. in Norway and 36 per cent. in Württemberg.

The average mortality of children up to the third year of life for all Europe is, according to the same author, 33½ per cent. of the total mortality.

The following table from the official Prussian statistics gives the mortality of infants and children up to five years of age, expressed as a percentage of the mortality of the first five years of life:

	Per cent.
First day of life	2.9
Second "	1.7
Third "	1.1
Fourth "	0.7
Fifth "	0.6
Sixth "	0.7
Seventh "	0.8
First week of life	8.5
Second "	4.5
Third and fourth weeks of life	7.0
First month of life	20.0
Second "	10.0
Third "	6.0
Fourth "	5.0
Fifth "	4.0
Sixth "	3.5
Seventh "	3.0
Eighth "	2.7
Ninth "	2.6
Tenth "	2.4
Eleventh "	2.3
Twelfth "	2.3
First year of life	65.0

* Ueber die Versorgung der hilflosen verlassenen Kinder. Vierteljahrschrift für öffentliche Gesundheitspflege, vol. xxvi, 1894, p. 517.

	Per cent.
Second year of life	16.5
Third "	8.5
Fourth "	6.0
Fifth "	4.0
	100.0

The author quotes the following figures relative to the mortality of infants under different social conditions. The mortality of children under one year of age where the parents had a yearly income of

	Per cent.
Less than 600 marks, \$145	29
600 to 1,500 marks, \$145 to \$360	25
1,500 to 3,000 marks, \$360 to \$720	18
Over 3,000 marks	15

He also shows that the mortality of infants from diseases of the digestive organs, as compared with living births, was:

	Per cent.
For children nursed by their mothers	0.74
For children nursed by wet-nurses	0.77
For children fed upon cows' milk	4.21
For children fed upon milk substitutes	6.77

Illegitimacy also has a marked effect on infant mortality, the percentage of deaths of legitimate and illegitimate infants, as compared with births, being as follows according to Uffelmann:

	Legitimate.	Illegitimate.
In France	14.0	30.0
In Austria	22.9	35.1
In Sweden	14.4	24.8
In England	14.0	35.0
In Bavaria	39.6	45.0

These figures differ considerably from those of factory towns in England. Dr. C. Porter, of Stockport, England, gives the following as the result of five years' observation (1889–93) in that city:

"The number of deaths on the *first day of life* is three times greater than that on any succeeding day, and considerably exceeds the combined total of the deaths in the remaining days of the first week. On the second day, mortality falls to one-third of its previous height, and then continues to decline rapidly.

"The deaths during the *first week of life* constitute more than half of the deaths in the first month of life. The rate of mortality in the first week is such, according to the registrar-general, that if maintained uninterruptedly, every infant born would die long before completing its first year of life. In the *second week*, however, mortality falls to less than one-third of its previous height.

"The infant mortality of the *first month*, is nearly double that of any other month, and amounts to about one-fifth of all such deaths. In the second month it falls to about one-half its previous height. In the third month there is but little diminution; but thereafter the mortality decreases gradually, except in the eighth month."

The foregoing figures apply to a manufacturing town of about 150,000 population, and hence might be considerably modified by a longer experience and a large number of city populations.

In summing up the causes of the high rate of infant mortality in Stockport, Dr. Porter mentions, as the diseases or causes of death certified: (1) prematurity and low vitality at birth, (2) respiratory diseases, and (3) diarrheal and digestive disorders. As other and important causes, he mentions, primarily, the employment of young married females away from home, the ignorance of working mothers as to infant-feeding, the administration of opiates, illegitimacy and infantile in-

° Public Health, vol. vii, January, 1895, p. 138.

surance. (62.8 per cent. of all the children in Stockport who died under five year of age were insured.) Another cause is the attendance of *ignorant and unqualified midwives*, a class whose advent at the bedside is fraught with danger, both to the mother and the child.

In the discussion which followed this paper prominence was given to the subject of the employment of married women away from home, and further statistics were given relative to Blackburn, a city of 200,000 inhabitants, supporting the same view.¹⁰

COMPARATIVE MORTALITY FROM PHTHISIS IN ENGLAND AND IN MASSACHUSETTS.

The mean annual death-rate per million inhabitants living in ten-year periods is shown in the following table:

	England.	Massachusetts.
1851-60	2,679	3,993
1861-70	2,475	3,495
1871-80	2,120	3,280
1881-90	1,780	2,935
1891-93 . . . . .	.....	2,360

Other tubercular diseases are not included in this summary.

The death-rate from consumption, per ten thousand of the population living at each age-period in Massachusetts is given below:

Ages.	1863-90.	1890.
0 to 5	17.25	14.62
5 to 10	3.23	3.24
10 to 15	6.49	6.62
15 to 20	31.75	27.77
20 to 30	50.25	45.23
30 to 40	43.83	43.31
40 to 50	36.74	35.88
50 to 60	36.51	30.24
60 to 70	48.00	33.85
70 to 80	60.22	33.72
Over 80	44.48	33.51
All ages	31.67	25.09

LEAD-POISONING CAUSED BY THE USE OF SUGAR OF LEAD IN REPAIRING A MILLSTONE.¹¹

In November and December, 1893, several persons living at Lang-Göns, near Giessen, were attacked with lead-poisoning. It was assumed that the illness was caused by lead enamel in the family cooking-utensils. An examination showed that the utensils were free from lead. Attention was then directed to the food; and it was found that the flour came from a grist-mill to which the farmers took their grain to be ground. Out of eleven samples of flour and four of bread made from it, seven of the former and three of the latter contained lead, the amount varying from .013 to .068 per cent. of the ash. It was a matter of interest to discover whether it existed in the metallic state or as a salt. It was found to exist as a soluble salt.

Analyses of fragments of the mill-stones of the suspected mill, and of substances used to repair the same, showed that a grayish-white substance was used to fill up gaps and cavities in the top stone which, according to the miller's statement, was "alum." But analysis proved it to be acetate of lead. The question, how the miller came to use this poisonous substance was submitted to a court trial, but the result was not stated.

¹⁰ It is undoubtedly due to the same cause that the relative mortality from cholera infantum in Fall River for a period of twenty years surpassed that of any city or town in the State, being nearly double that of Boston. It was also true that the percentage of married women employed in the mills, as compared with the total population of the city, was higher than that of any other city or town.

¹¹ Zeitschrift für Hygiene, 1894, p. 1.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, February 4, 1895, Dr. C. J. BLAKE in the chair.

A NEW CANULA.

DR. BRIGGS showed a new self-retaining drainage canula.

DR. F. S. WATSON read a paper on

CASTRATION FOR HYPERTROPHIED PROSTATE,¹

and showed a patient on whom this operation had been performed by Dr. M. F. Gavin.

The patient, in answer to questions, said: "This trouble commenced six years ago. There was frequent desire to pass water, which increased until a year and a half ago; I had to pass water every hour or two. Indeed, the stream almost entirely stopped. The pain in the penis was terrible when trying to pass water; and the only way I could succeed was by the application of hot water. After applying hot salt water for fifteen to thirty minutes I could pass one-half to one teacupful. Then the condition grew worse, so that I could pass only a tablespoonful at a time, and with most terrible pain through the penis and neck of the bladder. That condition persisted up to the time of the operation. I was able to sleep only a little owing to pain, and I became very much used up. I lost about thirty pounds in weight. Since the operation, October 3, 1894, I have gained thirty-five pounds, and I never felt better in my life. I suffer no pain now. The water is clear, and I think I empty the bladder. I find that my mind works quicker than before the operation."

DR. CABOT: This subject is one of the new and interesting questions in surgery, and the immediate good effect of the operation is certainly attested by the cases that Dr. Watson has reported, as well as by a considerable number of previously reported cases. I am also cognizant of a few cases which have not yet been reported, some of which are favorable, but one or two of which are not so favorable. The effect of castration in reducing the size of the chronically hypertrophied prostate is undoubted. A sufficient number of cases have been reported to show that. Whether this operation has any decided effect upon prostates which are filled with fibroid tumors, which are therefore in a condition analogous to that of the uterus with its fibroid tumors, is as yet doubtful. We have not sufficient information in regard to cases of that sort.

I think that one point which ought always to be taken into account before much is promised from the operation, is the condition of the bladder. A bladder which has been long distended behind a hypertrophied prostate, which therefore contains a good deal of residual urine and has lost its muscular contractibility, cannot be expected to recover its functions and provide for normal urination as completely as a bladder which, always striving against an hypertrophied prostate, has itself become hypertrophied. A concentrically hypertrophied bladder would naturally provide power for urination where a dilated and thinned bladder would not. So much for the local question.

¹ See page 378 of the Journal.

In regard to the more general question of the effect of castration upon these patients, I think we have everything to learn.

The operation is one of no danger, takes but a few minutes, and confines the patient to the bed, usually, but for a few days. If so simple an operation will save the patient all the discomfort of an hypertrophied prostate, it is an enormous advance in our means of treating this class of cases. We should not lose sight, however, of the possible disadvantages which the operation may entail, and in regard to which we are as yet so much in the dark. We know but little of the functions of the testicles as possibly affecting the nervous system, and sufficient time has not elapsed since this operation has been practised to supply us with information upon this point. We know that after thyroidectomy had been practised for some years with good success, it was discovered that certain very serious changes in the patient sometimes followed the operation. Whether any similar serious results will follow the operation of castration in men who are already entering upon old age, we cannot yet tell. We know, however, that many men, prominent in the treatment of nervous diseases, are using testiculin as a remedy in certain grave nervous disorders and are reporting good results from its use. This fact may well lead us to reserve our opinion as to the final place of this operation. It may be necessary to wait for considerable time before we can ascertain whether castration is followed by any decided diminution in vitality, or whether senility comes on more quickly after loss of the testicles. Certainly, many patients will demand knowledge on these points before consenting to undergo the operation. One patient discussing the question of submitting to the operation, asked whether it would have any effect upon his voice, as he had to do a great deal of public speaking. This is another point which may need time to clear up, although the probability is, that no such effect will be produced in a mature voice.

DR. WATSON: In regard to the senility of which Dr. Cabot spoke, one of the points I meant to make was that it was important to know if any changes injurious to the general health of the patient would occur after the operation. But we must remember the stage of the disease in the one to whom we give that advice. To the man who is going to die in a few weeks the question of general injurious results, if any, that might follow the operation, does not concern us so much as the possible immediate benefits. I think that is a very important point Dr. Cabot has made, however, as to our being able to urge the operation at an early stage of the disease.

DR. CABOT: I agree with Dr. Watson, that in patients who are in a desperate condition the operation is a perfectly proper one, and one that I am recommending and using in such cases. If, however, the removal of the testicles is to have no deleterious effect, the operation should have a much wider applicability than to these desperate cases. If there are no objections to its use, patients with commencing trouble from their prostates, might, by resorting to it early, save themselves from any of the secondary effects in the bladder and kidney which lead to such serious consequences.

DR. BRADFORD asked if there was any accurate evidence as to the value of testiculin. The fact that it had been used in tabs is hardly of sufficient value to justify its acceptance as a therapeutic agent, as so

many various measures have been tried in that affection.

DR. H. P. BOWDITCH: I suppose that the doctor is aware of the fact that the French journals have a good many cases of reported success in treating a great variety of cases with testiculin. I do not know how much allowance is to be made for French enthusiasm. A gentleman who came home from Paris a year or two ago said about half the members of the French Academy were taking the treatment.

DR. G. H. MONKS read a paper on

THE MUSCLES OF EXPRESSION.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., BOSTON.

THIRTY-FOURTH Annual Meeting, January 12, 1895, the President, DR. CHARLES M. GREEN, in the chair.

DR. EDWARD REYNOLDS reported

CASES OF RETROVERSION OF THE PREGNANT UTERUS.

DR. W. L. BURRAGE reported

CASES OF RETRODEVIAION OF THE PREGNANT UTERUS, INCLUDING A CASE OF PREGNANCY IN AN INCARCERATED CORNU, AND A CASE COMPLICATED BY AN OVARIAN TUMOR.¹

DR. A. D. SINCLAIR said that incontinence of urine from overflow of a distended bladder was a symptom he had noticed in several cases of retroversion of the pregnant uterus. In one case he withdrew 106 ounces of urine and then had no difficulty in replacing the uterus.

DR. F. H. DAVENPORT said that he had seen a case where the only complaint made was inability to pass urine. He found an incarcerated retroverted uterus. Packing relieved the symptoms and later a pessary was used. He referred also to a case, where the uterus formerly retroverted without symptoms, resumed the normal position as soon as the patient became pregnant.

DR. G. H. WASHBURN spoke of a case where the patient was said to have had two "false conceptions" at three months. She again felt the same symptoms coming on after three months amenorrhea. He found a retroverted pregnant uterus, which he held in position with packing and the patient went to full term. After delivery the uterus returned to the retroverted position and she again became pregnant. The same conditions demanding the same treatment occurred as before and everything went well.

DR. C. M. GREEN was especially interested in these cases from the absence in all of bladder trouble, meaning by that either retention or difficulty in passing urine. After an unfortunate experience resulting from packing, he has never dared to pack the vagina in pregnancy for fear of producing abortion. He was, therefore, interested to learn that some of these cases had been packed without harm.

DR. J. R. CHADWICK said he wrote a paper some twelve years ago incorporating eighteen cases of this affection. He entitled the paper "Pregnancy of the Retroverted Uterus," as he considers that the state of affairs, and not that the normally placed pregnant

¹ See page 380 of the Journal.

uterus becomes retroverted. He rarely used ether in his cases. In two cases he failed to raise the uterus without ether, but the uterus in both cases returned later of itself to the normal position. He also found that putting in a ring pessary with the uterus still retroverted gradually brings the uterus into place. He has been generally disappointed with the kneechest position and prefers to correct the displaced uterus with the patient standing erect. This causes the uterus to descend and a little pressure will make the uterus fall forward. If the uterus stays in place after reposition he feels sure it is pregnancy, if not it might be pregnancy or might be fibroid.

DR. EDWARD REYNOLDS said he had used ether in four cases mainly if not wholly for diagnosis; but with ether reposition is easy, while without it it is often difficult. The papers to-night certainly showed the importance of examining a pregnant woman as soon as she complained of pelvic pains.

DR. A. D. SINCLAIR confirmed Dr. Chadwick's observation that it was often easy to replace the uterus in the erect position.

DR. W. L. BURRAGE reported orally

A CASE OF FIBRÓID OF THE UTERUS,

and showed the specimen. The patient was thirty-nine years old, single. The tumor was growing very rapidly. He performed laparotomy and found that the tumor came up under the peritoneum from the region of the internal os pushing the uterus into the right iliac fossa. The tumor when removed weighed ten and one-quarter pounds. The patient made a good recovery.

DR. A. D. SINCLAIR spoke of a case he had followed for ten years. In the last six months it had grown very rapidly and was removed by operation.

DR. A. WORCESTER reported

A CASE OF RUPTURE OF THE MEMBRANES IN THE SIXTH MONTH.

The patient, a multipara, was put to bed, and for eight weeks the liquor flowed away, delivery not taking place till the end of this time, which was within three weeks of full term. The liquor was caught on pads and weighed, fifteen pounds being collected in this manner. The infant weighed six pounds, was apparently well, but died suddenly on the second day.

DR. C. W. TOWNSEND spoke of a case he had attended two years ago where the membranes ruptured four weeks before the birth of the child which occurred about one week ahead of time. Six or eight napkins were soaked daily with liquor. The child lived.

Recent Literature.

A Manual of Hygiene. By MARY TAYLOR BISSELL, M.D. New York: The Baker & Taylor Co. 1894.

This manual was, as the author states, primarily written for medical students, as a text-book of hygiene adapted to American conditions, for use in the class-room.

The different topics embraced under the head of public and individual hygiene, are treated in twenty chapters, with marked clearness, and with sufficient fulness of detail for the purposes of the general student, either in the professional schools or in the higher grades of schools and colleges.

THE BOSTON

Medical and Surgical Journal.

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ON HEREDITARY CEREBELLAR ATAXIA.

UNDER the name of "Hereditary Cerebellar Ataxy" (*Héréd-Ataxie Cérébelleuse*) Dr. Pierre Marie has recently called attention to a morbid syndrome resembling Friedreich's disease, and which seems to claim a place apart in nosology.¹ Marie's description is based on sixteen cases, two of which are furnished by Fraser,² three by Nonne,³ eight by Sauger Brown, and three by Klippel and Durante.⁴

Since the publication of Marie's paper, Dr. Paul Londe, editor of the *Annales de Médecine*, has reported three carefully observed cases (in collaboration with Drs. Brissand and Robin); has also collected a series of cases published prior to Marie's researches, apparently belonging to the same group, and has embodied the results in an excellent monograph just issued by Bataille et Cie., Paris.⁵ From a study of these publications, we draw a brief *résumé* of the principal characteristics of the disease in question.

By its symptomatology, cerebellar heredo-ataxy resembles Friedreich's disease. There is the same staggering gait, the same pains and numbness in the lower limbs. The knee-jerk, however, is not lost; it is, on the contrary, exaggerated. At a later date, the arms become affected with incoördination; arms and head tremble; vertigo is a frequent, not constant, symptom; Romberg's sign is always absent; the patient has no difficulty in walking with the eyes shut.

On observing the gait of a person afflicted with cerebellar heredo-ataxy, one cannot but notice the two principal symptoms—the disorder of equilibrium, especially manifest in the staggering and in the difficulty which the patient experiences in standing; and the incoördination of movements of the lower limbs. The titubation disappears when the patient lies down,

¹ Semaine Médicale, 1893, p. 444.

² Fraser: Defect of the Cerebellum occurring in a Brother and Sister, Glasgow Medical Journal, 1880, p. 50.

³ Nonne: Arch. f. Psychiatrie, 1871, p. 283.

⁴ Klippel and Durante: Contribution to the Study of Family and Hereditary Nervous Affections, Revue de Méd., October, 1892, p. 745, and Semaine Médicale, 1892, p. 467.

⁵ Paul Londe: Héréd-Ataxie Cérébelleuse, p. 248, Paris, 1895.

but in typical cases the muscular incoördination persists.

The ataxia of the upper extremities (a late symptom) is accompanied by certain trembling movements which only exist during the performance of acts of volition, and resemble the "intentional trembling" of multilocular sclerosis. Choreiform convulsive shocks, exaggerated contractions of the muscles of the face and ataxia of speech have been noted by several of the authors. The utterance of the patient, says Londe, is slow, jerky; the words are sometimes spoken in a precipitate, explosive manner, as if there was ataxy of the articulatory muscles. There is especial difficulty in the enunciation of certain letters, as labials and palatals. The voice is often indistinct and guttural. There is a peculiar rotatory trembling of the head during emotion or during standing, which is very characteristic.

It might be supposed that the disorder of equilibrium was due to abolition of the muscular sense; but this, says Londe, is not the case; for in all the observations where it has been tested, the muscular sense has been found intact. The muscular force is not greatly diminished.

These heredo-ataxics suffer greatly from sensations of fatigue, especially marked in the morning, often accompanied by headache and backache, numbness and cramps in the limbs, twitchings, and other symptoms essentially neurasthenic. There is a *stolidity* about the countenance of these patients when asleep (relaxation of the muscles of the face), and an aspect of amazement when they are awake (excess of contraction) quite characteristic, and remarked by both Sanger Brown and Londe.

The symptoms of psychical enfeeblement shown by these ataxics (irritability, diminution of the faculty of attention, hebétude, failure of memory) are sufficiently pronounced, but the ocular troubles are the most marked. These are: (1) atrophy of the papilla, generally bilateral, often slight, sometimes complete; (2) a consequent contraction of the visual field and diminution of visual acuteness; (3) disorders of the external ocular muscles, manifested by "nystagmiform or choreiform shocks" (not by true nystagmus). Many of these cases, says Marie, have presented a degree more or less pronounced of paralysis of the external rectus; Nonne observed paralysis of the rectus superior; Sanger Brown, an incomplete ptosis "giving to the countenance a singular expression of intense emotion."

The term "hereditary cerebellar ataxy" expresses the three fundamental characters of the disease. The ataxy we have above considered — there is both ataxy and titubation, and the latter, as Londe remarks, is strikingly suggestive of cerebellar disease. The hereditary nature of the disease is seen in all the instances in which it has been noted; in the observations of Londe, Marie, Nonne, Klippel and Durante. Sanger Brown's cases show five generations attacked successively, and numerous persons affected in the

same family. It is oftenest a disease of early adult life, of females rather than of males.

As for the principal seat of the morbid lesions, the data which we possess respecting the pathological anatomy of the disease are confessedly rather meagre, since in reality they are founded on only well-conducted autopsies, the one of Fraser, the other of Menzel, the third of Nonne. In all these cases, the cerebellum was markedly atrophied. This organ weighed in Fraser's patient 81 grammes, in that of Nonne, 120 grammes, the normal weight being from 150 to 170 grammes (a diminution of one-quarter of the normal weight). Fraser remarks that it was principally the gray substance of the cerebellum which was reduced in volume. Both Fraser and Menzel also noted the disappearance of a great number of the cells of Purkinje; those that remained were altered. The spinal cord, examined by the microscope, exhibited no alteration; macroscopically, there was in Nonne's case a simple diminution in size. The lesions are, it will be seen, quite different from those which characterize Friedreich's disease. In the latter, we find also a notable diminution in the volume of the cord, but there are also degenerative lesions of great extent, involving Burdach's column, the column of Goll, the direct cerebellar tract, the crossed pyramidal column, and the cells of Clark.

The anatomical proofs of the cerebellar origin of this form of heredo-ataxy are reinforced by physiological considerations. An interesting part of Londe's treatise is the demonstration that experimental suppression of the cerebellum produces markedly similar functional troubles. If we take into account only the symptoms of deficit, we find that in both experimental and hereditary ataxia, there are astasia, titubation, and incoördination. The head and the upper limbs manifest the same instability during voluntary movements, and present at times oscillations having the character of intentional trembling. The gait of the mutilated animal and of the heredo-ataxic person is the same when the eyes are open and when they are closed; and if the phenomena of deficit are characterized by asthenia, there is certainly absence of paralysis. Luciani compares cerebellar asthenia to the asthenia of convalescence. To him, the cerebellum is *par excellence* the organ from which emanates muscular energy; the titubation is simply a manifestation of weakness. Londe denies that there is any marked diminution of muscular force in heredo-ataxy; there is a lack of coördinating energy; the titubation resembles that of drunkenness.

Cases of so-called atrophy of the cerebellum are few. Nothnagel has collected eight cases, in all of which there was one constant predominant symptom, uncertainty in the movements of the lower extremities, often also in those of the upper extremities. In almost all the cases, the speech was slow and jerky, and there was marked intellectual enfeeblement.

The visual phenomena of heredo-ataxia are ex-

plained by the connections of the cerebellum with the peduncles and the corpora quadrigemina.

With regard to the diagnosis of this disease, the resemblance to *tabes dorsalis* is slight. Cerebellar ataxia, says Londe, results from the suppression of the equilibrating function of the cerebellum; the muscular sense is intact. The tabetic has lost the muscular sense, but equilibrium can be maintained by the visual and auditory (vestibular) sensations which he receives. But the titubation is sufficiently characteristic of itself. Heredo-ataxy has the nearest resemblance to multilocular sclerosis, as there is hardly a symptom that is not common to the two diseases. In both we may have incoördination of movements of both lower and upper extremities, vertigo, ocular troubles such as diminution of the visual field, dyschromatopsia, diplopia, nystagmus, etc.; in both articulation may be jerky, and even explosive. But the hereditary and family nature of *sclerose en plaques* has not yet been proved, and the trembling of heredo-ataxia is seldom witnessed in the former disease. Marie has devoted nearly a whole lecture to the differential diagnosis between cerebellar heredo-ataxia and Friedreich's disease, the main points of which will be seen in this rapid enumeration of the principal distinctive characters of the former malady; the more advanced age of the patient when the disease first appears; conservation and even exaggeration of the patellar reflexes; frequency of spasmodic phenomena; the visual troubles; absence of cyphoscoliosis, absence of talipes.

With regard to the course of the disease—it begins in adolescence, or in adult life, with cerebellar ataxia; the lower limbs are first affected. If there are prodromic symptoms, they are those of ordinary neurasthenia: headache, backache, fatigue, etc. A traumatism, or strong emotion may usher in the morbid syndrome. It never results from infection or from syphilis. The disease is slowly progressive; it is not amenable to any real improvement, or to notable remissions. When the disease is declared, the standing posture and locomotion without assistance are impossible; confinement in bed eventually becomes necessary. The intentional trembling, and the ataxia of the head and upper members become noticeable and pronounced during the second period, or period of impotence. There is a third period, or period of absolute impotence, in which the ataxia is most marked, and in which there is permanent contracture of the legs, in flexion at a right angle. The duration of this disease may be very long. One of Sanger Brown's patients, and Fraser and Nonne's patients lived more than twenty-five years after the onset of the disease. The helplessness of the last stages becomes extreme.

Londe emphasizes the fact that the visual disturbances (ocular, motor, sensory) on which Marie lays stress, do not constitute an essential feature of the disease, and that in typical cases the symptom-picture may be reduced to its simplest expression: general incoördination with conservation or exaggeration of the reflexes.

THE EMANCIPATION OF THE HORSE, AND ITS DANGERS.

WHEN the curative effect of antitoxin serum had been demonstrated in the diphtheria of animals, and the question arose of its application to the human subject, it was found necessary, in order to obtain a sufficient supply, to choose an animal of large size, capable of losing large amounts of blood without injury to its health. The horse was chosen, as furnishing in the highest degree the characteristics of size, cleanliness and docility. It has been found that the slight attacks of diphtheria which the horses have had to undergo during the process of immunization, and the abstraction of blood for the production of antitoxin serum, do not injure the health of the animal. On the other hand, the horses, which, of course, are provided with the best of food and care, and regularly exercised, actually improve in condition under the treatment. The horse is transformed from a beast of burden, fed and trained with the idea of getting out of him the largest amount of hard work at the least expense, to a sort of pet upon whose care no expense is spared which may help to get him into the pink of condition. Instead of hard work he is given regular exercise, care being taken not to fatigue him unduly, for the animal whose blood is to be mixed with that of children must be free even from the taint of fatigue. It is doubtful if any of the several hundred horses now undergoing the immunization would exchange his present lot, where the only drawback is the occasional prick of the hypodermic needle, or the lancet which opens the vein, for his former life of the lash and burden.

When we consider the tremendous prospects of the antitoxin treatment, if, as is at least possible, it shall be found applicable to all forms of bacterial disease, and that, as in diphtheria, the horse will probably be called upon to furnish the chief supply, the value of the horse to mankind increases beyond computation. With the successive advent of steam, electricity and the bicycle as means of transportation, the importance of the horse for these purposes has steadily diminished, so that the possession of horses and carriages is rapidly becoming, except in special lines of business, more of a luxury than a necessity. It is interesting that at just the time the horse as a beast of burden and as a means of transportation is decreasing in value to mankind he should be called upon to fulfil the nobler function of an agent of healing.

The success of the serum treatment in diphtheria, however, brings with it the danger that "horse serum" will be vaunted as a cure for all the ills that flesh is heir to, and enthusiastically accepted, perhaps, before a thorough trial has been made. Such premature acceptance, however, cannot fail in the future as in the past to result in disappointment and chagrin. From St. Louis comes the report that Dr. Paul Paquin, Professor of Bacteriology in the State University of Columbia, having convinced himself that the horse is naturally immune against tuberculosis, has argued that the serum of healthy horses can be em-

ployed without artificial immunization in the treatment of tuberculosis in man. Although the serum is said to have been employed in fifty cases with results almost uniformly successful, the chronicity of the disease, and its proved susceptibility to temporary improvement under the most various modes of treatment, render it simply impossible to prove any treatment of value by its application to so small a number of cases, over a time of less than a year.

The possibility of a serum-therapy for syphilis, founded upon a venereal disease in the horse which is said to bear the strongest resemblance to syphilis in man, has been recently suggested by Dr. Duncan Manzies, of Gibraltar. The fact that syphilis has never been transmitted from man to the horse has suggested to Dr. Manzies the possibility of a kind of antagonism between the two diseases, upon which a method of serum-therapy might be founded.

In considering the horse as a possible source of supply for the healing agent of various diseases, it is to be remembered that he was not chosen because his serum had more antitoxic effect than that of other animals, but because the requisite amounts could be obtained from him more conveniently. It is, at least, probable that for curative effect in other bacterial diseases, as in diphtheria, the toxin must be obtained in the first instance from the human subject, and the immunizing and curative effect be tested by patient experimentation before practical results are reached. The fact, if proved, that tuberculosis or syphilis are not transmitted from the human subject to the horse may be due to other conditions of the blood than those which would give it power to immunize or cure a human subject.

It is necessary for the medical profession to remember that it is the antitoxin serum, and not serum of the horse alone, that cures diphtheria, in order not to be led into accepting "horse cures" for various diseases without sufficient investigation. A more minute investigation of the "sacred horse" which the ancient Trojans believed would bring them victory in their battles with their besiegers, would have saved them a good deal of subsequent trouble. Modern physicians would do well to profit by their example, and not accept a horse consecrated by fanatical enthusiasm and ill-considered argument without most careful investigation, as an aid in their battle against disease. Because horses had proved themselves excellent animals to draw the chariot of Hector to battle, furnished no particular reason for exalting a horse as a talisman who was in some manner, "not previously determined by experiment," to give the Trojans a general success against the Greeks. Let us beware lest we find, as they did to their cost, that the conditions are different.

MEDICAL NOTES.

AN EXPOSITION OF HYGIENE. — An International Exposition of Hygiene will be held in the Palace of the Liberal Arts in Paris, from the 15th of next May to the 15th of September.

THE MEDICAL ASSOCIATION OF GEORGIA. — The Medical Association of Georgia will hold its forty-sixth annual session in Savannah, April 17th to 19th, inclusive.

BERI-BERI AT DELAWARE BREAKWATER. — It is reported that a vessel recently arrived at Delaware from the Phillipine Islands whose entire crew is affected with a disease thought to be beri-beri.

A WARNING TO OBDURATE EXAMINERS. — At a recent examination in anatomy conducted by Professor Weichelbaum, a student who was plucked for the second time is reported to have prostrated himself at the feet of the professor, kissed his hand, and begged him to allow him to pass. On the professor's refusal he seized a scalpel, and threatened to commit *harkari*. Fortunately he was seized and held in time to prevent the consummation of his purpose.

THE ANTITOXIN TREATMENT OF DIPHTHERIA. — Risel reports in the *Deutsche. med. Wochenschrift*, of March 7th, 114 cases of diphtheria treated in the city of Halle between November 11, 1894, and January 15, 1895. Of these, 89 cases were treated at their own houses, and 83 recovered; 70 of the 89 cases showed no involvement of the larynx and trachea, and of these 68 recovered. Of 19 laryngeal cases 15 recovered. Of the 114 cases 25 were treated at hospitals, with 23 recoveries. In 10 of these, in which there was no involvement, there were no deaths. Of 15 laryngeal cases there were three deaths. Out of the total of 114 cases, therefore, there were nine deaths, or 7.89 per cent. Thirty different physicians were concerned in the treatment of these cases, and bacteriologic examination was made in but a small number of them.

THE MURDER OF THOMAS PATTON IN KANSAS. — Later and more accurate information tends to show that, in common with others, we were unnecessarily disturbed about the acquittal of McDonald and the conviction of Gray in the Kansas Supreme Court at Topeka, April 7th, for the murder of one Patton, on the ground of the employment of hypnotism. The facts seem to be that Patton was murdered, that McDonald shot and killed him in cold blood and without provocation, and that Gray, who had a motive for wishing Patton out of the way, incited McDonald to the act. Hypnotism was mentioned during the trial casually, but was not an active factor in the conviction. As we now understand the subject, Gray was convicted of murder in the first degree, and McDonald escaped, although he actually committed the murder. Whether this was a judicious conclusion of the trial, our legal friends and the community immediately concerned must decide. Our interest in the trial ceases with the disappearance of hypnotism from the case.

INGENIOUS SIMULATION. — *La Médecine Moderne* (March 2, 1895) gives interesting instances of the ruses adopted by French soldiers in order to deceive medical inspectors and escape disagreeable duty. Among them are smoking hay or straw to whiten the

tongue, and macerating an earthworm in brandy, and taking a piece of it to the major as a segment of tape-worm. The following ruse deserves mention. For some years there has been at Val-de-Grace the portrait of an artilleryman whose knee was swollen and presented the appearance of a traumatic hemarthrosis. On aspiration of the knee a black fluid flowed out, mixed with a little blood, but peculiar looking, and bearing no resemblance to any known pathological product. The discovery was finally made that the man had been injecting ink into his knee-joint.

THE DISCOVERY OF HELIUM.—The recent announcement of the discovery of a new element, argon, in atmospheric air, by Lord Rayleigh and Professor Ramsey, is already followed by the announcement by the latter that in his experiments with the mineral cleveite, for the purpose of discovering a compound of argon, in which cleveite was treated with sulphuric acid, argon was evolved, but associated with some strange gas. This turns out to be helium, the lightest of all the elements, the existence of which had already been inferred from the line D_3 in the solar spectrum. The existence of the new element was in a few days confirmed by Professor Crookes, who identified its spectrum. The discovery of an element whose existence had been previously inferred on theoretical grounds, is certainly a most remarkable vindication of chemical theory. The mineral cleveite was supposed to yield nitrogen when acted upon by sulphuric acid. The evolution in its place of a mixture of argon and helium, suggests the introduction of new and extremely complicated factors into the already complicated chemistry of the nitrogen compounds.

SCAVENGERS OF THE SEA.—Our British *confrères* continue to be agitated over the "typhoid oyster," and the columns of their lay and professional press are flooded with communications on the subject. The effect has been to injure the oyster trade very seriously, and all manner of suggestions are made as to the future regulation of this industry. It is not quite clear, however, that what an Ann Arbor professor calls these "scavengers of the sea" are really responsible *per se* for the manifold ills attributed to them. That an oyster shell may hold typhoid-polluted water is probably true; so also may a glass vessel. Of themselves, oysters have been proved to be destructive of pathogenic bacteria. Mrs. Percy Frankland furnishes a note to *Nature* recalling some of the experiments of her husband, the professor, as well as those of De Giæxa, on this subject. In the greater bulk of experiments made with oysters and some varieties of mussels replaced in sea water after inoculation through a hole in the shell, which was afterwards sealed up, the pathogenic microbes entirely disappeared in six hours; in only two instances were they detected in small numbers at the end of twenty-four hours, and in no case were they identified after forty-eight hours. It is the transplanting of oysters to sewage-contaminated waters or their storage where such contamination ensues,

which is responsible for the recent attacks on the good name and fame of these succulent morsels. — *Journal of the American Medical Association*.

DEATH IN CONSEQUENCE OF AN URETHRAL INJECTION OF COCAINE.—In the *Centralblatt für Chirurgie* of March 10th, is an abstract of an account published in *La France Médicale* of a case of sudden death following the injection of six drachms of a five-per-cent. solution of cocaine into the urethra. At the autopsy the urethral mucous membrane was found intact, and there was pronounced arterio-sclerosis. The safety with which cocaine solutions of low strength and in small quantities may be used in minor surgery, brings with it the danger that the drug may be inadvertently employed in a dangerous strength and quantity. A dose as large as that reported to have caused death in this case is never necessary to secure the local effect of this valuable drug, so that it would seem that in a moment of excitement or inadvertence the piston of the syringe had been pushed beyond the point intended. A syringe of a capacity of six drachms should under no circumstances be used in the employment of cocaine solutions of the strength of five per cent. The weaker the solutions, the larger the syringe which it is safe to employ. Operations such as gastrostomy or herniotomy have been repeatedly performed with a drachm or less of a one-per-cent. solution as a local anesthetic. In the use of cocaine for urethral anesthesia, a few drops of a three-per-cent. solution may be made perfectly effective by very gradually pushing the piston of an Ultzmann syringe as its beak is withdrawn slowly through the urethra from the membranous portion. This is certainly a much safer method than squirting in from a large syringe, four or five drachms of a solution a good part of which may perhaps pass the triangular ligament, enter the bladder and be rapidly absorbed.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, April 17, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 36, scarlet fever 26, measles 168, typhoid fever 8.

THE BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA.—The health officer of Stamford, Conn., offers to make bacteriological examinations without expense in cases of suspected diphtheria in that city. Stamford is thus the second city in Connecticut to take this step, Hartford having been the first.

THE REGULATION OF MEDICAL PRACTICE IN MAINE.—An Act to regulate the Practice of Medicine and Surgery has been passed by the Maine Legislature. The bill received the approval and support of the Maine Academy of Medicine, and its passage was largely due to the character and influence of prominent members of the Academy. In the judgment of the *Journal of Medicine and Science*, the organ of the

Academy, the bill is not an ideal one, but is a better one than the first passed by most States and Territories. The passage of this law alone is a most successful result of organized action on the part of medical men; and the Maine Academy may well be proud of such marked success so early in its career. The agitation for a medical practice law was begun in the first number of the *Journal of Medicine and Science*, appearing in December, 1894, and noticed in our own editorial on December 20th. As to the securing of an ideal registration law, the Academy must have an exalted opinion of the Maine Legislature to even dream of the possibility of such a thing; which unless the Maine Legislature is far superior to that of other States in the Union is hardly to be expected at present.

NEW YORK.

SCHOOL-HOUSE JANITORS AND CONTAGIOUS DISEASES.—A controversy has arisen between the Health Board and the Board of Education over a case of measles occurring in the family of the janitor of a public grammar school in East 35th Street. In consequence of this the school-house was closed by order of the Board of Health, and nearly two thousand children have been forced to abandon their studies until the Board decides that it is safe to allow them to return to the building. It is a rule of the Board of Education that janitors shall reside in the schools and provisions are always made for apartments for their families in the buildings. In this way a considerable saving in wages is effected, as a deduction is made for rent, heat, fuel and light. On this account the Board has strenuously opposed the efforts which the Board of Health has made from time to time to have the janitors accommodated in quarters outside the school buildings. Quite a number of times during the past few years it has been found necessary to close school-houses for weeks at a time on account of the presence of contagious disease in janitors' families, and the occurrence of the present case has encouraged President Wilson of the Health Board to press the matter to an issue. He has communicated with Mayor Strong in regard to it, and the latter has written a letter in which he fully agrees with the stand taken by the Board of Health that janitors should be required to live outside the schools.

A NEW MEDICAL SOCIETY.—A large number of physicians in the lower part of the city have organized a new society to be known as the Eastern Medical Society. In its platform the society denounces organizations giving free aid to the poor but which treat all applicants, dispensary physicians for allowing prescriptions of pay patients to be compounded at dispensaries, and physicians who give advice at drug stores.

"HEALTH AND HAPPINESS."—The Charity Organization Society has issued a placard for distribution among the poorer classes which contains a considerable amount of useful information. It is headed "Health and Happiness," and is made attractive by pictures. Injunctions are given as to personal cleanli-

ness and the importance of clean clothes, clean houses, and fresh air is dwelt upon. A diagram shows the relative value of staple foods and the time required to digest the different articles, and recipes are furnished for preparing a large number of cheap and nutritious dishes. Information is also given as to what should be done at once in cases of wounds, bruises, burns and scalds; and finally a number of maxims hinting how to be healthy and happy are printed.

ANOTHER BROOKLYN BRIDGE JUMPER.—On April 13th a man by the name of James Duffy leaped from the Brooklyn Bridge into the East River, and was killed. It is believed that he made the leap with suicidal intent, rather than to acquire fame as a bridge-jumper. Since the bridge was built seventeen persons in all have jumped from it, and of these ten were unhurt or escaped with comparatively slight injuries, while seven lost their lives.

Miscellany.

IN ACTIVE PRACTICE AT THE AGE OF ONE HUNDRED AND TWO.

THE London *Daily Telegraph* for March 28, 1895, publishes the following interesting account of a most remarkable character:

"I was born in 1793, and since then I have not been ill a single minute." Such is the very satisfactory account of himself just given by Dr. de Bossy, the *dôyen* of the French physicians, who is still in practice at Havre, hale and hearty as ever. He says that he has never followed any special *régime*, and that, in fact he is opposed to anything of the kind. Summer and winter he gets up at seven o'clock, and as soon as he is dressed he starts off on his rounds, generally on foot, but now and then in a tram-car, when there is a good deal of mud. He does not restrict himself to any particular dishes, but enjoys all. Coffee he has drunk all his life, and he has no objection to a glass of bitters, while as for tobacco, to borrow his own expression, 'that is another poison which I regularly absorb without being any the worse.' Then what is the secret of longevity, according to this veteran, who is still in excellent health? Moderation in all things, and he adds: 'I got the recipe from my father, who was one hundred and eight when he died. You perceive I have no infirmity.' All this he relates as if it were the simplest matter in the world, and within the reach of all, to become a centenarian. Dr. de Bossy's case is all the more remarkable inasmuch as he lived for some time in a tropical climate. He took his degree in 1818, went to England, and thence to India where he practised medicine, and then returned to Havre, where he has been busily at work for the past sixty-four years. He toiled for years in the East while epidemics, cholera included, were raging around him, but emerged scatheless from the ordeal. Nor, during the unwelcome visitation of cholera at Havre, in 1892, did Dr. de Bossy remain idle. On the contrary, he tended the sick in poor and crowded districts with such devotion that he was presented with a medal by the Government. He has two sons, the one settled at Havre

and the other at Rouen, the elder being sixty-eight years of age, and both, as he hopes, in a fair way to emulate the example, set them by their father and grandfather."

Correspondence.

A REPLY TO DR. ALBERT LEFFINGWELL.

1925 CHESTNUT ST., PHILADELPHIA.

April 16, 1895.

MR. EDITOR: It does not seem to me necessary to make reply to the one-column letter of Dr. Arthur H. Nichols in the *JOURNAL* of April 11th. I do not believe, nor have I in any way intimated, that the New England physicians are in any way different from physicians in other parts of the earth. Dr. Nichols is right in believing that my position is that the general laws prohibiting cruelty to animals, are all that are needed for the proper restriction of vivisection; and in this belief I am confirmed by the letter of Dr. Albert Leffingwell, which follows that of Dr. Nichols. If a gentleman of his culture and general intelligence cannot perceive that his words are an absolute misstatement, when the misstatement has been clearly pointed out, what is to be expected from those who are actually sunk in fanatical opposition?

It is hardly necessary for me to point out that unless I had quoted the whole of the circular he could have made charges of my quotation being garbled; and that I did not think it was necessary or essential to quote more than what seemed to me to have direct or necessary bearing upon the question. Pardon, however, if I re-quote, not in full, but what is necessary, referring to his letter for the rest of the paragraph. He says: "While State laws generally prohibit cruelty, yet in the great majority of cases there is no law, no college rule or regulation even, prohibiting the infliction upon animals," etc. This statement is certainly not true. The reason why I omitted and evaded the evidence on which it rests, to use the words of Dr. Leffingwell, is because the evidence is entirely out of court—foreign to the subject; in other words, no evidence at all. Quoting Dr. Leffingwell, he says: "The proof of this statement rests upon replies made by different college presidents to letters of inquiry." Does not Dr. Leffingwell know that college presidents do not make laws? Laws, when the word is used in the English language, without qualification, means laws made by legislators. If Dr. Leffingwell had said, "college laws" he might or might not have been correct in his statement; but when he says "laws," and especially when in antithesis he further says, not even a college rule or regulation, he says what is not true. Is it not odd that he cannot perceive this? Surely this is an instance of the effect of a Dominant Idea worthy of going into a physiological text-book. The only defence of his statement would be not the one which he makes, but the quibble that the law does not prevent inflictions.

The answer to this is that no law prevents any crime, and that in ordinary language when we speak of a law passed to prevent crime we mean one passed for the purpose of prevention.

The matter between myself and Dr. Leffingwell is of no importance to anybody; certainly, at least, not to me, and I suppose not to him, but the class of people with whom he is associated, at least in our thoughts and in the practical results of his efforts, are the class of people with whom we in Pennsylvania have been for years contending for our very lives. Ten years ago I myself was inclined to favor some special laws in regard to vivisection; but experience has shown that these laws are wanted simply for the purpose of enabling the anti-vivisectionists to put spies into every laboratory, to question every experiment, and to perpetually drag the experimenter before magistrates and juries composed of the peculiar material which abounds in our larger cities.

The mental condition of Dr. Leffingwell shows how an honest man may be incapable of perceiving the truth; and

when to this fact is added the certain fact that the spies put into the laboratories would be paid for the purpose of achieving a certain end, would be under the influence of the most intense fanaticism, and would in a large proportion of the cases at least be completely ignorant of the matter under judgment, it will be seen that the life of the physiologist under such circumstances would be not worth the living. At present the physiologist everywhere receives little or no reward for his labors for the good of mankind; is usually underpaid almost to the point of starvation; has in America no social reward or consideration, which to many men is worth more than money; lives in fact a perpetual sacrifice for the good of his fellow beings. Isn't it a pity, when the world is full of infinite misery, that men of intelligence should give their thoughts and time not to lessening the sufferings of the human race but to impeding the progress of those who would do this thing?

Thanking you for the courtesy of your columns,

I remain, yours truly,

H. C. WOOD, M.D.

THE INJECTION OF STIMULANTS INTO THE HEART-WALLS.

MIDDLETOWN, CONN., April 15, 1895.

MR. EDITOR:—I noticed in the *JOURNAL*'s last issue an account of cardiocentesis in an attempt to perform only paracentesis. The remarks that followed by Dr. Sloan, quoted from the *Edinburgh Medical Journal*, were particularly interesting, as they seemed to throw more light upon the therapeutic value of cardiac puncture and injections.

Some cases of interest along this line of cardiac stimulation, after all common means had failed, presented themselves to me while an interne in one of the New York City hospitals.

Within a few weeks of each other three cases of delirium tremens presented me an opportunity to try cardiac injections; all three being cases in which all stimulants, such as digitalis, strophanthus, nitro-glycerin, etc., had failed to ward off a fast-approaching cardiac paralysis.

On being called to the first case, as was then supposed for the last time, I found that hypodermic injections of stimulants would no longer revive the heart's feeble motion. It was thought probable that if stimulants could be injected directly into the heart-muscle the much needed stimulation could be obtained. Accordingly one-fifteenth of a grain of sulphate of strychnia was given by means of a long needle-syringe. The immediate result of its administration was to slow down the heart's action without changing its irregular rhythm. In fifteen or twenty minutes this too improved. After one more injection of one-twentieth of a grain in one hour, the heart was beating about one hundred per minute, and quite regularly. This case eventually recovered from the attack, and was discharged in five days. The case, although the history is somewhat meagre in details, showed a beneficial result from cardiac injections of stimulants. The immediate effect, the heart's improved action, seems to have been due first to the puncture and secondly to the fact that the drug sustained the heart until the alcoholic narcosis had lessened its hold upon the patient.

The second case was similar to the foregoing, but was not quite so severe and required only one injection.


In the third case the injections were withheld in deference to the wish of the visiting physician, who insisted upon the use of other cardiac stimulation until the patient's condition became very critical. The pulse was imperceptible at the wrist, and respiration was only noticeable at intervals of ten or fifteen seconds. At last the injection of ammonia was made into the heart-muscle, but no change followed this first administration and the second was given in eight or ten minutes. The patient died in a few minutes after the last injection. Probably this last case had become so moribund at the time of the injection that no remedy could have kept the patient alive.


Very truly yours,

L. PIERCE CLARK, M.D.

METEOROLOGICAL RECORD,

For the week ending April 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...31	30.12	35	44	26	24	24	24	N.W.	N.W.	22	13	C.	O.	.40
M...1	29.79	37	42	32	30	52	41	W.	S.E.	6	4	O.	O.	
T...2	29.63	38	41	34	82	88	85	N.E.	E.	4	5	O.	O.	
W...3	29.56	40	47	33	93	44	68	N.	N.W.	13	11	N.	O.	
T...4	29.90	37	41	30	55	50	52	W.	W.	14	8	C.	C.	
F...5	30.18	40	50	31	39	40	40	N.W.	N.	12	10	C.	C.	
S...6	30.38	42	51	33	48	74	61	N.W.	S.W.	5	12	C.	F.	
	29.94		45	31			53							.40

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ning; N., snow. † Indicates trace of rainfall.  Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 6, 1895.

Cities.	Estimated popu-lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal Diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,956,000	873	346	12.21	22.66	1.65	4.29	2.53	
Chicago	1,600,000								
Philadelphia	1,139,457	494	134	10.20	19.60	1.20	6.00	.20	
Brooklyn	1,043,000	464	159	15.63	30.15	1.08	9.18	1.08	
St. Louis	540,800								
Boston	501,107	207	50	7.20	20.16		4.32		
Baltimore	500,000								
Washington	285,000	104	34	5.76	30.72				
Cincinnati	325,000	149	31	8.16	14.96	1.36	1.36		
Cleveland	325,000	103	34	6.79			.97	1.94	
Pittsburg	272,000								
Milwaukee	265,000								
Nashville	87,754	45	7	4.44	31.08	2.22			
Charleston	65,165	36	12	8.34	8.34	2.78	5.56		
Portland	40,000								
Worcester	100,410	36	11	11.11	11.11				
Fall River	92,233	28	17	17.85	21.42	10.71	3.57		
Lowell	90,613	37	11	10.80	16.20	2.70	2.70		
Cambridge	79,607	20	6	40.00	20.00		30.00		
Lynn	65,123	20		30.00	5.00			10.00	
Springfield	50,264	18	5	11.11	21.77				
Lawrence	48,900	12	5		25.00				
New Bedford	47,741	17	2		11.76				
Holyoke	43,348								
Brookton	33,939	9	1		22.22				
Salem	33,155	8	1		25.00				
Haverhill	32,925	12	5		8.33				
Malden	30,209	12	4	8.33	25.00				
Chelsea	29,806	13	5	61.52	15.38		15.38	7.69	
Fitchburg	29,363	9	2	11.11	11.11	11.11			
Newton	28,837	11	2		18.18				
Gloucester	27,293								
Taunton	26,354	7	3	14.28				14.28	
Waltham	22,058	6	1		16.66				
Quincy	19,642	6	4		33.33				
Pittsfield	18,802	6	0						
Everett	16,585	5	2		60.00				
Northampton	16,331	2	0						
Newburyport	14,073	3	0		33.33				
Amesbury	10,920	2	0						

Deaths reported 2,870; under five years of age 920; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 304, acute lung diseases 594, consumption 313, diphtheria and croup 128, scarlet fever and diarrheal diseases each 37, measles 22, cerebro-spinal meningitis and whooping-cough each 19, typhoid fever 18, erysipelas 13, small-pox (Cincinnati) 6. From measles New York 16, Brooklyn 2, Philadelphia, Washington Cincinnati and Providence 1 each. From cereb-ro-spinal meningitis Washington 5, New York, Worcester and Lynn 2 each. Philadelphia, Boston, Cleveland, Fall River, Lowell, Somerville, Malden and Chelsea 1 each. From whoop-ing-cough New York and Brooklyn 7 each, Worcester 2, Phila-delphia, Cambridge and Springfield 1 each. From typhoid fever Philadelphia 7, Cleveland 3, Brooklyn 2, New York, Bos-

ton, Cincinnati, Lowell, Lynn and Springfield 1 each. From erysipelas New York and Philadelphia 4 each, Boston 3, Brook-lyn and Somerville 1 each. From malarial fever New York 4, Nashville 1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 6, 1895, TO APRIL 12, 1895.

CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, is granted leave of absence to, and including July 3, 1895, to which date his resignation has been accepted by the President to take effect.

Leave of absence for two months on surgeon's certificate of disability, is granted CAPTAIN JAMES E. PILCHER, assistant surgeon.

The following named officers will report in person to MAJOR CALVIN DEWITT, surgeon, President of the examining board appointed to meet at Fort Leavenworth, Kansas, on Wednes-day, May 1, 1895, at such time as they may be required by the board, for examination as to their fitness for promotion, and upon conclusion of their examination will return to their proper sta-tions: FIRST-LIEUT. THOMAS U. RAYMOND, assistant surgeon; FIRST-LIEUT. HENRY D. SNYDER, assistant surgeon; FIRST-LIEUT. ALLEN M. SMITH, assistant surgeon; FIRST-LIEUT. JOSEPH T. CLARKE, assistant surgeon.

CAPTAIN WILLIAM B. BANISTER, assistant surgeon, is re-lieved from duty at Fort McIntosh, Texas, and ordered to duty at Fort Omaha, Nebraska.

FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at the U. S. Military Academy, West Point, New York.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 13, 1895.

G. MCC. PICKRELL, past-assistant surgeon, detailed from U. S. "Newark" and granted three months' leave.

A. W. DUNBAR, assistant surgeon, detached from U. S. R. S. "Vermont" and ordered to the U. S. S. "Newark."

HENRY LA MOTTE, assistant surgeon, detached from U. S. S. "Newark," ordered home and two months' leave.

C. P. BAGG, assistant surgeon, detached from U. S. N. Hos-pital, Mare Island, Cal., and to the U. S. S. "Monterey."

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.— The Annual Meet-ing will be held at 19 Boylston Place on Saturday ,April 27th, at 8 P. M.

"Medical Advertisements in Newspapers," Dr. Walter Chan-ning.

"Notes on Cases of Inflammation of and about the Vermi-form Appendix," Dr. J. B. Blake.

Report of the Treasurer and Librarian. Election of Officers. Supper after the meeting.

H. L. SMITH, Secretary.

NEW HAMPSHIRE MEDICAL SOCIETY.— Members of the So-ciety will take notice that the Executive Committee have changed the date of the Annual Meeting to Monday and Tues-day, June 3 and 4, 1895, and the programme will be issued ac-cordingly.

The change is a necessity, as the time to which the Society adjoined will be Decoration day.

Per order of Executive Committee.

G. P. CONN, M.D., Secretary, Concord.

APPOINTMENTS.

DRS. JOHN S. PHELPS and JOHN W. DEWEES have been ap-pointed district physicians to the Boston Dispensary.

RECENT DEATHS.

JOSEPH HAGAR, M.D., M.M.S.S., died in East Marshfield, April 9, 1895, aged seventy-five years.

JOHN BLACKMER, M.D., died at Springfield, Mass., April 14th, aged sixty-six. He had seen active service during the war as a surgeon in both the Union army and navy. He was connected at times with various insane asylums, and at one time was in charge of the New Hampshire Asylum for the In-sane. He was a prominent prohibitionist in New Hampshire, previous to his removal to Massachusetts in 1874. He had been Prohibitionist candidate for governor both of New Hampshire and Massachusetts.

Original Articles.

ROSE'S OPERATION FOR TRIGEMINAL NEURALGIA.¹

BY N. P. DANDRIDGE, M.D.,

Professor of Surgery and Clinical Surgery, Miami Medical College, Cincinnati, O.

I MAY very properly introduce the following discussion on the results obtained by the removal of the Gasserian ganglion in cases of inveterate neuralgia of the branches of the fifth nerve, by the recital of a case in which Rose's method was employed, during March, 1894.

The patient, a German, was first sent to me some nine or ten years ago, on account of a severe and persistent neuralgia which involved the region supplied by the second branch. The man was engaged in a bristle factory, and the locality in which he lived rendered a malarial origin for his trouble not unlikely. His disease, however, was not in any way controlled by the long-continued use of quinine. He was a free drinker of both spirits and beer, and his indulgence had been unusually free at the time he was first seen. His age was forty-five.

He was sent to a dentist, but derived no benefit from his treatment. The infraorbital nerve was then removed. The infraorbital foramen was exposed, and the canal traced back on the floor of the orbit as far as possible, and opened, the nerve cut through, and the section pulled out of the foramen, and the terminal filaments removed. The antrum was not opened. After the operation the man became unruly, continued the use of stimulants, and developed an attack of delirium tremens, during which the bandages were displaced, and facial erysipelas ensued, which resulted in the destruction of a considerable part of the lower lid. This was subsequently repaired by a plastic operation by Dr. Sattler, not sufficiently, however, to fully protect the eye. The result of the removal of the nerve was extremely satisfactory, and there was complete immunity from pain for two years. It then returned in the region of the frontal. The supraorbital foramen was exposed, and as much of this nerve as possible removed. Complete relief followed for three months, and then returned, the pain, however, not being continuous, so that the man was able to keep on at his work. In the early part of March, 1894, he again presented himself, suffering most intense paroxysms of pain. These paroxysms were brought on when he attempted to speak or swallow, and on account of their severity a satisfactory examination of the mouth was impossible. This condition had now lasted some weeks, and involved all three branches, but was most intense at a point about three inches above the right eye, and an inch from the middle line. No matter in what region of the face the pain would start, it would concentrate its greatest energy on this spot.

For several weeks attempts were made with increasing doses of aconitine and galvanism to control the pain, but without results. It was then determined to attack the Gasserian ganglion, and Rose's method was selected. The H-shaped incision advocated by Andrews was made, and the zygoma cut through with a saw after being drilled so as to be wired at the com-

pletion of the operation. Subsequently it was found that further room could be secured by cutting away the anterior part of the zygomatic arch with forceps. As wiring was thus made impossible, the portion of the bone turned down with the masseter was completely removed. The coronoid process with the attachment of the temporal muscle was then exposed, and after being drilled for subsequent wiring was cut through, and the separated portion turned up with the temporal. The lower jaw was now depressed with a mouth-gag, and some fat abundantly supplied with veins which bled freely, removed, and the external pterygoid brought into view. This was separated from the greater wing of the sphenoid partly by the knife and partly by a blunt instrument. During this part of the operation the internal maxillary came into view and was ligated; in spite of this, however, the hemorrhage continued very embarrassing, and was only controlled by pressure. After a tedious dissection, which was prolonged by want of proper illumination, the foramen ovale was finally reached; the blood welling up from the depths of the wound rendered the recognition of the opening most difficult. It was finally definitely located by passing a grooved director into it, and with this in place a trephine was applied so as just to reach the edge of the foramen, and a button of bone removed. The opening was enlarged with a chisel and the nerve lifted up on a hook and cut through with scissors within the foramen. The view of the ganglion was obscured by the constant oozing; it was broken up by a blunt hook in a somewhat haphazard manner. The second branch was not seen within the skull. It was, however, readily brought into view with Meckel's ganglion, as it crossed the sphenomaxillary fossa. The nerve was torn away as it enters the infraorbital canal, and was then traced back to the foramen rotundum and twisted off. The supraorbital notch was now exposed, and some fine nerve filaments traced up for an inch or more and removed. The coronoid process was wired, and the wound packed with gauze, the end of which was brought out to supply drainage, and the external wound closed.

The operation lasted two hours and the patient was much exhausted, but soon rallied. On the third day he had a paroxysm of pain exactly similar to those suffered before the operation, and of extreme severity. The greatest intensity was on the top of the head. The pain was controlled after a hypodermic of morphia, and did not return. During the second week a superficial ulcer developed on the cornea, but soon yielded to treatment. There was some suppuration during the healing process, and there still persists now, ten months after the operation, a small sinus which leads down to bare bone. His general improvement was rapid, and in a few weeks he gained twenty-five pounds. His condition, ten months after the operation, is as follows: There is marked atrophy of the muscles of mastication on the side operated on, and the depression in the region of the zygoma produces considerable deformity. There, of course, still exists the defect in the lower lid left from the sloughing after the first operation. Sensation is nowhere completely lost, but is most deficient below the infraorbital foramen and over the submental. Pressure with the finger in front of the ear produces sensation, though not a painful one, over the submental foramen, beneath the infraorbital foramen, and over the spot on the forehead which was the seat of greatest pain. The sense of hearing is almost

¹ Read before the Surgical Section of the Suffolk District Medical Society, February 6, 1895.

lost in the right ear. The sense of taste on the right side of the tongue is impaired. A solution of salt can be distinguished when placed near the tip, but a solution of sugar cannot be distinguished from pure water. The movement of the jaw is impaired. He is able to masticate his food, but does so almost entirely on the left side, all of the upper teeth and most of the lower ones on the right being lost. The man expresses himself as entirely satisfied with the result, and is now at work daily. His son informs me that he has again commenced the free use of stimulants.

In the performance of this operation the incision suggested by Rose, commencing "over the malar bone about half an inch below the external angular process of the frontal and carrying it along the zygoma and down in front of the ear, over the parotid region to the angle of the jaw, and then forward along the lower border of the horizontal ramus as far as the facial artery," is probably better than the H-shaped incision employed by Andrews. It is desirable to secure bony union in the process of repair for the separated portion of the zygoma, as the depression otherwise resulting leaves an unsightly deformity. Most operators have drilled the bone in such a way that both ends can be wired on completion of the operation. Stitching the edges of the fascia together is said, however, to have given equally good results. Rose at first wired the detached portion of the coronoid process, but has latterly removed this entirely from the temporal attachment. Atrophy of this muscle must occur from destruction of its nerve supply. The location, and exposure of the foramen ovale is the difficult part of the operation—indeed, Rose himself reports in his third case that "the pterygo maxillary fissure was mistaken for the foramen, and the mistake only discovered by the protrusion of the orbital fat through the trephine opening"; and he further states that "the part of the bone which one first reaches in the deepest part of the operation is well in front of the foramen."

There is a great difference in the prominence made by the pterygoid ridge in different skulls, and in the angle made by the portion of the greater wing of the sphenoid below the ridge, which enters into the zygomatic fossa and the temporal portion, above. The more prominent the ridge, and the more nearly the surface of bone below approaches a right angle to the part above, the more difficult will be the exposure of the foramen, and the more difficult the application of the trephine. During this stage of the operation, there is decided advantage in adopting Rose's suggestion to have a skull at hand for reference. According to Doyen, the best way to reach the foramen ovale is "to trace the sphenoidal ridge backward to the transverse root of the zygomatic arch. This latter leads directly to the eminentia articularis, in front of which the opening will be found." The inferior dental or gustatory nerve may be used as a guide to the foramen if exposed, as they pass downward under the lower border of the external pterygoid muscle. In my case they were not seen until the foramen was reached. The external pterygoid plate is a useful guide as pointed out by both Rose and Mixer: "The foramen lies usually a little behind and external to the base of the outer plate," but sometimes directly behind it.

Mixer has pointed out some variations in structure which are found in this region, and may have an important bearing on the operation. He has called at-

tention to the fact² that the ligamentum pterygo spinosum may be ossified, and may divide the branches of the nerve, and in order to expose the foramen it may be necessary to chisel this bridge away. The insertion of a grooved director into the foramen before the trephine was applied rendered the exact application of this instrument much easier, so that its edge just touched the foramen. Any enlargement of the trephine opening that is needed may readily be made by a chisel, or cutting forceps.

This operation leaves much to be desired in the view obtained of the ganglion itself; at least, such was my experience, and the removal of the latter is a somewhat haphazard affair. The especial dangers, which theoretically should be great, of wounding the sinus or internal carotid, do not seem to have really occurred; indeed, greater and more alarming bleeding has taken place when the skull has been opened from the side and the ganglion brought plainly into view by lifting the temporo-sphenoidal lobe, than in Rose's operation. That the removal of the entire ganglion can, however, be accomplished, is shown by Rose's later cases and by the case reported by Doyen of the Seventh Congress of French Surgeons (Septième Congrès de Chirurgie, Paris, 1893). In evidence of the thoroughness of his operation, he presented the specimen removed, consisting of almost the entire ganglion, with fifteen millimetres of the superior maxillary, and thirty-five to forty millimetres of the lingual and inferior dental.

In attempting to compare Rose's operation with that of Hartley, it seems to be generally admitted that the latter gives a freer view of the ganglion and more certainty in its removal. Rose, in a personal communication, in speaking of a case in which he had performed Hartley's operation, said he was "pleased with it and intended where feasible to try it again." It limits, however, the removal of the branches to the portion within the skull—in Rose's operation the nerves can be removed up to the bony canals they enter; indeed, we are hardly in a position to say that the removal of the ganglion will afford greater immunity from recurrence than removal of the branches at their respective foramen at the base of the skull. In both operations hemorrhage is a prominent feature. It occurs, however, under quite different conditions. In the Hartley method it occurs after the skull is open, and the brain exposed, conditions which may lead to most serious results. Keen and Richardson have both had experiences showing the gravity of hemorrhage at this time, though in both cases the danger was happily averted—in the former's case only, however, by stuffing the wound with gauze and delaying the completion of the operation for several days. The wound of the posterior branch of the middle meningeal, in Keen's, before the completion of the section of bone, when it could be efficiently dealt with, would certainly seem to threaten serious consequences. In Rose's method the hemorrhage is simply embarrassing, and prolongs the operation. It can at any time be controlled by pressure, and must to a large extent have ceased before the skull is opened. In the former, the hemorrhage is at the end and dangerous part of the operation; in the second, at the beginning. Park has ligated the common carotid as a preliminary step so as to avoid serious hemorrhage. It would seem, in case this step was deemed necessary

² Boston Medical and Surgical Journal, August 13, 1891.

simply for the control of hemorrhage, that the ligature had better be placed around the external carotid. Such a ligature would be equally or more efficient to control the bleeding, and certainly involve much less danger. Ligature of the common carotid alone has, however, been practised, some eighteen successful cases being reported by Fowler; so that it may play a certain rôle beside the simple control of bleeding during the operation. It must certainly add to the chances of a fatal result, and Park's example does not seem to have been followed.

In regard to the results obtained by Rose's operation, Mr. Rose writes of his seven cases: "The results have been most gratifying. In only one instance, and that a highly neurotic woman, has there been any return of the pain, and then not at all severe. I have noticed a little stiffness in the lower jaw, easily tolerated in comparison with the terrible pain from which relief has been obtained."

Rose's cases are reported as being operated on in April, 1890; January, October and November, 1891; and January, 1892, so that three, four and five years must have now elapsed.

Parks reports his cases, operated on in July and October, 1892, as still in satisfactory condition. Andrews has had "two relapses after being cured for a good while"; and "one in which there is still complete relief after three years."

Parkhill reports recurrence after full relief for two years. The Hartley operation was then performed, the patient dying from exhaustion. This is the only case in which Hartley's operation has been performed after Rose's method, so far as I can learn. Eskridge reports one case without recurrence at the present time, nearly two years after the operation.

It may be well in this connection to recall the figures given by Fowler,⁸ and the results of removal of the infraorbital nerve.

In twenty-six cases, in which the infraorbital nerve was removed together with Meckel's ganglion, there was complete relief for over three years in three cases, for over two years in six cases, and over one year in nine cases.

The average relief in all was one year and five and one-half months. In twenty-six cases of neurectomy of the infraorbital without removal of Meckel's ganglion, there was immunity for three years in five cases, over two years in three cases, and over one year in seven cases. The average was one year, three and one-half months.

In my own case ten months have now elapsed, relief being still complete. It is to be remembered in this case that immunity for two years was secured by removal of the infraorbital in the same subject.

No comparison can yet be made between the immunity secured by the different methods. The condition of the patient after successful operation is certainly more desirable when Hartley's method has been practised than after Rose's operation. In the latter the scar is more visible and there certainly is less chance of primary healing and some chance of necrosis. In addition there may result limited movement of the jaw. This is present in a large proportion of cases.

In my own case there has been almost complete loss of hearing on the side operated on. Rose has pointed out the danger of wounding the Eustachian tube when the trephine is employed in the manner

first described by him. The centre pin was projected as far as possible and inserted into the foramen ovale, as a half-inch trephine might readily wound the tube, "as it passes in immediate contiguity to the ridge of bone, which forms the inner boundary both of the foramen ovale and spinosum." In my case the grooved director was inserted into the foramen and the trephine was applied external to it. Without injury to the tube, however, it is difficult to explain the subsequent deafness.

To the nineteen cases of Rose's operation reported by Keen, there are four additional ones to be added: (Eskridge two, Andrews one, Dandridge one), with one death, or twenty-three cases with three deaths. Andrews reports a case of death from brain disease one month after the operation; if this be charged to the operation we have twenty-three cases and four deaths.

To the Hartley operation there are seven additional cases: Richardson one, Keen two, Parkhill one, Rose one, and Tiffany two, with three deaths (Keen, Parkhill, Rose). This gives, with Keen's nineteen reported cases, twenty-six cases and five deaths.

The results thus far obtained in the intercranial operations do not justify the abandonment of the more superficial neurectomies in persistent neuralgia, but certainly justify the expectation that they will afford great and possibly permanent relief where recurrence takes place—a relief so great as to fully justify the danger they involve.

TWO CASES OF DERMOID CYST OF THE OVARY INVOLVING THE LARGE INTESTINE; REMOVAL OF CYSTS; RESECTION OF INTESTINE AND END-TO-END SUTURE; RECOVERY.¹

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THE two following cases of dermoid cyst of the ovary illustrate one of the most serious complications to be met with in the course of abdominal operations. In each the condition was entirely unexpected, and had to be remedied immediately. In one, the resources of a large hospital were at hand; in the other, those of my regular abdominal outfit.

In the first case, after the successful removal of a purulent Fallopian tube, a tumor as large as an orange was found wedged between the uterus and the rectum. This proved to be a dermoid cyst of the left ovary, which grew into the rectal wall and projected into and through its mucous surface. The portion thus attached was about two inches in diameter. The hair from the cyst grew into the lumen of the bowel. The tumor was removed by a clean dissection with scissors. The resulting opening in the bowel was situated deep in the pelvis, and involved the greater portion of the rectal wall.

With the patient in the Trendelenberg position, the opening was closed very satisfactorily by means of interrupted Lambert stitches. The distal and proximal ends were brought together and sutured with great difficulty by means of a long needle-holder.

In the second case the cyst filled the pelvis and involved in its growth the sigmoid flexure. The cyst was gangrenous, and in the necrotic process at least

⁸ Annals of Surgery, 1886.

¹ Read before the Obstetrical Society of Boston, February 9, 1895.

three inches of intestinal wall had been entirely destroyed. The portion of bowel attached to the mesentery was not affected. The tumor contained nothing but hair and fecal matter. Its separation from the bowel was easy, though complete resection was necessary. The whole portion affected by gangrene was removed, until a clean and healthy surface remained. The resulting edges were brought into careful approximation and held there by a single row of interrupted Lembert sutures of silk. Thorough search failed to show any further injury to the bowel.

In both cases provision was made against a possible fecal escape by sterile gauze drainage. In both, this provision proved the saving of the patient, for on the second or third day there was in each case an abundant fecal escape. The drainage, which of necessity followed, was brief. Recovery was rapid, and no interference with nutrition or with peristalsis resulted.

CASE I. Stella C., aged twenty-four, married, dress-maker, entered the Massachusetts General Hospital in July, 1894, with negative family history. She had had one child seven years ago. She has always had leucorrhœa, which has been much worse during the last month. Three years ago the patient was attacked with excruciating pain in the right ovarian region, accompanied by excessive vomiting. This attack kept her in bed for nine months. Her catamenia were regular and normal during this time. July 8, 1894, ten days before her catamenia were due, she began to flow profusely. The flowing was accompanied by excruciating pain in the right iliac region, shooting down into the right leg. For the last two days the hemorrhage and pain have much diminished, while yesterday there was abundant discharge of pus from the vagina. Digestion was good, bowels regular. She was referred from the out-patient department by Dr. Townsend.

Examination showed a fairly developed but poorly nourished woman. The chest was normal. A mass, the size of an orange, could be felt on the right and partly behind the uterus, very sensitive to pressure through the vagina. Palpation of the abdomen showed no tumor or sensitiveness on either side. The uterus was in good position. The urine was normal.

Operation was performed by Dr. Richardson on July 21st, Dr. Cobb assisting. With the patient in the Trendelenberg position, an incision three inches long was made in the median line, below the umbilicus. On introducing the hand into the abdominal cavity, a sausage-shaped tumor could be felt in the right pelvis. This broke, on slight manipulation, and discharged a large amount of pus. The adhesions were carefully separated. The dilated and thickened tube was tied off with silk and removed. Another mass was then found behind the uterus and to the left of it, closely involving the sigmoid flexure and beginning of the rectum. Attempted enucleation showed that the tumor grew from the bowel wall, and was so intimately connected with it that separation without intestinal resection would be impossible. On trying to dissect the tumor from the intestine the cavity of the bowel was extensively opened. The abdomen was thereupon carefully protected with gauze, and the tumor removed by free resection of the intestine. Nearly the entire circumference of the gut was thus excised, the growth having invaded its entire structure and having projected into and through the mucous layer. The opening in the intestine was closed by

interrupted silk sutures applied longitudinally. Drainage of gauze applied about a glass tube was used. The abdominal wound was partially closed by silk-worm-gut sutures.

Recovery from the ether and from the shock was satisfactory. Four days after operation there was a foul and fecal discharge from the tube. This was fully controlled by drainage, and caused no harm. Five days later the tube was removed. She was discharged to the convalescent ward four weeks after the day of operation, with a granulating sinus remaining. She has been perfectly well ever since.

CASE II. Miss A. T., aged thirty-seven. Her father died of pneumonia at sixty-eight; mother at sixty-one from injuries. She had scarlet fever followed by ear trouble when three years old. She has been as well and strong as the average girl. Catamenia began at sixteen, and have been normal. She has always been troubled with constipation.

In January, 1894, about ten months before operation, she was seized with nausea and vomiting accompanied by fever. Her catamenia at this time were about three days late, but she began to flow before the pain started. The physician in attendance called it inflammation of the ovary. The pain lasted two days, and she was in bed five days. At the end of three weeks was as well as ever, with the exception of a slight discomfort in the right side.

On the 1st of April, four months from the first attack, after a movement of the bowels, severe pain came on in the right side of the abdomen, associated with nausea and vomiting. The pain was so severe that she was doubled up, with the legs flexed upon the abdomen. This attack lasted only twelve hours, when she was perfectly well again.

Four months later, on August 4th, she had a similar attack, with rise of temperature. The pain and tenderness extended over the abdomen and chest. This occurred at the time the catamenia were due. She began to flow three days later, when all the symptoms abated. She was up and about again in two weeks, but she was not as strong as before the attack. The bowels were very irregular, varying from severe constipation to excessive diarrhea. There was continual tenderness on the left side of the abdomen.

About September 9th, a week past her regular menstrual period, she had general abdominal pain, which kept her in bed until the 26th. Her bowels were very irregular, and she suffered much from general distention. Food caused almost constant nausea and distress. There was a slight rise of temperature all the time.

On September 26th she was brought to St. Margaret's from Hyannis.

Examination showed this patient to be rather slight, pale and delicate and much emaciated. Pulse 120, weak and easily compressible. The chest was negative. To the left of the median line, just below the umbilicus, a somewhat indefinite mass could be felt through the abdominal wall. Nothing was perceptible on the right side, although she complained of some soreness in the right ovarian region.

By vaginal examination the pelvic region varied from day to day. At one time nothing positively abnormal could be felt; at others a sense of indefinite boggy resistance. One day a tympanitic prominence above the pubes; at another time what suggested a distended bladder. Bimanually, under ether, an in-

definite mass could be felt between the fundus uteri and the abdominal wall.

For the next three weeks the patient was kept under close observation. Her chief symptom was pain in the thorax which seemed like dry pleurisy; there was also difficulty in digestion. After a week or ten days of careful dieting she was able to take abundant nourishment and stimulation. The bowels, which had previously been irregular, acted well by moderate use of laxative pills. The temperature did not rise more than a degree or a degree and a half, and on many days was normal. On the whole, she seemed to gain in her general condition, so that she could get up for part of the day. The pain in her right side entirely disappeared, but there was still to be felt at times a slight resistance to the left of the median line. After careful consideration an exploratory incision was deemed advisable.

October 16, 1894. A median incision was made below the umbilicus, the patient being in the Trendelenberg position. On opening the peritoneal cavity and introducing the hand, a mass was found everywhere adherent, situated partly behind and partly to the left of the uterus. The abdominal cavity was then carefully protected by gauze barriers, and a large, gangrenous, dermoid cyst, containing pus, hair and feces, was easily separated from its adhesions and removed. Several inches of the sigmoid flexure were found completely destroyed, nothing remaining but the attachment of the mesentery. The whole pelvic cavity was flushed with boiled water, and packed with gauze. The ragged ends of the sigmoid flexure were then drawn into the incision, carefully surrounded with gauze, trimmed with scissors and united by interrupted Lembert sutures. The coil was then replaced in the abdomen and the line of suture protected by gauze. The pelvis was drained by means of a glass tube. The abdominal incision was closed by silkworm-gut sutures.

After the operation she was given stimulative enemata every four hours. There was no nausea, and after twelve hours the patient was able to take small amounts of milk, lime-water and champagne. This was deemed necessary on account of her poor condition, though usually we do not give nourishment for the first twenty-four hours in abdominal cases.

For several days after the operation her condition was serious. The pulse remained at 120. The temperature gradually came down to normal. The glass tube was sucked out every six hours; the discharge, though serous at first, became fecal after twenty-four hours. The amount of discharge increased until the bowel emptied itself entirely through the wound.

On the third day the patient was taking a fair amount of nourishment and stimulant by mouth; enemata were therefore stopped, as they escaped through the abdominal opening. The temperature was still satisfactory, although her pulse varied around 120, and was very weak.

On the fifth day there was a slight improvement in her general condition, although the discharge of liquid fecal matter and gas from the abdominal opening was enormous. Up to this time absolutely nothing passed by rectum. This condition lasted for eleven days, her general condition improving a little, on the whole. She was able to take nourishment at frequent intervals, but after every feeding there seemed to be an increased amount of discharge from the abdominal opening. As far as the nurse could tell, there had been no discharge

of gas by rectum, although the patient thought that two or three times a little had escaped that way.

Fecal movements by the rectum began a few days later, with great relief to the patient. From this time the amount of discharge from the abdominal opening steadily diminished; gas and feces passed freely by rectum. The patient's condition immediately improved, and she was able to sit up at the end of four weeks, with the abdominal wound entirely granulated.

On the second day after the operation it was observed that the patient was unable to extend her right hand. Examination showed complete musculo-spiral paralysis. During the operation, which lasted something over an hour, the patient's arms had been kept extended above her head.

For four weeks she had massage and electricity every day, with almost no improvement in her condition. At the end of three months the functions of the nerve were entirely restored.

Experiments on the cadaver, made by Dr. Walton and myself since this experience, shows that the nerves of the brachial plexus are brought up against the clavicle when the arms are fully extended over the head. Pressure upon these nerve trunks in this position, continued for an hour or more, seems to be sufficient to produce a temporary paralysis. It is best, therefore, to avoid extending the arms in the use of the Trendelenberg table.

December 27th. Up to ten days ago the patient had improved so that she was up all day, and had decided to take a journey to Chicago—her home. Without any premonitory symptoms she was taken one night with a chill and pain in the right side, with a temperature of 102°. The pain extended the next day over the entire abdomen, which was somewhat distended. In twenty-four hours she began to flow, and after four or five days the symptoms all abated. This attack of pain, her sister says, was similar to attacks that she had previous to the operation.

In the first case the question arose after operation whether, on the whole, it would not have been better to leave the tumor. Up to the time of my operation upon the second case, I was doubtful on this point. The close relation of the tumor to the bowel, with the increase in size sure to take place, rendered it certain that an operation would some day be necessary, and probable that sooner or later the cyst would get infected. In either event an operation would be imperative; in the former, under difficulties increased by the enlargement and probable adhesions, and in the latter complicated by septic conditions of the most alarming nature. On the other hand, no one could say positively that the dermoid would cause any trouble whatever. So serious an operation as that of opening the rectum would therefore be of doubtful justification, to say the least. In this particular instance the problem was solved by the unexpected and unintentional opening of the rectum. Nothing could be done except immediate enucleation, with such repair of the gut as we might be able to make. The second case throws much light on this important question. The bowel and the tumor, both intimately grown together, after a time became involved in total necrosis. Operation under these unfavorable conditions was clearly imperative. The successful issue is a matter of congratulation hardly to be expected in a second case. In fact, could we have foreseen that a frail woman was to have gangrene of a large

dermoid, with sloughing of the intestine for three inches, in which the rotten cyst was to act as the only barrier against a general fecal extravasation; that in the midst of so hopeless a condition her only chance lay in the removal of the tumor, resection and suture of the bowel, and relief of the existing peritonitis — could we have predicted in Case I a reasonable probability that such complication would arise, excision even of the portion of the bowel under the favorable conditions then present would have been deemed imperative.

The most important question in connection with the operation is that of drainage. The whole question of the method of applying sutures is of no importance if there is under all a possibility, even, of fecal extravasation. Such extravasation is admittedly possible, no matter how you sew; it is the great and the only risk to be feared after that of shock. Fecal extravasation must, therefore, be provided against. This can safely be done by means of gauze barriers, as I have described before, but the use of gauze must not lead to carelessness in making the joint. In the second case I was convinced that the sudden and excessive fecal discharge came, not through the line of sutures, but from an undiscovered spot of necrosis lower down. This disaster was effectually met by the method of drainage used.

With such a provision against accident we are not obliged to use any of the time-taking sutures; nor is a double row essential. On its own merits the interrupted Lembert stitch surpasses all other sutures. It is much more easily and rapidly applied, and it is quite as efficient. All other elements in the question aside, the saving of time is enough to place this method where it belongs — at the head of intestinal sutures. My opinion is based upon many abdominal operations, including twelve intestinal sutures after resection of the entire lumen. Eight have recovered. The fatal cases were (1) shock (woman of sixty-eight, with five days' gangrenous hernia, joint perfect); (2) shock after removal of large, solid abdominal tumor through which the transverse colon ran (joint tight); and (3) exhaustion after complete obstruction for several weeks (joint intact, no extravasation, no peritonitis); (4) shock after excision of four feet of gangrenous intestine. In all other cases, including a resection of ten inches for gangrenous hernia, a resection of the entire ileo-cecal coil, recovery followed.

THE MURDER OF JAMES FARRAR.

A MEDICO-LEGAL REPORT.¹

BY JULIAN A. MEAD, M.D., OF WATERTOWN, MASS.

At half-past two in the morning of May 17, 1894, James Farrar, a farmer in the town of Lincoln, was awakened by a burglar who left the room as soon as he saw that Mr. Farrar was awake. Mr. Farrar arose immediately, dressed, and aroused a man who lived in his house, and then called up four other men who lived in the neighborhood.

In the meantime, a window in the kitchen of James Farrar's house was found open, and under this window was a peculiar foot-print pointing toward the house. Similar foot-prints, leading to and from the house, were found in the dusty road. For some time

the peace of the town of Lincoln had been greatly disturbed by several burglaries, and James Farrar, who was a constable, considered it his duty to arrest the man who had broken into his house. Together with four companions, he followed these peculiar foot-prints now plain, now obscure, now leading up a side-road or into the yard of some house, but always onward toward the town of Weston. When they reached the Tower Hill station of the Massachusetts Central Railroad, which is about four miles from Mr. Farrar's house, they lost track of the peculiar foot-print that they had followed so persistently. At this point the party separated; James and his brother Edward went down the track, and the other three drove in the carriage around to the Cherry Brook railroad-crossing, which is some distance nearer Boston.

James and Edward, encouraged by finding a single foot-print on a sleeper, pressed steadily on down the track, and soon descried in the distance a moving object which, in the dim, uncertain light of dawn, seemed to be a man. This object at once disappeared around a curve in the track, and, when the Farrars reached the spot, was nowhere to be seen. They heard, however, at this time a noise like the breaking of branches in the woods at the side of the track. They went into the woods, and found a man standing at a freshly kindled fire. After some talk of the danger of building a fire in the woods, they put the fire out, and asked the man to come with them; but this he refused to do. James then said, "We intend you no harm, but you must come with us." The man, who subsequently gave his name as Barrett, pulled out a revolver, covered the Farrars, and said that he would not go with them. He then went toward the railroad track, pointing the revolver at them as they slowly followed him. On reaching the track, he started down towards the Cherry Brook crossing, keeping his pursuers all the time covered with his revolver. Barrett had not gone far when he saw the rest of the party, who had gone around the highway, coming up the tracks towards him. His retreat being cut off in this direction, he ran up the bank on the opposite side of the railroad. James Farrar rapidly followed him, and reached the bank soon after Barrett, whose retreat was cut off by a barbed-wire fence. Barrett, cornered and at bay, began to fire at James who reached him just as he fired the third shot. James sprang upon Barrett, and with the help of his brother Edward, soon had him on the ground. In a few minutes James said, "I am shot." He then fell over and died.

I found the body dressed in a leather jacket, woollen vest, two thin shirts, trousers and shoes. In about the centre of the breast of the leather jacket there was a black spot and a ragged hole. There was also a corresponding hole in the vest and shirts. At the back there was a hole in the shirts and vest, but none in the leather jacket. A bullet was found beneath the back of the vest and the leather jacket.

On the following day I made an autopsy, assisted by Drs. Wood and Jackson. There was a black spot in the middle of the front of the chest, two inches long and three inches wide; in the centre of this spot was a circular hole that measured one-quarter of an inch in diameter. This hole was an inch above a line drawn between the two nipples. The upper part of the left side of the face, and the left ear were sprinkled with black spots (powder-marks).

¹ Read before the Massachusetts Medico-Legal Society, February 6, 1895.

On dissection, a small hole, corresponding to the hole already described in the skin, was found in the sternum, just opposite to and near the upper border of the third rib on the left side. The under side of the sternum presented a ragged hole about an inch long pointing toward the left.

The left pleural cavity contained two litres of blood. The left lung was collapsed.

The path of the bullet could be traced by a dark blue line along the upper border of the upper lobe of the left lung, which was slightly wounded at one point. This line led to the left common carotid artery, which was found to be nicked.

There was a small irregular hole, from which blood was slowly oozing, on the left side of the back at a point three inches from the spinal column, and two and one-quarter inches above the spine of the left scapula.

All other organs were found normal.

The cause of death was hemorrhage from the left common carotid artery.

Barrett was indicted for murder by the grand jury, and was tried at Cambridge on the 19th of November, 1894. The trial was ably conducted by Attorney-General Knowlton and District-Attorney Wier for the Commonwealth, and Messrs. Goodrich and Selfridge for the defendant.

The defence tried to prove that Barrett did not know that he was being arrested for burglary, or that James Farrar was a constable, and that, therefore, he acted in self-defence. In order to strengthen this theory of self-defence, Barrett's lawyers tried to prove that he, instead of deliberately firing three shots, as testified to by eye-witnesses, fired but one shot, which was discharged more or less accidentally, after Farrar had seized Barrett. The defence maintained, therefore, that the ball entered the breast at an angle of forty-five degrees, and that the powder-marks on the left ear, and upper part of the left cheek were made by the powder that discharged the fatal bullet that entered the chest.

The medical experts for the Commonwealth, Dr. Draper and myself, testified that the bullet entered the breast at right angles, and was deflected in its course by the sternum. We were led to this conclusion by the fact that the hole in the skin and sternum was perfectly round. We also testified that the wound in the chest, and the powder-marks on the ear and cheek could not have been made by one and the same shot.

In support of our opinion, we undertook, by experiments, to reproduce as far as possible the position of the revolver when the shots were fired. Using Barrett's revolver and the same kind of cartridges, we fired, at different distances, into an old leather jacket which closely resembled that worn by Farrar on the morning of the murder, until we obtained a hole that corresponded to that in Farrar's jacket. To obtain this similarity in appearance it was necessary to hold the revolver about an inch from the jacket. It was conceded by the defence that this distance was correct.

We determined the distance at which the revolver was held, when the shot was fired that made the powder-marks on the ear and upper part of the cheek, by firing at pieces of blotting-paper, and noting the result. The first shot was fired at a distance of eight feet and left no powder-marks on the paper; at seven feet there were a few marks; at five and six feet the

marks were somewhat increased but still quite scattering; at four feet the spots were quite thick; at three feet and a half they corresponded in appearance to those seen on the ear and cheek at the autopsy; at two feet they were very thick, and nearly covered the centre of the paper.

These experiments show conclusively, I think, that the revolver was between three and four feet from the face when the powder-marks were made. Is it possible to reproduce the picture more completely by showing how near the head the bullet passed? You will notice on the blotting-paper targets that the powder-marks are not visible to any extent at a distance of more than four inches from the hole made by the bullet. The bullet could not, therefore, have gone further from the head than four inches, and the number of powder-marks in Farrar's face show that it must have gone as near as three inches, and perhaps a little nearer.

These experiments demonstrate beyond a doubt that the revolver was not farther than an inch from the chest when the fatal shot was fired, and that it must have been three or four feet from the face when the powder-marks were made.

If it is not already clear that separate shots are necessary to produce these two appearances, we have further experiments to show the impossibility of one shot causing both the wound in the chest and the powder-marks.

Experiments were made to see how far from the wound, made by a revolver bullet, powder-marks are visible. At about an inch, the distance at which the wound in the chest was made, there was no spattering of powder, but simply a smutting around the hole; at three inches the result was much the same; at six inches the smutting was present, and some grains of powder were visible; at twelve inches the smutting began to disappear, and the powder-marks were abundant; at twenty-four inches the smutting entirely disappeared. In none of these experiments did the powder-marks appear to any extent beyond a distance of four inches from the bullet-hole. This held true in angular as well as in direct shots.

To substantiate their theory the defence must prove that powder-marks can be deposited one foot from the bullet-hole when the revolver is held about an inch from the wound.

These experiments prove that such spreading of powder is impossible with modern powder and revolvers.

There were, in this particular case, certain additional facts that make the ground of the defence untenable. You will have noticed that no mention has been made of powder-marks on the chin or neck or lower part of the cheek. There were none. Moreover, Professor Wood, after a careful microscopical examination of the jacket above the bullet-hole, was unable to find any grains of powder.

Drs. F. A. Harris and Charles Hibbert testified for the defence that the circular hole in the skin was no criterion whatever as to the angle at which the bullet entered the body. Dr. Hibbert admitted on cross-examination that if the hole in the sternum was circular, the bullet must have gone in straight. Dr. Harris was not asked his opinion on this point.

Both Drs. Harris and Hibbert were asked if a pistol-shot could make a circular wound at the junction of the third rib with the sternum, and at the same

time scatter powder-marks on the left ear. To this question they both answered, "Yes."

We now come to the consideration of the statement made by the defendant's medical experts, Drs. Harris and Hibbert, "that the condition of a bullet-wound in the skin, as to its being round or oval, is no criterion as to the angle at which the bullet was discharged."

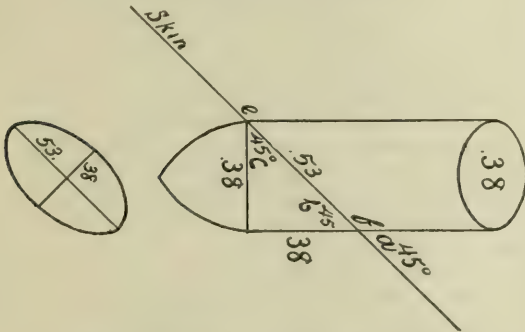
The additional circular hole in Farrar's sternum makes this point of little importance in this case, but the general question is well worth some special attention. Since the trial, Captain Gibson, of the Ordnance Department, U. S. A., and I have made some investigations on this subject.

The question is, Does a bullet entering the surface of the human body obliquely make an absolutely circular wound? It is not doubted that bullets fired point-blank and at a little distance may turn to such a degree as to make an oval or irregular wound.

In answer to the above question both the experts for the defence testified that a bullet fired obliquely often makes an absolutely circular opening. Dr. Hibbert said that this was true because the skin, being an elastic and contractile tissue, contracts after an injury, and assumes more or less the shape of the object which caused the wound.

We may admit the truth of his reason without subscribing to his conclusion; and, if it can be shown that the form of a bullet entering the skin at an angle is elliptical and not circular, he must necessarily change his conclusion.

Let us now see what is the shape of a bullet's cross-section as it enters the skin at an angle.



The figure represents a thirty-eight calibre bullet entering the skin at an angle of forty-five degrees.

The problem is to find the length of the line ef . We know that the angle a is forty-five degrees, and that the base of the right-angle triangle is thirty-eight, the diameter of the bullet. It follows then that the angles a and b are both forty-five degrees, and that the perpendicular is also thirty-eight. By extracting the square root of the sums of the squares of the other two sides, we find that the line ef is fifty-three. This shows that the form of the wound is an ellipse whose major axis is fifty-three, and minor axis is thirty-eight.

Now, if the skin contracts after the bullet enters, as it undoubtedly does, it is absurd to say that it contracts in only one diameter. It is more reasonable to suppose that there is a general contraction, and that the size, and not the form of the opening, is changed.

To see if this theory holds true in practice, we fired at an angle into various objects, such as chamois skin, cloth and paper, and found that the opening was always elliptical. As none of these things have the elastic principle of the skin, we chloroformed, and

fired shots into, a dog. We found that while the elasticity of the skin made the ellipse somewhat less marked, the elliptical form, in different degrees, was present in all the angular shots, and absent in the direct shots. There was always a bevelling of the skin at that part of the wound nearest the point from which the shot was fired.

I have been unable to find much on this subject in the authorities. Taylor says that "the aperture is round only when the bullet strikes point-blank, or nearly so. If it should strike obliquely, the orifice will have more or less of an oval or valvular form."

Roswell Park, in Witthaus and Becker's new work, states the matter much the same as Taylor does.

Capt. Louis La Garde, of the Medical Department, U. S. A., conducted a series of experiments on the cadaver to determine the difference in destructive effects between the projectiles of large and small calibre from hand rifles. He writes me that bevelling in the track of the projectile would indicate that the piece had been held at an acute angle with the plane of the part hit; and an absolutely circular opening without bevelling would indicate that the projectile had entered when its line of flight was at right angles to the point hit.

It seems clear that the experts for the defence were not justified in asserting that the form of the entrance wound of the bullet is "absolutely no criterion" of the angle at which the shot was fired; or that an oblique shot often makes a perfectly circular opening.

Barrett was convicted of murder in the second degree, and was sentenced to the State Prison for life.

Clinical Department.

DIPHTHERIA, INTUBATION, NASAL-FEEDING, RECOVERY.

BY CHAS. B. STEVENS, A.M., M.D., WORCESTER, MASS.

It has been frequently said of late that, by the use of antitoxin in diphtheria, not only will the number of operative cases be diminished and the percentage of recoveries in operative cases increased; but also, the operation of intubation will more often than formerly prove to be adequate and preferable to tracheotomy, because the period of wearing the tube will be shortened.

The three principal causes of death in operative cases are broncho-pneumonia, sepsis, and extension of membrane. Antitoxin opposes especially the last two causes. To avoid broncho-pneumonia, which is caused largely by the inhalation of food through the tube, Dr. W. A. Morrison has practised feeding through a rubber tube passed through the nose into the stomach.

The following clinical case bears upon these questions:

Healthy child, two years old, began to be croupy March 3, 1895. No history of exposure.

March 6th, 1 P.M., it was found to have marked retraction of lower ribs, with some cyanosis. Pulse very weak and rapid, mouth and pharynx normal, no nasal discharge. Emetics, poultices, steam, calomel fumigation, and subcutaneous stimulation gave no relief. Therefore, at 3 P.M., I performed intubation, Dr. R. S. Wilder assisting. Relief was immediate and perfect. Antitoxin was not used because I sus-

pected the case to be pseudo-diphtheria, but a culture from the pharynx was taken immediately after the intubation.

Finding that attempts to swallow food caused severe coughing, I began the next morning to feed the child by a tube passed through the nares into the stomach. A No. 7 soft-rubber catheter was used, and four to six ounces of milk or egg-nog were given, four times a day, as long as the O'Dwyer tube was worn. There was no local treatment and but very little stimulation by brandy and *nux vomica*.

March 7th. Culture taken March 6th, examined by Dr. F. H. Baker, showed no Klebs-Löffler bacilli. Another culture was taken.

March 8th, Dr. Baker reported Klebs-Löffler bacilli in last culture; and twelve cubic centimetres of antitoxin (Gibier, 1-50,000) were injected in the lumbar region.

March 9th. O'Dwyer tube removed. Antitoxin, thirteen cubic centimetres, injected. Immediately after removal of tube the respiration became somewhat labored, but after one hour began to improve.

Convalescence was uninterrupted. The temperature, which had been between 99.5° and 101°, reached normal March 15th, when the throat was free from the Klebs-Löffler bacilli.

The temperature rose one or two degrees after each injection of antitoxin, and a peculiar restlessness came on, lasting one hour. No cutaneous eruptions appeared at any time. No albuminuria.

A QUICK METHOD FOR THE FILTRATION OF A SMALL QUANTITY OF URINE.

BY LOUIS FAUGERES BISHOP, A.M., M.D., NEW YORK.

For a very long time it has been a problem to know how, with the apparatus usually at hand, to obtain quickly and easily a small quantity of clear urine from a cloudy specimen in order to make the usual test for albumin.

The following plan which has proved extremely easy and satisfactory in my own case will, I think, be found equally so in the hands of others: A small quantity of the cloudy urine is placed in a test-tube, the mouth of the test-tube plugged with cotton with a moderate degree of firmness. A second test-tube is placed with its mouth to the first. The position of the tubes is now reversed so that the one with the urine is bottom upward. The upper tube is now carefully and gently heated over the flame of a Bunsen burner or alcohol flame, and the expansion of the air above the urine immediately forces it through the cotton plug, and the filtered urine collects in the lower tube. In this we imitate to a degree the rapid-filtering apparatus of laboratories, but use pressure above the fluid to be filtered instead of an air-exhaust below.

INSTRUCTION IN TROPICAL DISEASES. — Dr. Patrick Manson has been appointed Lecturer on Tropical Diseases in St. George's Hospital Medical School, London. He will give a course of twenty lectures on the principal diseases peculiar to the tropics and Eastern Asia, beginning early in June. The lectures will be especially adapted to the needs of medical men preparing for tropical or Eastern service, and the admission to them will not be limited to the students of St. George's.

Medical Progress.

RECENT PROGRESS IN THORACIC DISEASE.

BY GEORGE G. SEARS, M.D.

SERUM THERAPY IN PNEUMONIA.

THE great interest which has been recently excited in the treatment of diphtheria by antitoxin renders the following summary of the results obtained by similar treatment in pneumonia¹ of special interest.

F. and G. Klemperer have treated twelve cases of the latter disease with the serum of rabbits which had been rendered immune, a dose of five to ten cubic centimetres being injected under the skin of the gluteal region. In five of the cases crisis undoubtedly resulted from the natural evolution of the disease; but in each of the other seven a drop in the temperature and a diminution in the frequency of the pulse and respirations followed the injection. According to these observers there was no question but what the disease was rendered more benign. In eight other cases they injected virulent cultures, which had been exposed to a temperature of 60° C., with very satisfactory results, a gradual fall of temperature beginning twelve to twenty-four hours after the injection. If it rose again, as occasionally happened, a second injection was made. They have also made inoculations with serum taken from a patient immediately after the crisis, and found that the reduction of temperature thus produced was often the beginning of complete defervescence.

Foa and Carbon have seen pneumonia arrested on the fourth day by injections of serum from a vaccinated rabbit, while Foa and Scolia in ten cases used the serum of rabbits which had been rendered refractory to the disease, some of the patients receiving as many as three injections. In four of the cases the crisis seemed to have been hastened.

Janson has also seen this mode of treatment produce early defervescence.

Lava in ten cases where he used the blood-serum and visceral extracts of animals who had been ill with pneumonia was unable to observe any marked immediate influence on the fever, but the temperature curve as a whole was not so high and the frequency of the pulse and the respiration was diminished, while convalescence was rapid and no complications ensued. No local reaction, either immediately or later, followed the injections in any case.

THE HEREDITARY TRANSMISSION OF TUBERCULOSIS.

The possibility of the direct transmission of tuberculosis from mother to fetus has lately been proved by the occurrence of several positive instances, not only in animals but also in man. Gärtner² collected seven undoubted cases of the latter from the literature, beside others which were very probable, and was able to demonstrate experimentally that in pregnant animals with pulmonary consumption the fetus is not so rarely infected with the bacilli. Lehmann³ on careful examination of three placentas from tubercular patients found characteristic lesions in two, one being from a case of miliary tuberculosis, and the other from a case of chronic laryngeal and pulmonary consumption, both the fetal and maternal parts of the placenta being af-

¹ L'Union Médicale, December 8, 1894.

² Zeitschrift f. Hygiene, 1895, Bd. xii.

³ Berl. klin. Woch., June 25, 1894.

fected in the latter instance. No typical lesions were found on autopsy of either child but from the ease with which bacilli could be transmitted from one fetal structure like the chorion to another, the glands or bones, for example, the possibility of congenital tuberculosis being more common than is usually accepted, is suggested. He considers that more diligent search would have demonstrated their presence in many cases where they were not found, since only the most careful examination prevents their being overlooked.

Schmorl and Kockel⁴ report three similar cases, in two of which the patients died during pregnancy from miliary tuberculosis and in the third from chronic laryngeal and pulmonary consumption. In all these bacilli were found in both the maternal and fetal portions of the placenta, but only in one, a case of miliary tuberculosis, could they be found in the body of the fetus, and then only by the microscope. In cases of miliary tubercle the bacilli must be equally distributed by the blood to all organs and the only explanation of their being found in less numbers in the placenta than elsewhere, as occurred in these cases, is to suppose that the placenta is more resistant than other organs to their invasion. They think that the reason why so few bacilli reached the fetal circulation is found in the changes occurring in the vessels of the tuberculous villi, which effect their closure by the production of an overgrowth of endothelium and the formation of hyaline thrombi, and thus form a partial barrier to the spread of the bacilli.

A CASE OF EXTREME CARDIAC DISPLACEMENT.⁵

Heyse describes in great detail the case of a woman, forty-six years old, in whom the heart was displaced so far backwards and to the left that the apex beat was plainly seen in the ninth intercostal space under the angle of the scapula. The area of cardiac dullness was found on the left side behind, immediately above that caused by the liver and spleen, while in its usual place the percussion note was vesicular. Since all other causes could be excluded he reached the conclusion that such extreme displacement could only be due to a fetal arrest of development of the lower lobe of the left lung, and quotes cases from literature in support of this etiology.

THE ETIOLOGY AND PATHOGENESIS OF CARDIAC HYPERTROPY IN DISEASE OF THE KIDNEYS.⁶

Since the explanations given of the coexistence of some forms of kidney disease with cardiac hypertrophy have thus far been most inharmonious, De Dominicis has tried whether by experiment any light could be thrown on a difficult subject. He found that ligation of both renal arteries caused death in dogs just as quickly as did removal of both kidneys. Next, the renal artery on one side only was tied, and in twenty successive experiments it was found that for three or four months the animals, if well tended, remained in good health, but after that time they grew thin without presenting any morbid signs in any particular organ. The urine showed the following changes: in the first five days after the ligature there was slight albuminuria which entirely passed away, while the solids in the urine were diminished in amount, especially the uric acid, but no casts were found. For a

day or two the amount of urine was diminished but after that there was polyuria. With respect to the heart no increase of rate or force could be detected, either by palpation or by the cardiograph. Microscopic examination of the kidneys of some of the animals killed twenty-five to twenty-seven days after showed changes in the kidney, whose artery had been ligatured, due to degeneration of epithelium and interstitial nephritis, the latter changes being present also in the untouched kidney. Reviewing the experimental and the clinical evidence the author concludes, first, that idiopathic hypertrophy of the heart occurs often enough without any kidney lesion; and, secondly, that serious and extensive changes may be induced experimentally in the kidneys without any functional disturbance of the heart, and without even giving rise to the general condition of Bright's disease. When cardiac hypertrophy and renal disease exist together they must be regarded as common effects of a chemical poisoning of the blood.

DIAGNOSIS OF TRICUSPID INSUFFICIENCY.⁷

Hamburger describes a case of tricuspid insufficiency, completed by autopsy, which was under observation a number of weeks, yet auscultation revealed no deviation from the normal sounds. Hypertrophy of the right ventricle and other cardiac signs usual in this condition were present in but slight degree, nevertheless the diagnosis was correctly made from the presence of a strong venous pulse, according to Bamberger the only sure sign of this lesion. Hamburger emphasizes the point because most text-books fail to make it sufficiently plain that serious functional disturbances of the valve are not always accompanied by murmurs. He agrees with Dieulafoi in ascribing their absence to so high a grade of dilatation of the orifice that fluid veins are not formed.

RELATIVE INSUFFICIENCY OF THE PULMONARY VALVES IN MITRAL STENOSIS.⁸

Pawinski says that he has been unable to find in literature any notice of a relative insufficiency of the pulmonary valves, which was dependent on mitral stenosis and not on sclerotic changes in the intima, and yet in his experience this condition is not so very unusual. He has been able on several occasions to demonstrate the presence in cases of mitral stenosis of a diastolic murmur at the left edge of the sternum at the level of the third or fourth costal cartilage, which can also be heard, though less distinctly, in the parasternal line and in the second intercostal space. As a rule it is propagated over the upper left half of the thorax but cannot be heard beyond the right side of the sternum, nor in the so-called aortic area. It was most often found in young, well-nourished individuals, especially women, but was by no means a constant phenomenon when found, often being present for several days or weeks at a time and then disappearing for a longer or shorter time. Favoring circumstances for its production or intensification are a rise of pressure in the pulmonary circulation in consequence of some affection of the lungs or pleura. Clinically it was found that under the influence of digitalis this murmur became at first more audible, but later, as the pulse became slower, it became less distinct and finally disappeared, a markedly accentuated second sound alone

⁴ *Beilage z. path. Anat.*, Bd. xvi, H. II.

⁵ *Centribl. f. innere Med.*, 1894, No. 5.

⁶ *Wien. med. Woch.*, November 17, 1894, et. seq.; *Practitioner*, January, 1895.

⁷ *Deut. med. Woch.*, 1894, No. 22.

⁸ *Deut. Arch. f. klin. Med.*, 1894, Bd. III, p. 519.

remaining. The diagnosis between a diastolic murmur arising in this way and that due to uncomplicated mitral stenosis, aortic insufficiency, tricuspid stenosis or a sound produced in the vena cava superior or inferior would depend upon its character, seat of maximum intensity, line of propagation, the absence of vascular signs and the presence of an accentuated pulmonic second sound. Pawinski was unable to determine any modification of the sound from inspiration or expiration. The sign is of value in prognosis since it shows a hypertrophied and powerful right ventricle on which the mitral lesion is dependent for compensation, and in treatment since it shows excessive pressure in the lesser circuit and indicates measures of relief for that condition.

CYCLING AS A CAUSE OF HEART DISEASE.⁹

Herschell says that the reason why cycling may become more injurious than some other forms of exercise is the fact that the rider takes much more exercise than he is aware of and is very frequently tempted to overtax his powers. This stricture is applicable not only to those who ride for prizes, especially in that suicidal form of racing known as hill-climbing contests, but to the thousands of every-day cyclists who strain themselves in trying to make a given distance within a specified time, or to keep up with the rest of the party, or in using a gear much too high for their strength.

The effects upon the heart of the strain of excessive cycling may be divided into four groups: First, simple hypertrophy, which may be looked upon as a compensating effort of nature to enable the work to be performed, and which may either terminate in recovery or lead to valvular disease and disease of the aorta or to degeneration of the cardiac muscle. Second, acute dilatation of the heart, especially in those who have passed their early youth, ending either in recovery, if the cause be removed, or in more or less sudden death, or in the production of valvular disease. Third, chronic valvular disease, due to one or the other of the first two groups, the result being due either to stretching of the aortic ring by pouching of the aorta and the production of regurgitation, or to the actual giving way of a valve or to sclerotic changes in the valves. In any of these cases the disease will follow the usual course of valvular mischief produced by other causes. Fourth, functional derangements of the heart, many of which are slight and promptly recover, others are similar to those chronic cases of tachycardia, which Da Costa observed among the men engaged in our Civil War and to which he applied the term of "irritable heart." The chief symptoms of this condition which he has observed are palpitation and intermittency of the heart's action, shortness of breath, a sensation of sinking at the epigastrium and the occasional occurrence of angina-like symptoms.

As an offset to these possible evils of excessive cycling we have the undoubted fact that in moderation and under proper conditions it is one of our most potent remedial measures in establishing that compensatory hypertrophy, which alone can enable the victims of valvular cardiac disease to live in comfort and happiness.

In considering the precautions to be taken to obviate the dangers of the sport, he lays stress upon the following points: the use of a low gear, the upright position in riding, adequate food when riding and the

avoidance of muscle poisons, such as beef-tea, as well as preparations of kola and coca. Perhaps the most important point of all is that the cyclist should on no account continue riding after he has begun to feel short of breath or when there is the slightest sensation of uneasiness in the chest.

The subject has also been considered by Sir B. W. Richardson,¹⁰ who arrives at essentially the same conclusions, but in addition says that it is often more important to consider the peripheral condition of the circulation than the central in advising patients on the subject of cycling, since enfeebled or worn-out arteries may be more dangerous than the feeble heart. The same remark would also apply to cases where there is a local arterial injury, such as aneurism. Venous enlargement, on the other hand, seems rather to be benefited than injured by cycling, conditions marked by sluggish circulation through the veins being often greatly relieved by the exercise.

In commenting on the paper, Dr. Ernest Sansom said that he could recall but one instance of rapid heart in a cyclist and had never met with a case of irregular heart among them, and thought that the influence of cycling was decidedly more in the direction of good than of harm. As a therapeutic agent in the treatment of actually existing heart disease it was quite in accord with the teaching of Professor Hirst of Munich, but in his opinion it had many advantages over climbing, which the latter extolled.

INDURATIVE MEDIASTINO-PERICARDITIS.¹¹

Harris has collected from literature nineteen cases of this condition, completed by autopsies, and has added three others hitherto unpublished. From these cases it would appear that it is not more common in children than in adults, since only nine occurred in persons under eighteen years of age, while thirteen, only two of whom had reached thirty, were over it. It also seems that males are more frequently affected than females since the former predominated in the proportion of seventeen to five. In some of the cases there is a history of an acute illness, usually an acute chest affection, ante-dating the time at which the symptoms of mediastino-pericarditis manifested themselves, which in some instances was clearly an attack of acute pericarditis, but in others the only acute illness in the previous history of the patient was one of the acute fevers, most commonly scarlatina or measles, while in still others the onset was perfectly insidious. Trauma does not appear to have commonly played a part nor does tubercle seem a frequent associate.

The symptoms are chiefly those of failing cardiac compensation, to which are added a pulsus paradoxus and inspiratory swelling of the veins of the neck, but all symptoms are not necessarily present in every case. Dropsy may either be general or confined to the abdominal cavity with little or no anasarca of the lower limbs. At first the patients are able to lie down fairly comfortably in bed but later orthopnea may develop. The position, however, described by Jaccoud as important in diagnosis, in which the patient sits up in bed with the trunk markedly bent forward in consequence of the increased dyspnea and intra-thoracic pain when the erect or still more the recumbent posture is assumed, must be very exceptional.

The physical signs show an increase in the area of

¹⁰ Quoted in New York Medical Record, February 16, 1895.

¹¹ Medical Chronicle, October, 1894, to January, 1895, inc.

⁹ Lancet, March 2, 1895.

cardiac dulness, which may extend as high as the first rib, especially when the heart is pushed up by fluid in the abdominal cavity; but this extensive increase is much more likely to be due to the coincident cardiac enlargement than to the mediastinitis, though in some cases enlarged caseous glands together with the fibrous tissue in the mediastinum may contribute to its production.

The occurrence of ascites in some cases without noteworthy anasarca may possibly result from a chronic inflammation of the liver resulting from chronic passive congestion, or it may be due to a chronic peritonitis, arising either as an independent affection or as a result of passive congestion. Regarding the pulsus paradoxus, on which so much stress has been laid in diagnosis, it has been observed not only in mediastino-pericarditis, but in different forms of pericarditis without mediastinitis, in cases of large pleuritic effusion, in great cardiac weakness, and in convalescence from long standing febrile affections as well as in a case of mitral incompetence with dilatation of the heart, in cases of great dyspnea from narrowing of the air passages and in cases of mediastinal tumor, so that it can no longer be considered as pathognomonic, yet its detection in any case should direct the attention to the possible presence of the affection. Engorgement of the veins of the neck is common, as in cases of marked dilatation of the right ventricle and the engorged veins may show marked pulsations, but an inspiratory distention of the right external jugular vein may or may not be present, so that its absence does not necessarily invalidate the diagnosis. It has also been observed in an uncomplicated case of pericarditis exudativa.

The duration of the affection appears to vary from a few months to several years, death resulting in a majority of cases from cardiac dilatation and heart failure. Bronchitis and catarrhal pneumonia frequently assist in bringing about the fatal termination, and attacks of pleurisy, which seem to be very common, may aid in reducing the power of resistance of the patient, while in other cases the development of acute tuberculosis or the extension of a pre-existing phthisis may be the principal cause in producing death. The article is enriched by a full bibliography.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, February 9, 1895, the President Dr. James Chadwick, in the chair.

DR. M. H. RICHARDSON read a paper on

TWO CASES OF DERMOID CYST OF THE OVARY INVOLVING THE SIGMOID FLEXURE, NECESSITATING RESECTION AND SUTURE OF THE INTESTINE.¹

DR. F. H. DAVENPORT said he would feel more doubtful about the issue in leaving the dermoid than if he continued the operation. Aside from the growth of the cyst there is great danger of infection and suppuration, especially when the rectum becomes involved. He had operated on several suppurating dermoid cysts.

DR. W. L. BURRAGE: Last summer I had a case

¹ See page 399 of the Journal.

of tear of the rectum due to intimate adhesions between an old salpingitis with degenerated ovaries and the bowel, and also a case of intestinal anastomosis for cancerous stricture of the sigmoid flexure.

The first case was a hysterectomy in a neurasthenic patient. In tearing the tubes and ovaries away from their attachments, I opened the rectum for a distance of three-quarters of an inch in its lower half. The rent was closed with a continuous Lambert stitch of fine silk; no abdominal drainage. The patient made a perfect recovery. In the second case I was called to do an emergency operation on a patient who had had symptoms of obstruction of the bowels for five weeks, and had been plied with castor oil, jalap elaterium, and croton oil for four days before I saw her. She was in a very bad shape, and operation was offered as a forlorn hope. The strictured portion of the gut was not firmly attached to the pelvic wall, and I did an end-to-end anastomosis. In a similar case now I should either use the Murphy button or be content with forming an artificial anus. The patient died of shock.

Injuries of the rectum and sigmoid flexure are much more easily repaired now than they were before the days of the Trendelenberg posture. I have a feeling that gauze drainage about a joint in the intestine is safer than without it.

DR. F. B. HARRINGTON said that the point made by Dr. Richardson of the use of gauze as a protective was of great value and saved much time. The use of the Murphy button also enables one to save a great deal of time. As regards the wounding of the ureters, he was interested in the remarks by Dr. Kelly in a recent number of the *Johns Hopkins Hospital Bulletin*, where in three cases he feared he might have sutured the ureter by mistake. In all of them he made a longitudinal cut in the ureter and passed a probe up and down. In one of the cases he found that a stitch had been put in.

DR. W. H. BAKER said he would like to emphasize the point brought out by the reader, that the man who opens the abdomen must be ready to face any emergency that may arise. The more clearly we can make our diagnosis in advance the better prepared we shall be. The dermoid cyst is more like a fibroid tumor in its slow growth. It is also more sensitive than any other tumor, for example, a pus-tube, fibroid or ovarian cyst.

Then there are more dense adhesions with a dermoid cyst than any other, hence we have to face greater difficulties in their removal. The sigmoid flexure and rectum are the places for nature's openings to occur. Dr. Hare has reported one that opened into the bladder, which is unusual.

DR. J. R. CHADWICK said that he had recently opened the ureter in doing a vaginal hysterectomy, so that the urine on the eighth day began to flow from the vagina. Ten days later the patient had a chill and the urine from the vagina showed a septic kidney. From this the patient recovered in two or three weeks, and a week later the opening into the vagina from the ureter spontaneously closed. Since then the patient has been perfectly well, and the urine now contains no casts.

DR. E. W. CUSHING, being requested to relate his experience in regard to these operations, said: This paper relates to very important matters, and I am glad that a surgeon of the authority of Dr. Richard-

son has emphasized the necessity of being prepared in every abdominal operation to find what is unexpected and to do whatever is necessary, even if it is requisite to resect the intestine or to suture the ureter.

Every surgeon is liable to be met by conditions demanding the highest degree of technical skill, conditions where it is imperative to proceed to finish the operation *secundum artem*, and where retreat is disgraceful to the operator and fatal to the patient. Unfortunately there is a great deal of imperfect work, from lack of preparation, if not from lack of skill and courage.

My own experience in suturing the intestine has been mostly in cases where there was a pre-existent opening from a pus-tube into the bowel, where in the course of enucleation of the tube the fistulous communication had been discovered. In my early operations I lost two cases from not finding these openings; and later I learned to be on the watch for them, particularly when there was a history of repeated discharges of pus by the bowel, or where during the operation after a difficult enucleation of a pus-tube I found in it a rounded opening emitting pus, not a tear but the opening of the fistula. Some time ago I reported to this Society three cases in which I had found such an opening and had repaired it with successful results. I have had several others since.

Now that we have the immense advantage of the Trendelenberg position, so that we can have the benefit of sight in separating adhesions, it would be inexcusable to overlook such a condition, and thus sacrifice the patient.

To a lesser extent it is often necessary to repair the serous coat of the bowel when it is inevitably torn in separating dense adhesions, in removing pus-tubes or adherent tumors. This is one of the principal reasons why in the treatment of pyosalpinx abdominal section is to be preferred to the method by vaginal hysterectomy, which has lately become so popular. Yesterday I removed suppurating tubes and ovaries in the presence of a gentleman who is here to-night and who is the principal advocate of the French system of vaginal hysterectomy for such affections, and I called his attention to the fact that with every advantage of Trendelenberg's position, with the tube and adherent intestine in plain sight, it was impossible, even with the utmost delicacy, to separate them without damaging the serous coat of the bowel so that several sutures were necessary. My experience of the difficulty of operating on such cases through the vagina makes me firmly believe that when the present enthusiasm for the latter procedure has spread about in this country, it will lead to a large amount of bad surgery, such as leaving of masses of suppurating tube and ovary in the abdominal cavity, tearing and clamping of the intestine, rents of the bladder, clamping of the ureter, etc.

My own experience in resection of the intestine for injuries received during operation, or in order to complete an operation, is limited to two cases. The first was for an entero-vaginal fistula, which opened the tenth day after a very difficult vaginal hysterectomy for cancer of the uterus. I twice attempted to close the fistula from below, but did not succeed. The abdomen was opened, and the injured part of the small intestine (some three inches) was resected, the ends of the bowel being sewed together with silk in the ordinary way. The patient recovered from the operation very well. The other case was an elderly woman

who had had a tumor, supposed to be a fibroid of the uterus, for more than twenty years. Her sufferings finally became intolerable, with symptoms of obstruction of the bowel, and at the same time the tumor commenced to grow rapidly. On opening the abdomen I found a dermoid cyst, which had become cancerous at the lower part, involving the sigmoid flexure of the colon, which passed through the cancerous mass. By the aid of the Murphy button I resected about six inches of the bowel, and found that by the use of this little device the resection was extraordinarily rapid and easy, forming a marked contrast to a case where I once resected the colon for malignant stenosis before the days of the button, and where the different size of the intestine above and below the stricture rendered the operation difficult and tedious. It is a particularly valuable feature of the button that it makes it easy to unite two ends of intestine of different sizes. I always have one at hand in operating in the abdomen. This case also recovered, the button coming away on the twentieth day. In both cases I used gauze drainage.

In regard to injuries of the ureter, my first experience was in removing a large fibroid tumor from a patient of Dr. T. Garceau. When the rubber ligature was removed from the stump eight days after operation, there was an escape of clear fluid which was evidently urine. Nevertheless, the case went on to recovery, and for a long time there was a urinary fistula at the site of the lowest part of the abdominal incision. Much against our expectation this finally closed, and the patient now enjoys perfect health, more than six years after the operation. In December, 1892, I removed an enormous myoma of the uterus, which had grown principally from its lower part and thus, as afterwards appeared, had lifted the whole peritoneal covering of the pelvis and with it the ureters. Suspecting something of the kind, I made the incision of the peritoneum of the tumor some four inches above the brim of the pelvis, and yet on the right side I cut the ureter. It had already been tied, as I supposed it to be a blood-vessel; but as some drops of clear fluid issued from the end above the ligature, which was on the tumor, the ligature was loosened, the lower end found and united to the upper end by two silk and one catgut sutures. The ureter on the other side was avoided. When the tumor was removed the pelvis was bare of peritoneum and the iliac vessels could be seen, but the large flaps of peritoneum from the tumor, carrying the ureters, covered in the pelvic surfaces. The tumor was fixed in the angle of the wound, and glass and gauze drainage was brought out at an opening separated from the stump by some sutures. On the third day some urine appeared in the gauze; but by care the stump was kept dry, and the patient recovered with a urinary fistula, which discharged perhaps half the urine from one kidney, or one-fourth of the total amount. Gradually the opening closed, and after about a year the discharge ceased entirely. I received a letter from this patient a few days ago, and she is now, two years after the operation, perfectly well and strong. The fistula has long been healed completely. I have referred to this case thus particularly because I believe it was the first time in this country, if not anywhere, that the ureter severed during operation was repaired, the patient surviving.

I certainly had then never heard of such an opera-

tion; and when I reported the case at the meeting of the Philadelphia Obstetrical Society in February, 1893, no one there had any knowledge of such a case. I published the case with a photograph of the specimen.²

Besides these two cases I have had two others in which the ureter was clamped in vaginal hysterectomy, in the days when I used clamps in this operation. In both the leak was noticed soon after the clamps were removed. In the first there was also a vesico-vaginal fistula. I passed a probe into the bladder through the urethra and out through the fistula into the vagina, then I passed it into the opening into the ureter, and having it held in place I proceeded to dissect the mucous membrane in such a way that I covered the probe entirely, thus turning the urine into the bladder. The patient recovered completely, and has had no trouble since. In the second case there was no vesico-vaginal opening; and so, encouraged by the result in the first case, I passed the sound into the bladder as before, through the urethra, and selecting a spot near the opening of the ureter into the vagina I made bold to thrust the sound through the bladder, from within outwards into the vagina, when I covered it in as before in the other case. This patient also recovered perfectly, and both have now been well for several years.

DR. RICHARDSON, in closing, said that the discussion confirmed the position he had taken, that one who opens the abdomen may have to deal with most grave and unexpected complications.

In the first case reported suture would have been impossible without the Trendelenberg position. He prefers end-to-end suture to the use of any mechanical contrivances, even if the time occupied is a little longer.

He does not think that any method of intestinal suture is safe against leakage; hence he always uses gauze drainage, as the patient, without drainage, would probably die if a stitch should give way. The Murphy button should be in every operating bag, but should be used only when time is very important, otherwise the suture is far better.

A single row of stitches is usually all that is essential in intestinal suture. He would agree with Dr. Baker as to the importance of exhausting every means of making an accurate physical diagnosis before opening the abdomen.

Finally, he would express his surprise at what nature will accomplish in these cases in the closure of fistulæ whether from the parotid, the bladder, the intestine, the gall-bladder, or even the ureter. It is not worth while to borrow trouble about these fistulæ, for in the majority of cases spontaneous closure will take place. Intestinal fistulæ especially have a way of taking care of themselves; not five per cent. probably requiring operative measures. In fact, unless a very considerable portion of the intestinal lumen is gone, spontaneous closure cannot be prevented.

A paper by DR. J. G. BLAKE was read in his absence by the Secretary, entitled

THE PERMANENT RESULTS FROM THE ALEXANDER OPERATION.³

of which the following is an abstract:

² *Annals of Gynecology* for February, 1893.
³ To be published in the sixth series of the Boston City Hospital Medical and Surgical Reports.

Dr. Blake had received reports from operators throughout the United States and England, and had tabulated the results, aggregating with Dr. Chadwick's figures reported this evening, thirteen hundred cases. The failures did not exceed ten per cent. of the whole number operated upon, and applied chiefly to the early cases. He reported also fifty-three childbirths in which the position of the uterus was found to be unaffected by pregnancy or delivery.

The result of the investigation satisfied Dr. Blake that the operation was a useful and reliable one within its limits—backward displacement without adhesions—and was almost absolutely free from danger in competent hands. Hernia and abortion were also found to be of very rare occurrence.

DR. R. A. KINGMAN thought that the unfavorable results reported by some operators were due to the fact that the cases were badly selected. He had operated a large number of times by the Alexander method, failing in two cases only: one where the ligament was partly degenerated and broken, and one where the ligament could not be found. He considers the operation to be one absolutely free from danger and uniformly successful in properly selected cases.

DR. G. H. WASHBURN had seen the discomfort of frequent micturition follow the Alexander operation, from pulling the uterus up too close against the bladder. In properly selected cases he considers the operation a good one.

DR. E. W. CUSHING: It is with considerable reluctance, that I rise in response to the invitation to speak on this question, for I much dislike to mar the unanimity of an Alexander symposium, or to appear as the *advocatus Diaboli*, raising objections to the conclusions which would naturally be drawn from this able and carefully prepared paper. Nevertheless, I regret to have to say that after fair trial, and somewhat extended use, the Alexander operation has failed to answer my expectations, or to fulfil the claims that were originally made for it. There are radical objections to it in theory, and serious disadvantages connected with it in practice.

When the operation was first introduced into public attention in this country by the articles read at the Ninth International Medical Congress in 1887, I gave the procedure full acceptance, and collected for publication articles and abstracts, showing the status of the operation at that time.⁴ I soon began to perform it, first by the method then somewhat in vogue, finding the ligaments at the external ring and tying the ends together, over iodoform gauze, across the abdomen. The ligaments dried into hard cords and it was very certain that they would not slip during the healing of the incisions. Then came the method practised by Etheridge, Kellogg and others, by which the roof of the inguinal canal was opened and the ligaments fished up through a very small aperture in the fascia. Dr. Blake will bear me witness that this makes a very neat operation, and that when I disparage the results of my own operations, as well as of those of others, it is not to be attributed to any particular want of skill on my part.

I performed the operation some thirty times or more and then I found fewer and fewer cases which seemed to me suitable for this procedure; because, with increasing knowledge of abdominal pathology, the field of the operation grew more and more circumscribed,

⁴ *Annals of Gynecology*, December, 1887.

and with increasing confidence in abdominal operations the procedure of the Alexander-Adams was more and more replaced by others of greater certainty and less liable to the remote bad results, which I began to find not only in my own cases but also in those who had undergone the operation at other hands.

What then are the real objections to the operation? First, as a matter of surgery, it is often unsatisfactory, because the ligaments may be rudimentary and hard to find. The bight of the ligament at best must be buried in the wound where it is likely to give rise to late trouble by having its nutrition cut off. In other words, there is an undue disturbance of the anatomical relation of the parts, which too often gives rise to suppuration soon or to hernia later.

Now this question of hernia is very serious, and I do not think that it has received sufficient consideration in the paper which we have just heard. We have there a long series of operations, but very little said of the resultant herniæ. Nevertheless, they do occur: Of my thirty cases no less than four were followed by hernia, and I know that the same result attended the operations of some of the gentlemen whose statistics are quoted in the paper, although at this moment I am not at liberty to state my authority beyond some observations of my own.⁵

Besides the facts cited in regard to difficulty, suppuration and hernia, it is not to be gainsaid that there is some danger to life in the operation. Not many fatal cases are reported, but they do occur; and on the whole there is nearly or quite as much danger connected with this operation as there is in expert hands with some of the more radical operations which may be used instead of it with greater certainty of good results, and without leaving two wounds instead of one — wounds in the weakest part of the human system, the inguinal canal, a part which although strong enough when our progenitors went on all fours, has not yet become able to endure the strain to which it is subjected in a considerable percentage of the present human race.

Apart from these special objections to the operation, there are others which are more important and which are fundamental. The operation is done in ignorance of the real condition inside the pelvis, and can therefore offer no certain promise of relieving the sufferings of the patient. As a matter of fact, it does not relieve them in a very considerable proportion of cases, and the wretched woman must again undergo the more radical operation which she should have had in the beginning.

To be sure, a very large part of the claims which were made for the Alexander operation in the beginning, or only a few years ago, are now abandoned. We do not read now of severe cases of procidentia uteri cured by this operation alone, such as were once reported and figured.⁶ The claim has also been

abandoned that the operation is suitable for cases where there are even moderate adhesions of the uterus, binding it down. If then the operation is limited strictly to cases where the uterus is entirely free and the uterine appendages are entirely healthy, it need not be condemned except for two facts. In the first place, I make bold to say that under such conditions the women do not suffer enough to justify the operation; and if they do suffer, we can never be sure just what the trouble is which causes the suffering. After we have excluded the commoner causes of retroversion — such as chronic metritis, subinvolution, ruptured perineum, overstretched pelvic floor, small fibroid tumor, etc. — even if we can be sure that the uterus is freely movable, and that the ovaries and tubes are not greatly enlarged or plainly adherent, we still have to remember that the commonest adhesions both of the uterus and of the tubes are to the intestines, and that it is perfectly possible to have an uterus apparently quite movable and yet bound to the bowel by a band of adhesions, either directly or by means of a tube, in such a way that after being replaced it will be pulled back again. The same thing occurs after Alexander's operation in a great many cases; and it is rarely possible to be sure of the absence of such bands, or of other diseases of the appendages, in women who really suffer enough to justify any important operation.

While, therefore, I would not be dogmatic and condemn the operation of Alexander and Adams in certain such rare cases, where there are no adhesions or diseases of uterus or appendages, yet practically I have not met in the last two years any case in which I did not prefer either to open the abdomen if the condition of the tubes was doubtful, or to perform vaginal hysterectomy where either the tubes and ovaries were certainly diseased, or the need and desire for restoration to full health so overshadowed the hope or expectation of further pregnancies, that it seemed better to remove the heavy and diseased uterus and the appendages and thus relieve the patient with certainty once for all.

On the whole, then, I consider the Alexander operation as belonging to a transition stage in the advance of gynecic surgery; both as a general step in the progress of our art, and, in my own case at least, as a stage of my development in knowledge, skill and experience.

DR. J. R. CHADWICK said he thought favorably of the operation, having performed it some one hundred times in private practice. The results were not all favorable, about fifteen in all proving unsuccessful. In only one case he failed to find the round ligaments. He never operated where there were adhesions of any account. He had never seen hernia following the operation. He always uses a pessary for a month or two following the operation.

DR. F. B. HARRINGTON considered the danger of hernia after the Alexander operation much less than after a laparotomy. There is no need of cutting the canal. As to the comparative danger of the two operations, it is infinitesimal in the Alexander, which we cannot say of laparotomy.

DR. J. G. BLAKE, in closing, said that where hernia occurred his correspondents said they had used catgut. This was never the case where silk was used. In his own experience he had never seen hernia follow the operation. Rather than wear a pessary for life, the Alexander operation was far preferable.

⁵ Since the day of the meeting where these remarks were made I have been permitted to publish the following letter:

HOSPITAL FOR RUPTURED AND CRIPPLED, NEW YORK.

MY DEAR DOCTOR:—In reply to your letter about Alexander's operation, I will say, we have under observation here fourteen cases of hernia following the operation. The names of the surgeons I shall not give, but I will say that they are well-known gynecologists who advocate the operation. The patients, with hardly an exception, stated that there had been no improvement in the condition of the uterus. In several of the cases the hernia was very large and difficult to control with any form of apparatus. I do not mean to say the operation does no good in ideal cases, but I believe the possibility of hernia following the operation has been too little considered. I have no objection to your quoting the source of the statistics as I intend publishing them in detail soon. Very sincerely yours,

WILLIAM B. COLEY.

⁶ Loc. cit., p. 123.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 6, 1895,
DR. M. H. RICHARDSON in the chair.

DR. EDMUND D. SPEAR: I wish to present to the Section a patient whose case illustrates

THE NASAL ORIGIN OF MANY TRIGEMINAL NEURALGIAS.

For the relief of pain in the face, the patient has suffered most of the operations upon the fifth nerve except that of resection of the Gasserian ganglion. He has had, in the first place, the lower branch of the fifth resected in the jaw; the second branch of the fifth, under the eye, removed; has had quite a number of teeth extracted; and finally had evulsion of the second and third branches of the fifth at their exit, by Dr. Richardson. The man suffered intense pain in his face for a period of ten years. He first applied to Dr. Blake, the aurist, for relief of pain in his ear, and Dr. Blake found suppurative inflammation of the ear with a polypus, which latter he removed without relief to the pain. Patient next consulted his family physician, who prescribed for him for a number of years. He also saw Dr. Beach, who prescribed for him. He then had Dr. Putnam see him, and some operation on the nerve was advised. In 1889 he had the final operation for the removal of the roots of the fifth. He was entirely relieved from pain for a year and a half. The pain usually came on about the time we get our hay-fever cases, and extended through the winter into the spring, so that about two-thirds of the time he was suffering from this neuralgic affection, which finally became very excessive and incapacitated him from work at times. After the last, the deep operation, he went to Dr. Wyman, who was accustomed to apply the galvanic current with a fair amount of relief so that he was able to work at his business, but he had to go for treatment every morning and night. I saw him the next year. He had been suffering seven weeks with excruciating pain in the upper jaw. The day he came to me he was unable to eat anything which required motion of the muscles. Could not touch his face in any part around the affected region, so that he could not even wash his face. There was also a remarkable difficulty in speech, apparently due to defective innervation of the facial and labial muscles. Almost complete sensation had returned in the face with the hyperesthesia of this nerve. On examination of the nose an enlarged hyperesthetic second turbinate was discovered. I began treating him locally in the nose. I cocaineized the turbinate, treating it pretty carefully because the slightest stretching of the nostrils with the nasal speculum brought on pain. In a week he was able to eat solids. At the end of the next week I went into the country, and transferred the case to Dr. Wyman, whom I instructed in the use of local applications. At the end of six weeks the man was practically cured. He had a relapse the next season, a "cold" having probably induced congestion; and he had an attack of pain of the lancinating character, but not attended with spasm. I treated him locally again, relieved him, and later he had another attack which I relieved. He has now, for nearly a year, been free from pain.

DR. LOUIS M. TIFFANY of Baltimore, Md., read a paper on

THE TREATMENT OF TRIGEMINAL NEURALGIA BY INTRACRANIAL NEURECTOMY.¹

DR. N. P. DANDRIDGE, of Cincinnati, O., described ROSE'S OPERATION FOR THE REMOVAL OF THE GASSERIAN GANGLION.²

DR. MIXTER: Almost the last point mentioned in Dr. Dandridge's paper is interesting in this connection, and that is the question of other neurectomies in the treatment of this disease; and that I feel I am more competent to speak of, perhaps, than the operation on the Gasserian ganglion.

I have performed the operation of dividing the terminal branches in fifteen cases of division of the second and third divisions at the base of the skull; three I think were only divisions of the third division. It is interesting to know that in a certain number of those cases the pain has returned. In the first couple of years in which I had been performing this operation of taking out the nerve at the foramen ovale and rotundum, I began to think the patients were permanently cured; and although Rose and others published their operations on the Gasserian ganglion, I questioned the advisability of attacking the ganglion when the operation could be done so much easier at the foramen. Within the last six months, however, I have had three patients come back with severe neuralgia, in spite of this comparatively radical operation. That brings up, I think, the whole question as to whether in cases of beginning neuralgia which promises to be of epileptiform variety, where it may come on for a time and then disappear under treatment, whether it is best to go as far as we possibly can and take out the ganglion or do the more superficial neurectomies; whether time will show that removal of the Gasserian ganglion is a permanent cure. In a certain number of cases several years have elapsed since the nerves were divided at the foramina, and in certain cases the pain has returned. In the cases where pain has returned, operations had been performed before, and more superficial neurectomies had been performed. In one case the operation which I did was the sixth or seventh operation, and in that case the pain is back, but it is not as severe; and in none of these cases is the pain severe enough to force the patient to the further operation of removal of the Gasserian ganglion except one. That is the case operated on by Dr. Porter some three or four years ago, and the inferior dental nerve was removed. I operated on him about two years ago, and removed the second and third divisions at the foramina, and they were thoroughly removed; and then he got just about as long immunity as from the first operation—about eighteen months. Last summer I removed his Gasserian ganglion. You see eighteen months' or two years' immunity after dividing the superficial branch sometimes. I have seen the same immunity after dividing a deep branch; and some cases show return after division of the Gasserian ganglion. I think it rests with the neurologists and pathologists to show how fast these changes extend up the nerve, and whether we can by coming back to the Gasserian ganglion get behind them as you can in case of gan-

¹ Reserved for publication.

² See page 397 of the Journal.

grene get beyond it. The operation of removal of the Gasserian ganglion was in one of these cases of recurrence, and I did Hartwell's operation, not strictly perhaps Hartwell's, because I was not able to do it exactly as he has described it. The skull was very thick, and I could not break it down, and simply took it out with rongeur forceps as far down as necessary, and none of the bone taken out was replaced. I went through the dura twice, dividing and tying the middle meningeal. The brain was lifted up, having no dura to protect it, it having been torn slightly; but apparently that did no harm. The ganglion was reached with considerable difficulty. It is a very difficult operation. I have only performed one more difficult, and the ganglion was pretty thoroughly removed piecemeal with forceps and fine curved scissors. There was a very sharp attack of hemorrhage. Whether I wounded the sinus or not I do not know; but packing controlled it, and the patient recovered well from the ether with little shock. The packing was left in the skull. Rather a remarkable thing about the case was that two or three days after the operation the patient had an attack of erysipelas of the wound, the only case I had in my service last summer at the hospital. I expected he would die of meningitis, because it was a genuine attack of erysipelas over the face and head and about the wound; but he had not a single symptom pointing to the brain, and he recovered perfectly. There was a little sinus a short time and a stitch came out; and he has been well since. The man is now at work as surgical-instrument maker.

There are one or two points in regard to dividing the nerves at the base of the skull and not sawing through the zygoma, that might be mentioned. One is the question of wiring the zygoma. At first I always drilled and wired it, but later I seldom took the pains even to stitch up the fascia over the bone and simply let it drop into place. The temporal muscle atrophies, and by far the greatest deformity is depression caused by atrophy of the temporal; and the zygoma, if allowed to take whatever position it likes in the wound, will cause very little deformity.

Another point is the question of deafness after these operations. I think I have spoken of that in a paper. It has occurred several times. I have been so fortunate as to have Dr. Blake examine the ears of these patients. In one case there was a large ecchymosis about the eye where I went in over the second division through that incision; and also there was a large ecchymosis in the membrana tympani, and between the layers of that there was a very considerable quantity of blood in two or three cases, and deafness and noises in the ears persisted a long time.

DR. PUTNAM: The pathology of the subject still seems to be in a great deal of obscurity. A few interesting anatomical observations have been published. One of the first of these was by Dr. Schweinitz of Philadelphia, who found a marked degeneration of the nerve fibres, while Dr. Dana of New York published the notes of several cases in which he had found a marked arterio-sclerosis of the blood-vessels and not much degeneration of the nerve-fibres. Since then there have been a limited number of others. I examined some years ago, the nerves from five patients operated on by Drs. Richardson, Cabot, Warren and Mixter. In some of them there was very marked degeneration; in others well-marked arterial change, such that some arteries were entirely plugged. But

in others again there was no great change to be seen, so that even in cases where neuritis is present we cannot say positively that it was the real cause of the neuralgia. My own impression is that there are two elements present: one, peripheral irritation of one or another sort, and the other a — so to speak — physiological disturbance of the nervous centre which gives the neuralgia its peculiar character; for example, the neuralgia of the lower branches of the fifth is usually quite different from that of the supraorbital branch, in my experience. Then the question arises, supposing neuritis to be present and to be the main cause of the trouble so that the nerve deserves to be treated as a foreign body and removed, whether we can form any idea how far the neuritis has progressed in a given case. I think the history of parallel cases of neuralgia of the limbs after amputation are important in this connection. Dr. Abbe, of New York, has in several cases made section of the posterior nerve roots of the spinal canal above the ganglion in which they primarily arise, and although there was relief for a time, the pain returned, I think, in all, indicating that some change had taken place still further up. In cases of these facial neuralgias of the fifth pair where the nerve is so short it would seem that we might expect the neuritis to reach the Gasserian ganglion very early, the question would be whether it would go beyond it? I do not know that we have any reason to think it might not do so. It would certainly seem as if removal of the trophic ganglion of the nerve would afford an additional security although it may prove that the security is not so great as would seem.

I think there are one or two other interesting matters to consider in connection with the general subject. In the first place, the pain sometimes disappears for a long period, sometimes indeed ceases quite suddenly either spontaneously or as a result of some treatment such as Dr. Spear has spoken of, or from the careful relief of constipation or by aconitia, although the anatomical conditions remain the same.

Dr. Tiffany spoke of affection of taste as being absent in some cases and not in others. I think that is explained by the fact that taste conduction probably occurs through the fibres of the glosso-pharyngeal, which usually run in the course of the fifth nerve but have their origin in a different place.

As among the curious disturbances observed after these operations, I should like to mention a case operated on by Dr. Richardson where a peculiar lisp was brought on which never entirely disappeared, and indeed remained very marked for several years.

I think the fact referred to by one of the gentlemen, namely, the roughness of the skin of the forehead before the operation, which disappeared afterwards, is of great interest, as bearing out the view that trophic changes in the skin are due much less to absence of the influence of the nerve than to some morbid influence exerted by a diseased nerve, a fact long ago commented on by Dr. Weir Mitchell, Brown-Séquard and others.

DR. FOLSOM: Personally I have had no experience of the operations described in these papers, but I have seen quite a number of cases, and there is one point to which my experience has led me which has not been referred to. I think, as Dr. Putnam says, that the causes of this condition are twofold. In the first place, they depend partly on distinct pathological conditions which can be recognized, and partly on

molecular or physiological conditions analogous to those which produce epilepsy. It seems to me that from both points of view it is very important, as soon as the diagnosis is distinctly made, not to delay the operation. Just as in epilepsy, the longer you delay the operation after you are tolerably sure of the conditions, the longer the habit has been established and the more difficult to eradicate; and so far as it depends on pathological changes, the longer you delay the greater the probability is of an extension of the pathological process. My course now is, when I see one of these cases in which the features are perfectly clear and distinct, to say: "This is not a medical case; it is a surgical case." And I decline to treat it. I saw a case in Lowell a little while ago in which I was urged by the family and patient to try various palliative measures, but I refused even to see the patient a second time. Dr. Richardson performed the external operation with success. It now and then happens that patients do not accept the advice; but the result in my experience has been that they have been disappointed with palliative measures, have spent time and money and at last regretted that they had not had the operation done before. Of course, a certain amount of treatment is often necessary in order to establish the diagnosis.

DR. WALTON: It is a boon to have this operation to fall back on as a last resort, especially if its results prove permanent. It is too early to decide that point. I was very glad to hear Dr. Dandridge speak as he did of the difficulties of the Rose operation. Perhaps my observations have been too limited to allow me to express an opinion on this point, but the Hartley operation has seemed to me a better operation as affording a much better view of the parts. It has seemed to me that the danger of injuring the Eustachian tube might add to the disadvantageous features of the Rose operation. One who has seen the Hartley operation, and is told that the difficulties of the Rose operation are greater, will, I think, be satisfied to rest with the former operation. The dangers of ocular paralysis by injury to the ocular nerves or of injuring the carotid artery or the cavernous sinus appear to have been exaggerated in apprehension as both the gentlemen have said. The latter injuries have not occurred although we have had about fifty cases now. And even if ocular paralysis do occur they are quite sure to prove temporary. The same is true of aphasia. The necessary manipulation of the temporo-sphenoidal lobe necessarily pressing on the centre for speech is apt to produce this symptom—certainly in Dr. Richardson's case the aphasia was very marked, but it was only a matter of a few days before it entirely disappeared, so that the patient may be assured that this symptom will be temporary.

If removal of the Gasserian ganglion gives permanent relief in all those cases of intractable neuralgia in which drugs have proved useless it may be wise to at once advise it; but if time shows that removal of the Gasserian ganglion is, like the others, temporary, it will be wiser to advise the peripheral operations first as they do seem to offer a certain immunity, and perhaps this order will always be followed in any event, owing to the formidable nature and the difficulties of the intracranial operation.

DR. ELLIOT: I have seen one case that may interest the Society. That is a case that came to me in the summer with every indication that the neuralgia which

had existed for five years or more had returned centrally after the peripheral operations had been done; first, in 1888, the inferior dental was cut, with relief. In 1890, the nerves were cut at the base of the skull at the foramen ovale and foramen rotundum. In 1894, he came to me with return of all his symptoms, that is, he had had three years of immunity. This seemed to indicate the removal of the Gasserian ganglion; but, rather as an experiment, I thought I would expose the foramen ovale again and see what could be done. On cutting down I found something that looked like regenerated nerve fibres, although I could not get enough of them to have them examined; but on cutting away those fibres and putting a tenaculum into the foramen ovale and rooting it round to stir up the ganglion as much as possible and packing the foramen ovale with iodoform gauze, I got an immediate relief and so far a perfect cure. This, I thought, would be interesting as showing that, if the neuralgia returned after section of the nerves at the base of the skull, it is not impossible that still more relief can be obtained by secondary operation before removing the Gasserian ganglion.

DR. TAYLOR: Through the kindness of Dr. Harrington, I have had an opportunity to examine the lower division of a fifth nerve removed for neuralgia. In connection with the pathological anatomy the nerve showed interesting changes, although it is not easy to say whether they are to be regarded as pathological or due simply to the violent method of extraction of the nerve. This nerve was removed by twisting, and, as a result, showed when stained by the hemotoxylin method of Weigert a curious breaking up of the myeline. There was also a cell infiltration about the smaller blood-vessels, apparently the beginning of an inflammatory process. Neither Dr. Councilman nor the others who saw it, however, were willing to say, without further control experiments, that that also might not have been produced by the violent method of extraction of the nerve.

DR. WARREN: I have listened with much interest to the discussion. My experience with the more radical operations has been but limited. I have performed one operation according to Mixter's method. Of course, I have done quite a number of the more peripheral operations. I wish that I could give the Section some statistics about the results. Dr. Putnam has followed those operations more than I have. In some cases the neuralgia has returned. I recall one operation performed, at the request of Dr. Putnam, on a very old lady, for division of the infraorbital nerve by tracing it to the end of the infraorbital canal. There has been no return.

The removal of the Gasserian ganglion appeals to me as an attractive operation. In the first place, judging from my experience in trephining operations in that locality, that one can see better what he is doing than when trying to reach the nerve roots as they emerge from the skull. Recently, in an operation for a cyst, I was in the neighborhood of the Gasserian ganglion, and it seemed that it would have been an easy matter to have exposed that nerve structure.

The removal of the Gasserian ganglion also appeals to me from the point of view of regeneration of the nerve tissue. We know that nerve tissue is actively regenerated. I have seen the whole infraorbital canal refilled with nerve tissue after an operation. The nearer we get to brain-structure the less we have of

repair, and it is stated by pathologists that there is practically no repair of brain tissue itself. In ganglion tissue we have tissue closely allied to that; and if we destroy the ganglion, we must cut off the approach of the nerve trunks to their point of origin in the brain substance. I agree with what has been said, that the minor operations are operations to be advised in the first instance, and that we ought to reserve these major operations for selected cases.

DR. RICHARDSON: I have been very much interested always in the subject of the peripheral nerves, especially in the matter of neuralgia, and have approached gradually the Gasserian ganglion, beginning first with the infraorbital, supraorbital and finally getting at the ganglion itself. It seems to me we ought to exhaust every method of treatment before taking out the ganglion; for in many cases by so simple an operation as evulsion of the mental, infra- or supra-orbital portions, devoid of danger, we may secure a permanent immunity. Of course, the number of cases cured by so simple an operation is not many, but then we can repeat the deeper operation in the sphenomaxillary fossa. That operation, although one of the most difficult operations in surgery, does give a long immunity. In the case Dr. Spear has shown, on which I operated first on the infraorbital, dental, finally by evulsing entirely the third division, as I understand, since that last operation there has been immunity in the course of the third nerve, and while there is regeneration probably of the second division, the third remains still without pain. If so severe a neuralgia as this patient had can be cured by the trivial operations of Dr. Spear, we are not justified in resorting to such measures as opening the skull. I have had very little experience on the ganglion except on the cadaver. It is very hard to get at it. Rose's operation seems to me much more difficult than the Hartley method. It is because you cannot see what you are doing; and while Dr. Dandridge's reasons for preferring that operation appeal to me in that the hemorrhage is in the beginning rather than at the end, still I should prefer very much to do an operation where I can see exactly what is going on. In my single case I was able through the unfortunate tear in the dura mater to see perfectly everything I was about, and could and did cut the nerve between the pons and edge of the petrous portion where it became invested in the dura mater. That patient has been well since, although only a few months have elapsed. The neuralgias are very discouraging; and if we find that the Gasserian ganglion operation gives no greater immunity than the peripheral ones, we ought to go by gradual steps to the most radical operation, each one giving the patient from one to two years of immunity. Upon motion of Dr. Porter, the thanks of the Section were extended to Dr. Tiffany and Dr. Dandridge for the papers presented.

ANATOMICAL SPECIMENS.

DR. WALTON: Through the kindness of Dr. Warren and Dr. Harrington, I have here two specimens of crushed spinal cord, both from cases of fracture in the cervical region. We often read of this condition, but do not often have an opportunity to see it post-mortem. In one case, crushed at the fourth cervical root, there was complete paralysis of the arms and legs with numbness, whereas in the other the biceps and deltoid were spared so that the patient had the arms elevated

in the characteristic position which always denotes crushing injuries at about the height of the fifth to the sixth roots. In Dr. Warren's case the crush was not directly under the point of fracture. The fracture was of the second cervical vertebra, whereas the crush was lower, showing either that the crush was produced by a sudden bending of the cord or else by the bones falling back into place as they sometimes do. These cases illustrate another important point, which is that palpation is very apt to be at fault, most serious crushes being found where examination of the spinous processes shows nothing. I have not found in literature any records of successful cases of laminectomy for fracture in this particular region. I should be inclined to agree with Thorburn that in the dorsal region the operations are, as a rule, unsatisfactory except where the fracture falls below the first lumbar vertebra so as to press on the cauda equiva rather than on the spinal cord itself. Even if the vertebra falls back into place, the chances are that the cord has been crushed, and there is very little to hope for in the dorsal region and less yet in the cervical.

THE NEW YORK NEUROLOGICAL SOCIETY.

STATED Meeting, Tuesday evening, March 5, 1895, DR. E. D. FISHER, President, in the chair.

BRAIN SPECIMEN.

DR. ALFRED WIENER exhibited the brain removed from a boy aged fourteen years, who eight weeks ago had an attack of acute articular rheumatism. From this he recovered entirely and was able to return to school. Eight days ago he began to complain of pain in the right occipital region and some pain in the right ear. The pain gradually grew more severe, and afterwards became more pronounced on the left side. There were no eye symptoms and no discharge from the ears. A diagnosis of meningitis was made. The patient was seen in consultation by Drs. Sach and Gruening, the latter suspected a thrombus in the lateral sinus. The temperature became more and more elevated, and pyemic in character towards the last, and the boy died in a stuporous condition on the seventh day. At the autopsy, made twenty-four hours after death, a necrosis of the posterior surface of the petrous portion of the right temporal bone was found, with an acute meningitis on the opposite side of the brain. There was also a small thrombus of the lateral sinus, and the tentorium cerebelli was infiltrated with pus. Four months ago the boy had a suppurating otitis, which seemed to heal entirely.

DR. L. F. BISHOP presented a case of

EDEMA OF THE RIGHT UPPER EXTREMITY.

The patient was a female, age thirty-nine. Family history negative. She had never had any serious illness. There was no organic trouble, no hysteria. Seven months ago she first noticed a swelling of the thumb on the right hand, which gradually extended upward as far as the elbow. The capillary circulation is more sluggish than in the opposite forearm. There is no change in the pulse-rate; no loss of power. All local causes for the edema have been carefully excluded. Recently, during an attack of influenza, the swelling temporarily disappeared. Dr. Bishop termed the case one of angio-neurotic edema.

DR. JOSEPH COLLINS said that Dr. Bishop's case, in most of its characteristics, did not agree with those that have been usually observed in these cases. Angio-neurotic edema is evanescent, the swelling rarely lasting more than a few days. In this case there is slight pitting on pressure and an absence of the tense, hard skin usually seen.

DR. C. L. DANA said that while this case did not correspond with the ordinary picture of this affection, yet there are cases of neurotic edema which affect the limb in this way. All other possible causes of the edema must be carefully excluded.

AN OPENING IN THE SKULL.

DR. WILLIAM M. LESZYNSKY presented a woman who had an opening in the skull, in the left parietal region. The opening did not extend through the inner table. It was irregular in outline, with fissures running in different directions. There was no history of trauma, and the condition had existed from early childhood. Six years ago the patient began to suffer from epilepsy, the attacks being general in character. Dr. Leszynsky thought the loss of bone might be the result of a trauma in early life, followed by periostitis.

DR. DANA said the deficiency in the cranium in this case was probably the result of a defect in osseous development, and regarded it as one of the stigmata of degeneration which sometimes accompany epilepsy.

PATHOLOGICAL SPECIMEN OF INFANTILE PARALYSIS.

DR. L. STIEGLITZ exhibited a pathological specimen in connection with the report of the following case: The patient was a female; age twenty months. She was first seen in February, 1894, when she presented the clinical picture of complete left hemiplegia, and paralysis of the right third nerve. The child was poorly developed. The left knee-jerk was exaggerated. Both pain and temperature sense were unaffected on the paralyzed side. The mother stated that six months before she had noticed that the child did not use its left arm as freely as the right. The paralysis from that time on gradually increased, until the child gave up all attempts at walking. Three months before coming under observation the ptosis of the right eye came on, with divergent squint. A diagnosis of tumor, probably tubercular, in the right crus was made, although the possibility of glioma was considered. In the following December paralysis of the left third nerve developed, and the child grew drowsy and apathetic. On February 17, 1895, there were twitchings, epileptic in character, on the paralyzed side of the body. Death occurred two days later. At the autopsy, which was made two hours after death, the brain was found to be large, the lateral ventricles dilated. In the right crus a tumor was found, with a cheesy centre; this spread upward and forward across the median line into the left crus, involving the region of the third nerve.

DR. FISHER, the President, said that the epileptic seizures in this case were of interest, as the tumor was so far from the cortex. They could only be explained on the ground that the impulses were interrupted as they passed downwards.

PALMUS.

DR. LANDON CARTER GRAY read a paper with this title. He stated that within the last few years he had seen a number of patients with certain mus-

cular movements to which the French authors have given the name *tic convulsif*. They were first described in 1885 by Gilles de La Tourette, under the name "A Nervous Affection characterized by Motor Incoördination, accompanied by Echolalia and Coprolalia." The details of this description are as follows: Motor incoördination is the first symptom, beginning gradually and without apparently influencing the general health. The face or the upper extremities are first affected. It is first noticed that the fingers are alternately extended and flexed, or that the shoulders are raised. At about the same time the muscles of the face become implicated; there is often incessant winking, or the buccal commissures are actively drawn upward and outward, or there is contraction of the masseters, causing a grating of the teeth, or there may be projection of the tongue. The muscles of the neck may take part in the movements, the head being alternately flexed and extended. The lower extremities may share in the general disturbance, but the incoördination in them is somewhat different, in that the movements are not limited to isolated muscular groups, as is the case in the parts above described, but extend over the entirety of the muscles of one or the other member, and sometimes over both. The patient stamps his foot, stoops or erects himself, or the movement may consist of a veritable jump. All these movements are very sudden and rapid, and may be accompanied by an inarticulate cry. At times this cry may be articulate, consisting of a word which varies in different patients, and which was supposed to possess certain characteristics of an echo; hence the name "echolalia." The coprolalia was regarded by La Tourette as pathognomonic, and consists of profane oaths or obscene epithets. The French authors had their attention directed to this subject by the descriptions of two American writers, those of Beard upon the jumpers of Maine, published in 1880, and that of Hammond upon *Mirgachit*, a similar disease of the Orient.

Dr. Gray said that the main symptoms of this affection are much more frequent than has been hitherto supposed, and he has ventured to coin for it a new name, "Palmus," from the Greek word *παλμος*, meaning palpitation or twitching of the heart. The affection is divisible into the following types:

(1) Facial Palmus. This constitutes the most frequent type. It consists of sudden, shock-like movements of lightning-like rapidity, causing a sudden wink or twitch of one cheek, occasionally of both, or of the brow. This series of movements is generally followed by a second series, weaker than the first, and sometimes by a third. In the majority of cases the winking is bilateral.

(2) General Palmus. This consists of intermittent, shock-like movements of different muscles of the body.

(3) Acute Palmus. In one case of this coming under his observation the patient was a boy aged six years. He had then had the trouble about six months. His palmodic movements were very curious. For instance, when standing near a table looking at something, his chin would suddenly come down with a thump that would leave a black and blue mark; or, while standing quietly, his legs would give a sudden twitch and he would be thrown violently to the ground.

(4) General Palmus with Pseudo-Melancholia. Of this type two cases have come under his observation.

The diagnosis of palmus can be readily made. The

only disease with which it is likely to be confounded is chorea, from which it differs radically. In chorea the movements usually involve the fibrillæ of muscles and not muscular groups, either acting singly or in coordination with other muscular groups.

The prognosis varies according to the type. The author stated he has never yet seen a case of the facial or general variety cured; however, in none of those cases was he able to carry out prolonged and rigid treatment. The case of acute palmus was readily cured under large doses of arsenic and rest in bed. One case of palmus with pseudo-melancholia was cured; the other was lost sight of.

Thus far no light has been thrown upon the pathology of this disease. As regards treatment: arsenic has a beneficial effect, but this is not of as long duration as the same drug has in chorea. In the facial and general varieties the arsenic alone will not answer, and in one case of generalized palmus with pseudo-melancholia it had no effect whatever. Hyoscyamine and hyoscine have a good effect in some cases. Iron has been utterly useless; also the bromides. Galvanic electricity is of distinct benefit. In facial palmus he has seen good results from the removal of errors of refraction or irritative lesions of the naso-pharynx. Absolute rest is also indicated, particularly at the outset, and the general health of the patient should receive attention.

DR. DAVID L. WEBSTER said that palmus appears to be an affection which is known under various names. About twenty-five years ago he first became acquainted with it under the name of "blepharospasm;" later on it was called "blepharo-facial spasm," and still later "hemi- or bi-facial spasm," the latter when both sides of the face were affected. Then again it was heard of under the name of *tic convulsif*, and finally "palmus." There are several varieties of the disease. The easiest kind of all to cure is that which only simulates the real disease and is produced by a local irritation, such as foreign bodies in the eye, etc. Another variety is most common in school children, who are perhaps poorly nourished and use their eyes too much; sometimes a number of cases occur in the same school, which is probably due to imitation. These cases are generally curable. One such case under his observation was cured by the local use of atropine and proper glasses. In another case the symptoms disappeared after a congenital phimosis had been removed. A very severe and intractable variety of the disease is sometimes met with in the aged. Internally, he usually employs arsenic in the treatment of these cases. Conium has also been recommended.

DR. G. M. HAMMOND said that about eight years ago he read a paper on this subject in which he reported a number of cases. In his experience, arsenic, even in toxic doses, rarely proves of much benefit. On the other hand, he has used conium with much success. He usually begins with five-drop doses, gradually increasing to twenty-five or thirty drops.

DR. T. R. POOLEY said that two varieties of blepharospasm are usually recognized: the symptomatic, which depends on some eye lesion, the presence of a foreign body, etc., and the essential blepharospasm, which is entirely independent of such cause. In the first variety, if we cure the eye trouble we cure the blepharospasm. In both varieties the symptoms may manifest themselves in either the clonic or tonic form;

in the former the movements of the lids are momentary, while in the latter form the lids may remain closed for a considerable period of time. In nearly all of these cases pressure points may be found, generally in relation with the trigeminal nerve or some of its branches. The supra- and infra-orbital branches are often favorite locations. Such pressure-points may also be found in the nose, throat and mouth, especially when carious teeth exist. In exceptional cases they are found in other and more remote parts of the body. When such a pressure-point is pressed upon, the movements cease like magic. The way to cure the disease is to attack the point from which the reflex irritation starts. Stretching of the nerve is recommended in severe cases.

DR. JOSEPH COLLINS presented

A CASE OF TABES, ASSOCIATED WITH UNILATERAL REFLEX IRIDOPLEGIA AND POST-HEMIPLEGIC ATHE-
TOSIS.

The patient, a man thirty-seven years old, was presented by Dr. Collins at the last meeting of the Society (February, 1895). The symptoms in the case were not those of a single clinical entity, but presented themselves in the form of an athetosis, indicating a lesion in the internal capsule or crus, and locomotor ataxia, pointing to involvement of the posterior root zones of the cord. Although no history of syphilis could be elicited, and in the face of the fact that specific treatment had produced no improvement, the speaker said he had assumed that the man's symptoms were a manifestation of cerebro-spinal syphilis; and he presented the patient as one of cerebro-spinal syphilis of the tabic type, associated with athetoid movements. At that meeting, three members of the Society stated that in their opinion there was nothing in the case to warrant either the assumption or the diagnosis, and they expressed the view that the case was one of multiple sclerosis. Since then these members have had an opportunity to examine the patient at their convenience and substantiate either their or his own diagnosis.

Careful investigation has also led to the discovery of new evidence which clears up some of the obscure points in the case, and likewise tends to uphold the original diagnosis. The most important of these new facts, which was obtained from one of the patient's previous physicians (he himself having failed to make any mention of it), was that about fifteen years ago he had an attack of hemiplegia, the right side of the body being completely paralyzed. There was some disturbance of speech. There was no loss of consciousness. The patient did not think that his eyes were affected at that time. This attack, Dr. Collins said, was probably one of cerebral thrombosis, of specific origin. The patient, however, continued to deny any knowledge of infection. One of his sisters, on being interviewed, stated that six or seven years before the appearance of the hemiplegia he had a sore on the inside of his lip which lasted for several weeks; it was elevated, and the physician who treated it dusted it with powder and gave him medicine internally for quite a time. Although much stress cannot be laid on this labial affection, it is within the bounds of possibility that it may have been a chancre.

Dr. Collins said that some of the gentlemen who examined the patient and reached a diagnosis of multiple sclerosis attached great importance to the

twitching movements of the eye-ball. This he has been accustomed to think is not a very rare symptom in *tabes dorsalis*. Berger has found it absent but six times in 109 cases. The speaker has found it present in five cases out of 26 which he now has under observation. Therefore, instead of militating against the diagnosis of *tabes*, it would rather tend to favor it.

In an examination of the patient's eyes made on March 3d by Dr. Ward A. Holden, he states in his report that this twitching of the eyes is not a true nystagmus, in the sense in which the term is used by ophthalmologists, but the twitching that may occur with paralysis of the extrinsic muscles of the eye and with various cerebral and spinal affections. He also found left unilateral reflex iridoplegia, which is of very rare occurrence, and in the few cases that have been reported was associated with mydriasis and not with myosis, as in this case. Dr. Collins said that, so far as he could learn, only five cases of unilateral reflex iridoplegia have been reported, and four of these were in *tabes*.

DR. SACHS said he was inclined to regard the case as one of cerebro-spinal syphilis of the *tabic* type. He would insist on that diagnosis even if no history of syphilis was obtainable. One very important symptom which points in that direction is the dissimilarity of the ocular conditions on the two sides. The movements of the right hand Dr. Sachs said he hardly regarded as an *athetosis*; to call them *ataxic* or *choreic* he thought would be more correct. They were probably due to an irritating lesion of the capsule or the ganglia surrounding it. As regards the movements of the eyes, the speaker said that these lateral jerky movements which are frequently styled nystagmus are not to be compared with the rapid oscillatory movements we get in true nystagmus. He has noticed slight movements of this character in persons without *tabes* and without cerebro-spinal syphilis.

DR. HERTER said he still held to his original view that the case was one of multiple sclerosis. He did this chiefly because he believed that a certain proportion of cases of multiple sclerosis were of syphilitic origin. Notwithstanding the fact that it has been pretty clearly shown that this man has had syphilis, his symptoms correspond more closely to multiple sclerosis than to *tabes*. The man has probably had cerebro-spinal syphilis, and at the present time he has that sclerotic process going on which belongs to the later periods of the disease. The changes that have occurred in his brain and cord are probably of a sclerotic rather than of an inflammatory nature. Recent researches show that in multiple sclerosis we have patches of degeneration scattered in an irregular way throughout the nervous system, and there seems to be no doubt that these patches are related to the blood-vessels.

Dr. Herter said that in reaching a diagnosis in this case, he laid considerable stress on the nystagmus, which he believes is more commonly met with in multiple sclerosis than in *tabes*. This patient also has marked slowness of speech. There is an entire absence of *ataxia* in the legs, and he has never had any lightning-like pains. The pupils are not the typical Argyll-Robertson pupils, and are more in line with those found in multiple cerebro-spinal syphilis than in *tabes*. It was stated at the last meeting that the man was impotent for a time; on questioning him about this, he stated that there was a loss of sexual desire, but

he was always able to have erections. The slight optic atrophy which exists is quite as characteristic of multiple sclerosis as of *tabes*.

DR. J. ARTHUR BOOTH said that during his examination of the man made a few days ago, forced flexion and extension of the head produced a distinct oscillatory tremor, which is regarded as a symptom of sclerosis. The man's penis bears a scar, which he claims was produced by bringing it in contact with a hot stove.

DR. FREDERICK PETERSON said that in view of the additions made to the previous history of the case he was not prepared to uphold his diagnosis of multiple sclerosis, but he still failed to see any justification for the diagnosis of *tabes*. It appears that the only symptom of *tabes* the man has is the absence of knee-jerks, which may be congenital or occur in multiple sclerosis or under other circumstances. He has never had any pains; he has not the typical Argyll pupils; there is no history of impotence; the cilio-spinal reflex is present on both sides.

DR. COLLINS, in closing the discussion, said he did not see how this could be regarded as a case of multiple sclerosis, unless our present conception of that disease be entirely changed. It is very difficult to get a true history of the case, as the man's statements are very unreliable.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.

F. W. DRAPER, M.D., SECRETARY.

THE Society met February 6, 1895, eighteen members present, and the President, DR. Z. B. ADAMS, in the chair.

DR. J. A. MEAD, of Watertown, read a paper on

THE MURDER OF JAMES FARRAR.¹

DR. S. W. ABBOTT said that the paper seemed to him to present an extremely interesting, as well as clear and correct, statement of the subject discussed. He thought the effects of pistol-shots fired at an angle with the skin could be still farther illustrated well by exaggerating the angle and bringing it nearer the plane of the skin, making a very acute angle; if the pistol were held within five or ten degrees of the plane of the skin, instead of forty-five degrees, the bullet would make a longitudinal mark or wound; and if this is true of a five or ten degrees' angle, it ought to be of a forty-five or even seventy degrees.

DR. MEAD explained that he selected forty-five degrees for his experiments, because that was the angle at which, according to the defence in the trial reported, the bullet entered the murdered man's body. The purpose of the experiments was to show that the shape of a bullet-hole made by firing at an angle of forty-five degrees was elliptical and not circular.

DR. QUIMBY, of Gloucester, said that he had noticed in some cases of suicide, in which the weapon was naturally supposed to be in close contact with the skin, that powder-marks were absent; the pistol must, he thought, be held at some little distance before leaving visible powder-marks.

DR. HARTWELL, of Ayer, commented unfavorably upon the appearance, at the trial, of a medical examiner acting as a medical expert for the defence. Dr. Hartwell recalled the able essay of Dr. Fish, of Amherst, on the external appearances of pistol-shot

¹ See page 402 of the Journal.

wounds and especially the original observation relative to the brand above the entrance-wound of the bullet and its contrast with the other appearances in the vicinity of the lesion.

DR. ADAMS, of Framingham, spoke of the interesting fact brought out in the paper and alluded to by Dr. Quimby, that in order to get the spattering effects of powder-grains, the pistol must be held at some distance; if held very near, the effect is to burn; it must, he thought, be held at least twelve inches away to make powder-marks. Most of these marks would be found on the upper side of the wound.

DR. MEAD said that Dr. Fish's observation was that the exaggerated brand on the skin was always to be found, with relation to the wound, on that part which corresponded with the position of the pistol's hammer in the act of firing.

DR. GILBERT, of Quincy, said he had made some experiments with a pistol with a view to ascertain at what distance the powder-marks would show and whether they would show above or all around. They invariably showed above; that is, in the direction from the pistol where the cock of the weapon was. He attributed it to the rebound in firing.

DR. HARTWELL asked why, if the weapon "kicked" in the firing, the bullet did not go upward as well as the powder.

DR. JOHNSON, of Salem, said the explanation seemed to him to be in the shape of the revolver and the consequent leverage in holding it in firing; the interval of time must be extremely small between the discharge of the ball and the escape of the powder, yet there might be opportunity to get a throw to the powder that the ball did not have.

DR. PAINE, of Brockton, reported the case of a man, an epileptic, who had attempted suicide by shooting himself in the forehead. There was no blackening of the skin or staining with powder-marks.

DR. ADAMS spoke of the ease with which bullets are deflected from a direct line in passing through the tissues. A bullet will be altered in shape by striking soft parts, without contact with any solid tissue, like bone. Even thin plates of bone are quite enough to change the missile's course abruptly. He related a case illustrating deflection within the skull.

DR. ABBOTT contributed some examples of extraordinary deflection of bullets.

DR. MEAD, recurring to the Barrett trial, said that the defence took the ground that the sternum was too soft a bone to deflect the bullet, that it was a spongy bone and so unequal to the task of turning a bullet. The attorney-general asked if flesh alone would not cause a bullet to deviate from a straight course; and Dr. Hibbert did not know what "flesh" meant, and avoided answering. The experts for the State, on the other hand, were clearly of the opinion that the sternum was made of tissues quite capable of deflecting a bullet in the way demonstrated at the autopsy.

DR. HOWE, of Cohasset, inquired whether in those cases in which the ball pursued a circuitous course, the velocity had anything to do with the result—whether the bullet was a spent missile or was fired at close range.

DR. ADAMS was of the opinion that it made not the slightest difference; that the speed of the ball would not alter the main fact, which is that the bullet would be deflected by striking soft substances as well as hard, within ordinary limits.

THE BOSTON

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SCIENTIFIC RESEARCH IN MEDICINE.

At the recent Thirteenth Congress for Clinical Medicine held at Munich, Professor von Ziemssen delivered the opening address. His remarks were directed toward the advantages to be derived from such meetings for the development of medicine in general; this led him to a consideration of recent progress and the part which scientific investigation has played in that progress. We venture to quote at length a passage, which admirably defines the attitude which physicians everywhere should hold toward what they are too apt to regard as unpractical and therefore beyond the sphere of their interest and support. Von Ziemssen sums up the function of a Medical Congress, as representative of the medical body at large, as follows:

"Our Congress strives continually toward the common end of widening our knowledge and increasing our ability, working in conjunction with all the special branches, and with related sciences. While we hold clearly before us the ideal functions of medicine to help the sick, and to protect the healthy from disease, yet, at the same time, we regard no fact which pure science affords as unimportant, even if its value for the practical end of medicine be obscure. *Only through knowledge comes the power of intelligent action.* Only when it is possible to get at the causes of (physical) appearances, and to have knowledge of the laws, according to which the acts of life take place, will it be possible rightly to judge the diseased processes of the human organism, and to find the means of directing them again into normal channels. The Bavarian Academy of Science states its aim in the words: '*Rerum cognoscere causas.*' Gentleman, our efforts to-day should lay claim to this sentiment. It is not only for its practical end that we pursue our science, but also for its own sake and with the exalted consciousness that every scientific fact at some future day may so develop as to have a far-reaching influence upon the health and life of the individual as well as of the community at large.

"Herein lies the greatness and the exaltation of science, that every new fact, every new method conceals within itself the germ of future advance in the line of civilization. Especially is it new methods of investigation which open fresh paths for science and for life. This fact the history of medicine during the present century most certainly teaches."

To a certain small class in the medical community these statements may seem trite enough. There have always been a few earnest investigators whose only adequate reward has lain in the satisfied consciousness

of the performance of careful work, with no thought as to its definitely practical outcome. To such men, and they are unfortunately few, von Ziemssen's remarks will appear altogether commonplace and unnecessary. The idea of research, however, as an end in itself has no hold whatever upon the mind of the general public. Utility has been the watchword; and where utility has failed to assert itself with sufficient force, people—physicians as well as others—have drawn back in anxiety lest they were compromising themselves by devotion to that which was impractical. Such is the sentiment that we meet at every turn. That it is not dead in Germany Professor von Ziemssen's earnest appeal would seem to indicate; that it is extremely prevalent in America the smallest experience clearly shows. And yet the slightest consideration, if we are fair-minded, must convince us of the weak foundation upon which such a view rests, and how detrimental it is to the further development of medicine.

In the first place, we should distinctly recognize the fact of the value of knowledge for its own sake, and in such recognition see the highest utilitarianism. The definite establishment of facts of whatever character must, in the nature of things, make future deductions more easy in fields apparently remote. It is often quite impossible to say what such a deduction will be, and how such isolated facts may work in bringing about a practical result, but that such is inevitably the case no one of education may for a moment doubt. The whole process of the development of a practical science, like medicine, rests upon a foundation of more or less isolated facts of a purely impractical nature. The modern surgeon is not always aware that the practice of his art is rendered possible by the theoretical investigations of Pasteur on the organisms in atmospheric air, a scientific fact which it was Lister's function merely to render practical. The comparative failure of Koch's specific treatment of tuberculosis has blinded the eyes of many to the incalculable value of the principle which he has done so much to inaugurate, and which in modified form is now bearing its fruit in the doctrine of serum-therapy. Almost a parallel case is the ever-contested question of vivisection. Here, again, if the positive utility to man of every experiment is to be maintained as a justification for its continuance, the practice must evidently stop. If its justification rests upon anything, it rests upon the broader conception, upon which we have been insisting, that investigation for its own sake is a worthy end, and that the ultimate results will unquestionably justify the broader view by leading to a final benefit, whose scope we are at present quite unable to see, but of whose existence we feel morally certain, since we believe knowledge *per se* to be ultimately useful. Such is the broader utilitarianism for which Ziemssen contends, and for which every one must contend who has the true interests of medicine at heart.

It is altogether to be regretted that even the rising generations of physicians are not imbued with this idea,

in spite of the hopeful scientific tendencies of the last half century. There still exists a depressing atmosphere of practicality. Young men of marked ability are forever weighing their scientific tastes in the balance with the practical demands of their profession, and entirely apart from the pressure of circumstances, are finding the greater weight of inducement in the practical fields. The very commonest answer to the appeal for scientific workers is: "How will that help me to cure my patients? What definite utilitarian benefit am I to get from my laboratory work?" In other words, such a man says, "I will be a good follower, I will gladly benefit by the results of the work of other men; but personally I will not use my mind to increase the stock of general knowledge." This is the gloomy side of the picture. There is another as well. The number of men who are doing original scientific work in our community, as in others, is constantly growing. The spirit of research for its own sake is gaining ground. There are at least a few men who are imbued with the enthusiasm of progress, and who see no possible path for such progress except along the lines of painstaking and self-sacrificing research. When such a spirit becomes general, and each and every man comes to regard himself as a possible leader, and not only a faithful follower, will medicine in any community leave behind its superstitions and come to stand for a true utilitarianism, based on a right conception of the real meaning of progress.

MEDICAL NOTES.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.—The fifth annual meeting will be held at Buffalo, N. Y., May 21, 22 and 23, 1895.

ANOTHER "FAITH-CURE" FATALITY.—The coroner at Dayton, O., has held Col. F. B. Mead and his wife to be responsible for the death of their twelve-year-old daughter, who was by them permitted to be treated by "faith-cure" methods, while she was suffering from tubercular meningitis.

THE PAY WARDS OF THE GREAT NORTHERN CENTRAL HOSPITAL.—At the annual meeting of the Great Northern Central Hospital of London, notice was given of the following resolution: "That this meeting of Governors of the Great Northern Central Hospital regrets the recent changes in the administration of the hospital by which pay patients have been admitted to its wards to be attended gratuitously by the honorary staff, and is of opinion that such a system is not likely to conduce to the welfare of the hospital or the advantages of the poor, for whom such institutions exist, and should, without further delay, be abandoned."

THE REPUTED EPIDEMIC AT LITTLE ROCK.—A physician of Little Rock, Ark., writes to the *Journal of the American Medical Association* to correct a statement recently published in that journal that 82 cases of small-pox and 14 deaths had occurred at Little Rock.

The writer states that Hot Springs is the place to which the figures refer, and says, "there is no small-pox at Little Rock, *but we have the legislature.*"

THE SAMARITAN HOSPITAL FOR WOMEN, MONTREAL.—A new hospital for women, with the above name, was opened by Her Excellency, the Countess of Aberdeen, wife of the Governor-General of Canada, on the 17th of January, 1895. It is non-sectarian, and supported entirely by voluntary contributions, of which latter, enough were handed in during the first month to carry on the work during a whole year. It is the only special hospital for diseases of women in Montreal, and will be moulded on the pattern of the New York State Women's Hospital in New York City.

MEDICAL LEGISLATION IN KANSAS.—The Kansas Medical Practice Bill was defeated chiefly through the influence of the Populists. In the House, according to the *Kansas Medical Journal*, Mr. Winters, a Populist member, said: "We Western people can't support your plug-hat doctors. We've got a lot of old women who are better than any of them." Kansas is certainly a most fortunate State, if its laws are to be made for it by legislators who are swayed by such arguments as that. The logic of Populism as applied to medicine is certainly consistent with that by which it settles financial and other questions.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, April 24, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 41, scarlet fever 32, measles 197, typhoid fever 3.

THE STATE BOARD OF HEALTH ANTITOXIN.—The Massachusetts State Board of Health has now distributed 150 packages of antitoxin to the authorities of several public hospitals and to boards of health and physicians for use in cases of diphtheria. The distribution began the 25th of March, and has been in all cases gratuitous. There has been a steady demand since the distribution was begun; but just at present, as commonly takes place in warm weather, the disease seems to be somewhat abating. The results so far reported from the use of this antitoxin have been uniformly favorable.

NEW YORK.

THE COMMISSIONERS OF CHARITIES AND CORRECTION.—Considerable disappointment was felt in the medical profession that Mayor Strong did not appoint a physician as a member of the Board of Commissioners of Charities and Correction, in the place of Dr. Charles E. Simmons, as it was expected that he would do. The appointment that he made, however, was a very good one, namely, Mr. John P. Faure, whose name has long been associated with various charitable and philanthropic movements. For a number of years he has been Secretary of St. John's Guild, and he is

at present Chairman of the Floating Hospital Committee of that organization. He is also Secretary of the Committee of Seventy (for political reform), and Chairman of the Board of School Trustees of the Ninth Ward.

THE PROGRESS OF SCHOOL REFORM.—School reform really seems to be making some progress. A notable instance is seen in the plans for a new public school building at the corner of Henry and Catherine Streets, in the crowded tenement district of the Seventh Ward, which were adopted at a recent meeting of the Board of Education. The school-house is to be provided with twenty shower baths in the basement for the free use of the children, and on the roof there is to be a play-ground with an area of ten thousand square feet. At a meeting of the Board of Estimate and Apportionment held April 16th, it authorized an issue of bonds to pay for a new school building in Harlem. When the comptroller announced that the plans included living rooms for the janitor and his family the mayor strongly objected, on the ground that the occurrence of contagious diseases in the families of janitors living in school buildings necessitated the closing of the schools, as in the recent case in East 35th Street. The comptroller agreed with him, and the Board ordered the plans changed accordingly.

EASTER AT BELLEVUE HOSPITAL.—On the day before Easter a number of ladies distributed two large truck-loads of potted flowering plants among the various wards of Bellevue Hospital.

AMALGAMATED TWINS.—On April 15th a German woman by the name of Koehler, under the care of Dr. Sigmund Tynberg, gave birth to female twins who were joined together by a pliable muscular band extending from the upper part of the spinal column to the coccyx. Together the children weighed fourteen pounds, one being about a pound and a half heavier than the other. This monstrosity is believed to be similar in character to the well-known "Millie-Christina" twins. The Koehler twins differ from the latter, however, in being able to face each other. Prof. Egbert H. Grandin, after an examination of them, expressed the opinion that they would live, but that it would not be safe to attempt an operation for separating the children.

DEATH OF DR. PRIMUS C. SMITH.—Dr. Primus C. Smith, a well-known dentist of Brooklyn, met a singular death on the night of April 19th. As his wife was going to bed he went into the kitchen to make himself a cup of tea. Mrs. Smith fell asleep, but awoke at 1 A. M., and not finding her husband with her, arose and went down stairs. In the kitchen she discovered his dead body, the head lying in a pool of blood. He had been subject to attacks of vertigo, and it is thought that he was seized with one while making his tea, and fell upon the stove. In doing so his head struck upon the sharp corner of the stove in such a position that the left temporal artery was severed, and as a result he bled to death.

Miscellany.

NUCLEIN IN DIPHTHERIA.

At a meeting of the Society for Medical Progress of the New York West Side German Dispensary, held April 14th, Dr. William Jacobson read a paper on the use of nuclein in the treatment of diphtheria and other contagious diseases. For the introduction of this agent (which is a normal constituent of blood-serum chemically represented by 49 parts of hydrogen, 32 parts of oxygen, 29 parts of carbon, and six parts of phosphorus), he said we were indebted to the researches of Prof. Victor Vaughan and Dr. Charles McClintock, of the University of Michigan. Out of 200 cases of diphtheria, scarlet fever and measles, which were observed during several months, he claimed that there had been only nine deaths, and that in these cases the fatal result was due either to the fact that the nuclein injections were not made until the disease was too far advanced for any remedy to be of any service, to necessarily fatal complications, or to lack of proper care or other unfavorable conditions affecting the patient. The theory upon which nuclein was employed was that, as nuclein was found to a greater extent in the blood of healthy than in that of diseased persons, it was the real food upon which the blood tissues fed, and as such was nature's own antitoxin.

Nuclein was first tried on a girl four years of age, who was suffering from diphtheria. The agent was introduced into the system hypodermically and in a very small quantity. It was found that the temperature at first slowly rose, and then had a sudden drop. The pulse soon became normal, and in three days the child showed no sign of disease. The result was so successful that the treatment was resorted to in other cases, and with similar good results. "To treat fever," said Dr. Jacobson, "we must remove the cause, the toxins, and especially, as in contagions, the microbe and its poison. Nuclein is the substance to which the cell owes its resisting power, and if present in sufficient quantity the microbe and its toxine are prevented from attacking the cell, and are ultimately destroyed."

MORTALITY OF CHICAGO DURING THE PAST WINTER.

DR. A. R. REYNOLDS, Health Commissioner of Chicago, compares the mortality of the winter quarter of 1895, ended March 31st, with the mortality of the corresponding period in previous years.¹ The comparison shows an increase of 27 per cent. in the total mortality of 1894. The total deaths from all causes during the quarter were 6,648—an annual rate of 16.62 per thousand of 1,600,000 population; the average death-rate of the corresponding quarter for the previous ten years, 1885-1894 inclusive, was 19.10 per thousand; the lowest in 1894, 13.08 per thousand; the highest, in 1891, 23.40 per thousand. Acute lung diseases, complicated with influenza, are responsible for the increased death-rate. This group—pneumonia, bronchitis and influenza—shows an increase of 14.3 per cent., as compared with the winter quarter of 1894, and pulmonary consumption shows an increase of 12.5 per cent. The commissioner says that the prevalence of influenza has been more general than is indicated by the number of deaths (143) re-

turned as from that cause. To its complications are to be attributed the great severity and fatality of pneumonia and bronchitis, as well as a large number of non-fatal cases of illness of masked or obscure symptoms which have affected the tone of the general health of the community and especially of the aged and enfeebled. It is, however, the unusual seasonal influences which have caused the increased death-rate, rather than the prevalence of influenza. The mean temperature for the month of January was 6.8° lower than the average January temperature of the previous twenty-five years, and the extremes ranged between 9° below zero to 51° above. During February the deficiency in temperature and the range of extremes was still more marked; the mean temperature was 10.7° below the normal, the accumulated deficiency of daily mean temperature at the close of the month was 50.4°, and the extremes ranged from 15° below zero on the 8th of the month to 61° on the 28th—a range of 76°. More than half the month was cloudy, or partly cloudy with an excess of humidity. During this month the deaths from pneumonia rose in number from 163 in January to 444, or nearly one-half of the total number for the quarter.

Concerning the small-pox, Dr. Reynolds says: "With the close of the first quarter of 1895, it seems to be entirely safe to say that the fourth serious—and at one time most threatening—visitation of small-pox upon Chicago is at an end. The disease has steadily declined since June, 1894, that is to say, from a period within thirty days after the great vaccination campaign was fairly inaugurated. That work is now conceded, both in this country and abroad, to be one of the most signal triumphs of preventive medicine on record, and a feat of sanitary administration without a parallel in respect of magnitude and diversity of population dealt with, of successful avoidance of overt opposition to the enforcement of health ordinances and regulations, and of direct results in the prompt check and ultimate suppression of the ravages of a pestilence."

A SIX-DAY RECORD OF OPHTHALMIC SURGERY.

As an evidence of the very large amount of ophthalmic work occasionally done in a village district of India, we may place the following on record. A few weeks ago Surgeon-Lieutenant-Colonel G. C. Hall, F.R.C.S., Eng., surgeon to the Allahabad Eye Hospital, was called upon to operate on a patient in a village in the province of Oudh. The village was some twelve miles from the railway and twenty-six miles from any English station. No means were taken to let the people in the surrounding villages know of the intended visit of an ophthalmic surgeon to their neighborhood, but the news nevertheless spread. Surgeon-Lieutenant-Colonel Hall lived in camp. The natives arrived in various ways—some in bullock carts, having been four or five days on the road, from distant villages; some came on foot, led by others not quite so blind as themselves; others were carried on the backs of their relatives. A large number had no eyes left to be dealt with, but all had a large amount of faith. It was altogether an extraordinary and weird spectacle to see these poor, helpless people coming into camp in the early morning and quietly sitting down in groups patiently waiting until their turn came. During six days

¹ Journal of the American Medical Association.

the total number of patients seen was 394, the total number of cataracts extracted 69, and the total number of operations performed was 147. The operations were all done in the open air under the shade of a large mango tree, the patient lying on a native bed, the operator sitting at the head of it. As far as possible all the cases were treated antiseptically, and notes were taken of them with the prognosis formed at the time of operation. When Surgeon-Lieutenant-Colonel Hall left, which he did on the sixth day, a native assistant remained to look after the patients, to whom sixty-five pairs of spectacles have already been forwarded for the successful cases. We think our readers will concur with us in considering that the foregoing account records an enormous amount of hard and successful work of a most humane and philanthropic kind, of the accomplishment of which any one may well feel proud.

Correspondence.

THE CHARCOT MONUMENT FUND.

NEW YORK, April 20, 1895.

MR. EDITOR:—The following is a statement of the contributions to the Charcot Monument Fund, to date:

ST. LOUIS. Dr. E. B. Fry, \$5.
SAN FRANCISCO. Dr. J. D. Hirschfelder, \$10.
ROCHESTER. Drs. E. H. Howard, E. B. Potter, E. B. Angell, each \$10; Dr. John D. Roe, \$5.
BOSTON. Dr. Morton Prince, \$25; Dr. F. C. Shattuck, \$20; Dr. F. B. Greenough, \$12; Dr. Geo. B. Shattuck, \$10; Drs. Geo. L. Walton, Walter Channing, J. B. Ayer, J. J. Putnam, H. P. Bowditch, \$5 each; Drs. H. B. Howard, R. D. Edes, \$3 each.
NEW YORK. Dr. Graem Hammond, \$10; Drs. S. T. Armstrong, H. Knapp, \$5.
CONNECTICUT. Dr. Frank Hallock, \$3.
Previously acknowledged, \$642. Total, \$813.

Owing to an oversight, the names of the following contributors (through members of the Committee) were not given for publication:

Through Dr. T. Diller, of Pittsburg: Drs. S. Ayers, J. W. Dixon, J. A. Lippincott, W. H. Daly, A. Fleming, F. Lemoyne, R. M. Tindle and J. S. Lange, each \$5; Drs. G. Rahauser, C. C. Hersman, J. D. Thomas, D. C. Boyce, D. N. Rankin, J. D. Crombie, D. P. Miller, W. T. Burleigh, J. Milton Duff, W. H. Mercur, W. T. English, S. O. Brumbaugh, J. M. Brockerhoff, C. H. Voight, X. D. Werder, M. N. Gerhard, each \$1. Dr. T. Diller, \$2.

Through Dr. J. W. Putnam, of Buffalo; Drs. Chas. S. Jones, and Wm. C. Krauss, each \$5.

Through Dr. Jas. Stewart, of Montreal: Drs. Wm. H. Hingston, E. P. Lachapelle, and Dr. Jas. Stewart, each \$5. Dr. J. P. Pottot, \$4.

The fund will be forwarded to Paris without delay.

C. A. HERTER, M.D., Secretary, 819 Madison Ave.

DR. LEFFINGWELL TO DR. WOOD.

CAMBRIDGE, MASS., April 22, 1895.


MR. EDITOR:—The communication from Professor Wood does not, I think, require any reply from me. If I were to ask the further use of your columns, it would be only to express my wonder at the blindness that could again repeat an argument so completely answered a week before by your correspondent, Dr. Nichols; to doubt, whether in Great Britain the government inspection of physiological laboratories for the last eighteen years has been done by "spies"; and to thank you sincerely for the courtesy you have extended me. I am, sir,

Yours faithfully,

ALBERT LEFFINGWELL, M.D.

METEOROLOGICAL RECORD.

For the week ending April 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-			Relative		Direction		Velocity		We'th'r.		Rainfall in inches.
	meter.	Daily mean.	eter.		humidity.		of wind.		of wind.		of wind.		
			Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	
S...7	30.39	39	45	33	80	80	80	S.W.	S.E.	2	6	O.	O.
M...8	30.07	49	60	38	96	74	85	E.	S.	5	16	O.	O.
T...9	29.37	54	63	45	86	97	92	S.	S.W.	27	10	K.	O.
W...10	29.74	44	51	36	62	47	54	N.W.	N.	24	19	C.	C.
T...11	30.56	37	47	27	28	22	25	N.W.	N.E.	17	4	C.	C.
F...12	30.60	43	52	34	51	65	58	S.W.	S.	13	16	C.	F.
S...13	30.08	50	60	39	70	100	85	S.	S.	15	20	O.	R.
	30.11		54	36			68						

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 13, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,956,000	—	—	—	—	—	—	—	—
Chicago	1,600,000	—	—	—	—	—	—	—	—
Philadelphia	1,139,457	422	102	7.64	21.84	3.12	3.36	.48	
Brooklyn	1,043,000	432	166	—	—	—	—	—	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	211	78	11.28	20.68	.47	5.64	2.82	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	98	26	8.26	—	3.54	1.18	3.54	
Cincinnati	325,000	115	29	14.49	20.93	.46	5.62	1.84	
Cleveland	325,000	84	30	9.56	—	1.06	—	4.24	
Pittsburg	272,000	85	33	1.03	13.39	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	34	8	5.88	32.34	—	—	—	
Charleston	65,165	31	7	—	3.23	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	40	7	7.50	15.00	—	—	—	
Fall River	92,233	29	18	14.00	14.00	—	—	—	
Lowell	90,613	0	14	11.62	11.62	6.64	3.45	10.35	
Cambridge	79,607	33	11	12.12	21.21	3.03	6.06	—	
Lynn	65,123	17	6	29.40	5.88	11.66	5.88	—	
Springfield	50,284	20	9	—	30.00	—	—	—	
Lawrence	49,900	15	9	13.33	6.66	—	—	6.66	
New Bedford	47,741	16	6	6.25	12.50	—	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	33,939	9	4	—	33.33	—	—	—	
Salem	38,155	18	0	16.66	5.55	—	5.55	5.55	
Haverhill	32,925	10	4	10.00	15.00	—	10.00	—	
Malden	30,209	10	1	—	20.00	—	—	—	
Chelsea	29,066	11	4	18.18	18.18	—	18.18	—	
Fitchburg	29,383	8	2	—	25.00	—	—	—	
Newton	28,837	7	0	—	—	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	7	2	—	—	—	—	—	
Waltham	22,058	3	2	—	—	—	—	—	
Quincy	19,642	9	1	11.11	22.22	—	—	—	
Pittsfield	18,802	9	4	11.11	77.77	—	11.11	—	
Everett	16,585	3	1	—	—	—	—	—	
Northampton	16,331	3	1	—	33.33	—	—	—	
Newburyport	14,073	6	0	—	—	—	—	—	
Amesbury	10,920	2	0	—	—	—	—	—	

Deaths reported 1,915: under five years of age 601; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 188, acute lung diseases 442, consumption 213, diphtheria and croup 72, scarlet fever 30, typhoid fever 28, diarrheal diseases 16, cerebro-spinal meningitis 14, whooping-cough 10, measles 6, malarial fever 5, erysipelas 4, small-pox 2.

From diarrheal diseases Brooklyn 6, Cleveland and Fall River 3 each, Lowell 2, Philadelphia and Nashville 1 each. From cerebro-spinal meningitis Worcester 3, Philadelphia, Boston, Washington, Fall River, Lynn, Somerville, Lawrence, New Bedford, Salem, Pittsfield and Clinton 1 each. From whooping-cough Brooklyn 4, Boston 2, Philadelphia and Cincinnati 1 each. From measles Brooklyn 3, Philadelphia, Boston, and Cambridge 1 each. From malarial fever Brooklyn 4, Nashville 1. From small-pox (Cincinnati) 1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 13, 1895, TO APRIL 19, 1895.

Leave of absence for two months, to take effect on being relieved from duty at Fort Huachuca, Arizona, is granted CAPTAIN RUDOLPH G. EBERT, assistant surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING APRIL 15, 1895.

GEORGE PURVIANCE, surgeon, detailed as Chairman Retiring Board for physical examination Officers of Revenue Cutter Service, April 8, 1895.

H. W. AUSTIN, surgeon, detailed as Member Retiring Board for physical examination Officers of Revenue Cutter Service, April 8, 1895.

H. R. CARTER, detailed as Recorder Retiring Board for physical examination Officers of Revenue Cutter Service, April 8, 1895.

A. H. GLENNAN, past-assistant surgeon, granted leave of absence for three days, April 9, 1895.

J. B. STONER, past-assistant surgeon, when relieved to proceed to Philadelphia, Pa., for duty, April 5, 1895.

G. M. GUITERAS, past-assistant surgeon, granted leave of absence for six days, April 5th and 8th, 1895.

J. C. PERRY, past-assistant surgeon, to proceed to Portland, Or., and assume command of Service, April 5, 1895.

J. M. EAGER, past-assistant surgeon, to proceed to Gulf Quarantine Station for temporary duty, April 5, 1895.

W. J. S. STEWART, assistant surgeon, to proceed to Philadelphia, Pa., for temporary duty, April 9, 1895.

SEATON NORMAN, assistant surgeon, to proceed to Norfolk, Va., for temporary duty April 9, 1895.

H. S. CUMMING, assistant surgeon, to proceed to Boston, Mass., for temporary duty April 9, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 20, 1895.

G. MCC. PICKRELL, past-assistant surgeon, detailed from U. S. S. "Newark," home and two months' leave.

L. N. STONE, assistant surgeon, ordered to the U. S. S. "Newark."

C. H. T. LOWNDES, past-assistant surgeon, detached from coast-survey steamer "Hassler" and to Mare Island Hospital.

C. M. DEVALIN, assistant surgeon, detached from U. S. S. "Vesuvius" and to the U. S. R. S. "Vermont."

HOWARD SMITH, surgeon, retired, leave extended six months to remain out of the United States.

THE THIRD INTERNATIONAL CONGRESS OF DERMATOLOGY

Will be held in London, August 4 to 8, inclusive, 1896. A partial list of officers is as follows:

President, Mr. Jonathan Hutchinson.
Vice-Presidents for the United States, Dr. Duhring, of Philadelphia; Dr. White, of Boston; Dr. Nevins Hyde, of Chicago; Dr. Bulkley, Dr. Keyes and Dr. Fox, of New York.

Treasurer, Mr. Malcolm Morris.

Chairman of the Reception Committee, Dr. Radcliffe Crocker.

Chairman of the Museum and Demonstration Committee, Dr. Stephen Mackenzie.

Chairman of the Bacteriological Committee, Dr. Sims Woodhead.

Secretary for the United States, Dr. George T. Jackson, of New York.

Secretary-General, Dr. J. J. Pringle, 23, Lower Seymour Street, London, W.

REGULATIONS.

1. All duly qualified medical men, British or foreign, or others interested in science invited by the Council, who shall have paid the fee of £1 sterling, and who shall have enrolled themselves, shall be members of the Congress and entitled to the volume of Transactions.

2. The official languages of the Congress shall be English, French and German, but with the permission of the President, members may express themselves in the language with which they are most familiar.

3. The proceedings of the Congress shall be embodied in a volume of Transactions, edited by the Executive Council.

4. Communications relative to membership, papers, or other matters connected with the Congress, should be addressed to

the Secretary-General, Dr. J. J. Pringle, 23, Lower Seymour Street, London, W., or to one of the Foreign Secretaries.

5. The fee for membership shall be payable in London, at or before the opening of the Congress. It will greatly facilitate the work of the Executive if the fee is forwarded as soon as possible after the 1st of May, 1896.

6. Members who are unable to attend the Congress shall receive the volume of Transactions.

7. The Subjects treated of shall be of two orders: (1) Those selected beforehand by the Executive Council and introduced by gentlemen chosen for that purpose by the Council. (2) Those selected by individual members themselves.

8. Subjects selected for debate by the Council shall take precedence over those selected by the members.

9. The sittings of the Congress shall take place from eleven to one in the forenoon, and from three to five in the afternoon, of each day.

10. There shall be clinical demonstrations of patients every morning from nine to half-past ten, and every afternoon from two to three.

11. Members contributing papers must submit an abstract of them to the Secretary-General on or before the 1st of May, 1896, which will be printed either in full or in part, and embodied in the general programme of the Congress which will be distributed at its opening.

12. At every debate precedence will be given to gentlemen who have communicated beforehand their intention to take part in it.

13. No papers lasting more than twenty minutes will be permitted. Speeches will be strictly limited to ten minutes each. MSS. of the papers read must be left with the Secretary-General before the end of the sitting. The Executive Council shall decide as to the entire or partial publication of such papers in the Transactions of the Congress.

SOCIETY NOTICES.

MEDICO-LEGAL CONGRESS.—The Medico-Legal Society makes the preliminary announcement that it will hold a Medico-Legal Congress at or near the City of New York during the last week of August or first week of September, 1895 (time and place to be hereafter announced), open to all students of Medical Jurisprudence.

An enrolling fee of \$3.00 will be required of each member to aid in the expenses and the publication of the *Bulletin* of the Congress, to be sent each member free.

H. W. MITCHELL, M.D., *President*.
CLARK BELL, Esq., *Secretary*.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 29th, at 8 P. M.

Dr. E. B. Lane will present a paper on the "Causes of Insanity." Drs. M. Prince, P. C. Knapp and G. T. Tuttle have been asked to take part in the discussion.

Dr. S. J. Mixter will report a case of "Meningocele; Operation; Recovery." Drs. G. L. Walton, A. T. Cabot and R. W. Lovett have been asked to take part in the discussion.

JAMES G. MUMFORD, M.D., *Secretary*.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION, will hold its regular monthly meeting, this meeting being the last one for this season, on May 1, 1895, at 19 Boylston Place at 8 o'clock.

The subject for discussion will be "Penetrating Wounds of the Abdomen." Dr. James G. Mumford will present the subject in a short paper.

Dr. M. H. Richardson will report "A Case of Gun-shot Wound of the Kidney."

Dr. C. L. Scudder and Dr. H. Lothrop will give a *résumé* of cases of penetrating wounds other than gun-shot wounds up to date.

Dr. S. V. Goldthwaite will report and exhibit "A Case of Pyelo-Nephritis; Operation; Recovery."

Dr. G. H. Monks will show and report "A Case of Stab-Wound of the Abdomen,"—wound of intestine, prolapse of bowel through wound, operation, recovery.

MEETING OF ACTING ASSISTANT SURGEONS.—A special meeting of the Association of Acting Assistant Surgeons of the United States Army will be held in Baltimore, Md., May 8th, during the coming session of the American Medical Association.

It is earnestly desired that every member of the Association will make an effort to be present, to consider matters of importance. By direction of the President,

W. THORNTON PARKER, M.D., *Recorder*, A.A.A.S.
GROVELAND, MASS., April 17, 1895.

RECENT DEATH.

WILLIAM MASON CORNILL, M.D., M.S.S.S., died in Boston, April 14, 1895, aged ninety-four years.

Original Articles.

ACUTE INFECTIOUS PROCESSES IN BONE.¹

BY ROSWELL PARK, A.M., M.D., BUFFALO, N. Y.,
Professor of Surgery, Medical Department, University of Buffalo.

THAT which the surgeons of past times used to speak of as "ostitis interna" has been of late years much more carefully studied, and is now usually spoken of as "osteomyelitis acuta seu infectiosa." This has been brought about largely by the labors of Chassaignac, who in 1853 presented a communication to the Académie in Paris, and whose labors were during the ensuing years ably seconded by Demme, Klose, Roser, Lücke, Kocher, and many others. As the result of their combined labors, there has been described a fairly typical form of acute infectious disease occurring beneath the periosteum, usually of the long bones—no bone of the body, however, being exempt; most common in early childhood, that is the period of the growth of bones—which has become now among surgeons and pathologists so well recognized that already it is called by numerous different names, none of which perhaps are more appealing, though perhaps more accurate, than Chassaignac's expression "typhus of the limbs."

When Piorry introduced the expression "pyemia," he made us acquainted with what he called "a purulent diathesis," which was supposed to be the starting-point of many of these infections, although both Piorry and Astley Cooper had stated that in malignant fevers, in chicken-pox, and after measles, the bones often underwent acute necrosis. Piorry also called attention to the connection between cases of osteomyelitis and pyemic manifestations, considering the former as illustrating frequently a spontaneous form of the disease. Later, Klebs found in the marrow of the femur and of the clavicle of a patient dying with osteomyelitis, numerous zoöglæa masses, along with which were free spores and bacteria-like rods. In the lungs he found fat-embolism; in the kidneys the metastatic foci contained vessels filled with spores. From this case Klebs deduced that we might have an internal multiple inflammation belonging to the mycotic diseases and strongly resembling the septic processes of injured patients. Recklinghausen repeated their experiences, and Eberth determined that there were cocci swarming in the blood of a patient with osteomyelitis of the femur, which were the cause of secondary abscesses. Pasteur also separated from a case of osteomyelitis, operated on by Lannelongue, a large number of cocci, and cultivated them, so that later he identified them as similar to those found in furuncles. He, consequently, formally stated that osteomyelitis is a furuncle of the bone marrow. Thellier and Schueller also saw in the periosteum of inflamed bones and in their surrounding infiltrate, that similar microbes were collected in large numbers. One of the most positive advances in the etiology of osteomyelitis was made by Rosenbach and Kocher when they applied the then new method of isolation and cultivation of these organisms to the study of those which had been found in osteomyelitic cases. The names of some other observers are equally worthy of mention in this connection, although time may fail in which to give each the credit due him. But when one studies this

subject, he will always find that the path of research has been made easy by the labors of Krause, Rodet, Garré, Kraske, Passet, Ribbert, Kohls and Golzi.

This disease—to various expressions of which I shall invite your attention—is generally at present known under the name of "acute infectious osteomyelitis." Or, inasmuch as its most prominent expression is sometimes found between the bone and the periosteum, it may also be known as "acute infectious periostitis." Anatomically, the activity of the disease may vary a little in location; pathologically, the condition is essentially the same. It is essentially an expression of an infection, although the path of infection or its source cannot always be determined. A great deal, however, can be done in every case by individual study.

I wish, first of all, to divide the disease into two forms, in accordance with the division which I have elsewhere made of the bacteria which may act to produce pus. In some lectures on "Surgical Pathology," published three years ago in the *Annals of Surgery*, I made a division of the pyogenic bacteria into the obligate and the facultative—the former being those whose functions seemed to be simply pyogenic and nothing else, which could always be relied upon to produce pus if time and opportunity were afforded them; and, the latter, those which seemed to produce pus only under certain conditions. The staphylococcus forms, with certain other pyogenic germs, seem to be in man always almost strictly obligate in their pathogenic activity. It is so with several forms of the streptococci. It is not so, however, with certain other forms which I group as facultative. Here may be reckoned, for instance, the typhoid bacillus, the colon bacillus, the tubercle bacillus, the pneumococcus, etc. Inasmuch as now I shall have to insist upon it that acute osteomyelitis may be produced by any one of these organisms, I must at once divide the cases into two groups, depending upon whether they are caused by the obligate or by the facultative pyogenic bacteria. Preferring to approach this subject from the pathological side first, I will first give a brief *résumé* of the organisms which are known to produce these diseased conditions.

In the first group, we have the staphylococcus pyogenes aureus, which is the form most commonly met with, and that which Rosenbach and Ogsten first studied in these cases. Next to this comes the staphylococcus pyogenes albus, generally supposed to be somewhat less virulent in its activities and met with less often than the aureus, the cases characterized by it running usually a somewhat milder and more prolonged course clinically. (The staphylococcus pyogenes citreus can be disregarded here.) Next there are certain mixed forms, where both (or several) staphylococci are met with. Next to the staphylococci come the streptococci. These vary much in their virulence, and cases due to these organisms may be very acute or may run a quite mild course. Cases are also met with where we have mixed infections with both coccus groups. Next to these comes, perhaps, the bacillus pyocyaneus. This organism does not seem to be ordinarily particularly virulent, although nearly all cases of suppuration characterized by its presence are known to pursue a tardy or a disappointing course. It is the organism which gives the peculiar blue or green tint sometimes seen in pus. It is said that there are two organisms closely resembling each other. Their re-

¹Read before the Surgical Section of the Suffolk District Medical Society, March 8, 1895.

semblance is so marked as not to concern us here. The micrococcus tetragenus is an organism often found in the lungs of tubercular patients, it apparently being a frequent inhabitant of the human mouth and passing down into the pulmonary cavities with the saliva or other secretions. Some years ago I reported one case of abscess outside of the jaw bone in which this organism was the one principally at fault, the surface symptoms being somewhat peculiar, suppuration being prolonged and the induration about the abscess being hard and pronounced. Since then I have seen that others have noted the same peculiarities. Subperiosteal abscesses about carious teeth sometimes contain this organism.

It has been long noted by various observers, that occasionally during convalescence from typhoid there would be acute suppurations in the bones as in other parts of the body. In time past they have been explained as a sort of metastasis. Now, however, we know that in the pus from such abscesses we occasionally find typhoid bacilli and no other organisms. There are now on record a large number of cases of post-typhoidal abscess, within bone and without, which amply justify the statement that the typhoid bacillus of Eberth may be a facultative pyogenic organism. It is in typhoid also that we get numerous cases of mixed infection — as, for example, where we find pyogenic cocci and typhoid bacillus together, these cases for the most part running a more acute course.

Sequelæ of infection in bone after pneumonia are certainly rare; nevertheless, such cases have been reported — one case in particular by Ullmann (p. 42); also Hansen in 1877, and Achard in 1889.

That the pneumococcus, or diplococcus of Fränkel may be an active factor in the production of osteomyelitis and periostitis has also been very recently shown by Fischer and Levy;² also previously by Lannelongue and Achard.³

Efforts have been made by numerous authors to carry diagnosis to the point of determination as to the specific microbe at fault. Thus, according to Lannelongue, streptococcus cases always have an acute beginning, which, however, usually subsides if there be no general infection, pain increasing rapidly from the incipient symptoms. The skin becomes more red, and takes on an erysipelatous appearance, while the surrounding tissue is quite edematous. In staphylococcus cases the superficial veins become more distended and the lymph nodes are not so quickly involved. When these cases run a severe course they also begin quite violently, and the bone destruction is usually greater and more serious than in the streptococcus cases, in which sequestra usually form. Lannelongue and Achard also believe that prognosis of a given case can be based in a measure on this exact diagnosis. They hold that the staphylococcus forms are the most dangerous; the streptococcus forms next most so; while the mildest are those due to the pneumococcus and other forms. Nevertheless, too much stress cannot be laid upon these features, since the well-known variability in virulence in the same organism at different times plays a most important rôle.

After diphtheria there is but one case, so far as I know, at present on record; that is one reported by Pauli.

The other acute infectious diseases in the course of

which acute bone affections are most likely to be met with are the following:

Variola — By several different authors, acute inflammations of joints as well as acute osteomyelitis has been noted during the course of this disease. Witzel, for instance, has seen necrosis of the lower end of the humerus during the course of variola, with multiple sequestrum formation also in other bones of the same patient. Fischer has reported a most violent and acute inflammation of the tarsal bones with extremely high fever, typhoid condition, and acute course, in complication with variola. After opening the degenerating mass, a quantity of pus was evacuated. From Kaschmir, Neve has reported three cases of acute necrosis; in each case the bone disease followed very quickly after the small-pox. The upper extremities were involved in each instance, and all finally recovered. Kolaczec has reported a case of multiple osteomyelitis with numerous sequestra in various parts of the body. The active pathogenic agent in variola being yet unknown, we are unable to say whether these cases should be considered as due to it, or whether they are not mixed infections, since in almost every instance the ordinary pyogenic organisms have been met with.

Measles. — Three generations ago, Sir Astley Cooper noted the frequency with which necrosis followed chicken-pox and measles. Similar observations have been made also with regard to scarlatina. Concerning the active agent in all three of these diseases, we are still in ignorance, although Babes inclines to the view that the entire scarlatinal process is a modified streptococcus infection. It seems, however, rather likely that the acute suppurative processes here are due to either secondary or mixed infections in which the streptococci play the principal rôle. In every instance with which I am familiar where suppuration has occurred during the progress of scarlatina, the ordinary pyogenic bacteria have been found in its products. Inflammations of bone marrow during and after scarlatina are by no means rare. In fact, in the experience of many surgeons, most of the cases of non-traumatic necrosis give a history of this inflammation following more or less quickly after scarlatina. Suppurative periostitis leading to acute necrosis is also quite common as a sequel of scarlet fever; and Kennedy has reported several cases of epiphyseal separation which he observed in Dublin during the years 1834 to 1842. That particular surface variety of necrosis affecting the alveolar process and resulting in loss of teeth, which was described so well by Salter, occurs very frequently during scarlet fever and measles. The disease affects children from the third to the sixth year, and begins with pains in the jaw, coming on within a few weeks after the cessation of the fever.

During the past few years, we have learned that the influenza or *Grippe* which has spread so widely over both continents may also leave its relics in the way of numerous surgical complications among which perhaps none are more frequent than those seen in the bones. Most of the reported cases, however, have concerned the periosteum rather than the bone marrow; but at least one most distinct case of this kind has been reported by Walker. A sequestrotomy was required, which had for its result the removal of the entire shaft of one tibia.

A study of osteomyelitis, made partly in the hospi-

² Deutsche Zeitschrift. f. Chir., Band xxxvi, p. 94.

³ Cinquième Congrès Français de Chir., 1890.

tal and partly in the experimental laboratory, will give about the following conclusions: Osteomyelitis is a disease which can be experimentally produced in animals, to which end, however, it is necessary to introduce the organisms either into the circulation or into the bone marrow, and at the same time to inflict some quite serious injury upon the bone, by which its circulation may be disturbed. Unless this be done, one very seldom produces the disease experimentally. The disease is one which can be caused by more than a single organism, it being probable that all bacteria which have pyogenic properties can, in one way or another, be made to produce it. The organisms which are experimentally redeemed from these animals are the same as those introduced for the purpose of experiment.

In the human species, the disease is most commonly a staphylococcus infection, there being no doubt but that it is produced more often by these forms than by all others put together. There is ample reason to believe, however, that a variety of other forms may produce the same condition. The so-called "secondary osteomyelitis" is distinguished from the so-called "primary" in that in the former case the port of entry or path of infection is known, and in the latter it is not. Thus, in a case of furunculosis, we know that the bacteria have entered at that point where the furuncle is first met with, and to this an osteomyelitis would be secondary.

In studying this disease, it is most important, if possible, to make out the path of infection, since it is questionable whether any case is ever really primary, although it may appear so at first glance. In the great majority of cases, some lesion of the surface may be found — possibly very insignificant — such as a trifling abrasion, a hangnail, a bruise, or perhaps something more in evidence. One should then, if possible, convince himself that during, at least, several weeks previous to the beginning of the disease there have been no abrasions of the skin, canker-sores nor other lesions within the mucous membrane of the mouth, no styes, no bruises, no hidden ulcerations anywhere, through which bacteria might have penetrated. Kocher, for instance, has related a case where the disease in the bone seemed to follow fourteen days after a small furuncle on the right knee. Kraske has described an analogous case, where there had been a small furuncle on the lower lip of a young lad. Incision had permitted the evacuation of considerable pus. As the result of surgical attention, the lesion in the lip had almost completely healed, when suddenly the patient began to complain of intense pain in the ankle as well as in the pericardial region. In his case there quickly developed an osteomyelitis in the tibia and a pericarditis. Other abscesses subsequently developed in other parts of the body, and the patient died in a few days from general septic infection. In seeking, then, for the path of infection, there should be a most thorough and careful inspection of the entire surface of the body.

The next most frequent path of entry is through the alimentary canal; in fact, Kocher holds this to be that most commonly followed. It is now generally known that even through the unbroken mucous membrane of the intestine, the colon bacillus, and perhaps other organisms can pass. How much more then through lesions such as are permitted by typhoid ulceration, or those produced from other causes! In

fact, when we remember that osteomyelitis can occur this way at all, it will seem strange that it does not occur much oftener as a sequel of typhoid.

The experiments which have been instituted by various writers with a view to settle this point seem to leave it as unsettled as ever. Kocher is a firm believer in the possibility of producing osteomyelitis after injury to the bone by feeding animals with the products of putrefaction. Ullmann has obtained just the contrary results. Nevertheless, the fact that acute osteomyelitis may really occur as the result of infection from the intestine seems to be proved quite positively by the studies of Kraske and others. Equally possible is infection through the respiratory organs, although of its absolute occurrence we are perhaps less positive. Kraske, Lücke, and others have reported cases in which it would appear that the pneumococcus can be disseminated from the lungs, and can produce an acute inflammation of this kind in bone tissue.

That congestion and disturbances of nutrition may be produced in bone and bone marrow by violent irritation or by appropriate chemical or mechanical means without the influence of bacteria, is unquestioned; but under conditions thus brought about there is no formation of that which is really entitled to be considered pus, while such experimental conditions lack all the characteristics of infectiousness, and in fact almost everything that goes to give them any really genuine or serious character. They are, moreover, conditions which are rarely, if ever, reproduced in clinical experience. So too, a number of experimenters have tested what can be done with cultures of various pathogenic organisms. They have all found that it is possible to produce a certain amount of disturbance, but not one of them has reproduced the clinical features of the infectious disease. From all of which, therefore, it most positively appears that osteomyelitis is an expression of localized suppuration within bone marrow or bone tissue. It is no more a specific disease than is an abscess. It is, however, always produced by micro-organisms, and can be experimentally reproduced only by working with them.

Before considering the actual causes of the disease as it is met in the human species, we must consider for a moment what predisposes to this condition. The combined influence of cold and wet seems to be that which more than anything else predisposes to an acute outbreak of this kind. As the result of the combined action of these two factors, we seem to have such local disturbances of circulation as to predispose bone marrow above all things to liability of infection. If in combination with this, we have injury or exhaustion and fatigue the disease is certainly invited. Lannelongue has spoken of certain professional causes which seem to predispose. The osteomyelitis of workers in mother-of-pearl has been particularly described by Gussebauer, while workers in certain metals, and especially those who are concerned in grinding them seem particularly liable. Another predisposing factor is the period of growth in the human organism and the peculiar circulatory activity that goes on in the neighborhood of the epiphyses of the long bones. So far as the influence of recent infectious diseases like those mentioned — namely, variola, scarlatina, etc. — goes, it is certainly open to question whether their influence is direct, or whether it may not really be explained by the mere lowering in vitality, which

every such severe infectious disease produces. Certain it is that the majority of patients who suffer in this way have not attained the twentieth year of life. Freund has collected 36 cases of post-typhoidal osteomyelitis, of which only two had reached the age of thirty, and 25 were under the age of twenty-five, 12 of those being below twenty.

PATHOLOGICAL ANATOMY.

Kocher has made out three distinct stages through which most of these cases pass: First, the period of purulent infiltration with formation of local foci in the bone marrow, and speedy secondary involvement of the periosteum and synovialis. Second, the period of sequestration, or formation of a sequestrum inside of an abscess cavity. Third, the stage of repair.

First Stage.—During the first period there occurs first a most violent inflammatory infiltration of the bone marrow, which involves localized areas that become at first hyperemic, and then infiltrated with blood extravasation. This latter is indicative both of this stage of the disease, as well as of the intensity of the infectious process, since often during this period one finds enlargement of the spleen and hemorrhagic exudations in serous cavities, even at a distance, such as the pleura and pericardium. The locally affected areas of the bone marrow quickly break-down into depots of pus, which pus rapidly spreads in the worst cases either toward the epiphyseal line or else through the Haversian canals toward the periosteum, which it both infiltrates and loosens. This loosening of the periosteum is particularly marked about the diaphyses, rather than at the joint-ends, it being apparently looser in the former location. As a general rule, that end of the bone toward which the nutrient artery is directed is the one whose epiphysis is first loosened, while with the spread of the disease the other end may be similarly attacked. Nevertheless, about the knee it would seem as if the lower end of the femur and the upper end of the tibia are the particularly predisposed localities. Some authors have laid particular stress upon the direct influence of thrombosis and obliteration of nutrient arteries. There does not seem to be any sufficiently definite programme followed out in this regard, nor in the exact delimitation of the resulting sequestrum ever to permit the laying down of any definite rule. The separation of the periosteum usually takes place only over the portion of bone primarily affected, and the limitation of this process is a fair index of the extent of the deeper destruction. From the periosteum the inflammation either extends toward the covering soft parts, in which case we may have a parosteal abscess; or it perforates toward the joint cavity, so that we soon have a condition of empyema of the joint, as well as of destruction of its intrinsic structures. It would appear in many cases, especially in children, that the epiphyseal cartilage is the structure which brings this process to a halt, so that it is possible to have acute necrosis of a diaphysis of a long bone with perforation at both its epiphyseal ends. This appears to take place less often in adults; and, in fact, it is in adults that the joint-ends themselves are most often primarily involved. This is not meant to imply, however, that it may not be possible to get involvement of the entire length of a long bone, and practically total destruction of its structure. Softening and separation of joint cartilage is practically always secondary to the other process. In those cases

which begin in the epiphysis proper, the disease is usually apparently primary in the joint, and is usually mistaken for some affection of the joint proper. In fact, epiphyseal separation occurs in some of these instances before men become alert as to what has really happened. If now patients survive the violence of what has been already described, there is shown a tendency toward encapsulation of the abscess, the formation of a sequestrum, and even the spontaneous separation of the same.

Second Stage.—The second stage is thus constituted: Almost coincidently with the occurrence of suppuration there takes place, around the limits of the acute infectious process, a proliferation of tissue, which may be regarded as an acute granulation process by which protection is afforded; and, if sufficient time is thus afforded, we have the rapid formation of new osseous tissue, produced by multinuclear osteoblasts, with which the affected bone is studded. So soon as this process begins there occurs also a lively absorption of material between the dead and the living tissue, by which even within a comparatively few days a considerable amount of loosening of necrotic tissue is produced. The second stage then, should the disease go so far, is characterized by production of a quantity of new tissue whose effect is to wall off the scene of conflict and death from the surrounding tissue. When once this has occurred, the prognosis, so far as the patient's life is concerned, is very much improved, although the local destruction may be very serious. The numerous abscesses within the infected area are likely to coalesce with time, and we may finally have as a result one long tubular abscess extending from one epiphysis to the other. Should there fail to be a distinctly significant connection, we shall at least find both the bone marrow and the spongy bone infiltrated with pus. If the periosteum has been separated, we shall then get a sequestrum whose dimensions correspond with those of the infected bone; should, however, the periosteum not be loosened, then the necrosis will probably be central and more or less circumscribed. The degree to which the rigid osseous tissues are capable of yielding under these circumstances is simply astonishing. It is in this stage that we have often those remarkable enlargements which occur within a comparatively short time, and produce most striking discrepancies in size between the healthy and the diseased bones. So long as the periosteum remains unbroken and unyielding, the pain, of course, will be intense and agonizing. Spontaneous subsidence of pain is practically an evidence of spontaneous giving way of tissue, by which tension is relieved. When this occurs, we will find almost always a similar yielding at the epiphyseal lines, the cartilage being rapidly melted down and converted into necrotic tissue. Epiphyseal separation may take place in any of the long bones. A similar yielding of sutures in the flat bones is also known,—for instance, a purulent diastasis of the tripartite suture entering into the formation of the acetabulum. Spontaneous yielding of the outer or inner table may also be seen in the sternum, or in the bones of the skull. One expects, of course, under these circumstances to find the joint structures sadly compromised, the capsule distended with pus or pyoid products, the cartilages ulcerated and displaced, the ligaments macerated and yielding, and usually the whole joint so compromised that its function is permanently lost.

Third Stage.—The third stage is the period of efforts at spontaneous repair. By a process of liquefaction in the direction of least resistance, there is a natural effort at elimination of the sequestrum. This may be a process extending over months, and may be accompanied by so much other disturbance as to completely ruin a limb or bone for further function. In neglected cases we often see several sinuses leading down toward the central sequestrum, each of which makes an effort in its direction to permit escape of that which nature is trying to eliminate. It is not to be held that pus has the property of destroying bone. The spontaneous disposition of bone under these circumstances is due to the action of phagocytes, the writer thinks, *in toto*. There may be some reason to think that cartilage left to float in pus may diminish in size; but bone, never.

Once the sequestrum be eliminated, an extraordinary amount of activity is usually displayed to fill up the defect thus left with granulation tissue, which shall subsequently become firmer, perhaps ossify. It is in this tissue that we are so likely to have a secondary tubercular infection, which shall undo finally all the good that nature unassisted might accomplish.

SYMPTOMATOLOGY.

In a general way, the signs and symptoms of these infectious lesions in bone are common to almost all the varieties, and are extremely significant when only read and construed aright. We have already indicated that it is the young and the rapidly growing, also the marasmic who are, by virtue of said conditions, predisposed to attacks of this kind. Moreover, we have indicated that the most common causes are over-exertion, mechanical strain, and exposure. Granted that these conditions have conspired in the given case, the signs and symptoms will probably be about as follows: Patients complain first of exhaustion, followed quickly by pain that may speedily become agonizing. This is accompanied by an introductory chill with high fever, after which the general character of the disease rapidly assumes a typhoid aspect. Evening temperature may rise quite high, to be followed by some morning remission. The spleen is usually enlarged, the tongue dry, the bowels disturbed; frequently we have to do with a fetid diarrhea. The sensorium is affected and children usually early become delirious. The pain, which is at first vague, usually quickly focuses in that particular bone, or in those bones, which is or are to be the subject of the acute infectious process. As the pain increases in intensity we get a more and more significant tenderness, which becomes frequently exquisite. Usually before the tenderness is extreme, we get a characteristic reddening and swelling of the affected parts. With all these there will also be characteristic muscle spasm, by which certain posture signs will be produced, and there will be extreme pain when the peculiar positions thus assumed are even in the slightest degree disturbed. In consequence of this, the limbs—for this will usually be seen in the limbs—are drawn up; and every effort to overcome these flexures or contractures will be followed by intense pain. The more acute the process, the more vivid inflammation and edema of the adjacent parts. Thus it may happen that within forty-eight hours we have not merely swelling, but actual edema of the part involved. This edema should always be regarded as a pathogno-

monic sign when coming on in this way and with this rapidity, and may be practically always regarded as indicating the presence of pus in the depths beneath. Should, now, sufficient time have elapsed, we may in addition to the swelling, the edema, and the livid redness, get the fluctuation which will be afforded by parosteal abscesses, which is still further evidence of the infection going on within the bone. It is rare to have all this disturbance, confined within diaphyseal limits, without more or less participation of the neighboring joints. Of course, when the disease is primary in an epiphysis, the corresponding joint will be early involved. Here the symptoms and signs will not be different from those of an acute purulent synovitis; only in proportion as the bone itself is involved, we will have a much more significant degree of pain. Should a period of several days have elapsed before proper attention is given to such a case, it may be found that epiphyseal separation either has already occurred, or may occur on the slightest handling, such as is necessary for examination or operation. Not infrequently the pus evacuated from these cases is of foul odor, which appears to be often given to it by an admixture of putrefying fat masses.

So far only the symptoms peculiar to the bone affection have been rehearsed. It is necessary to add that to this picture, already often bad enough, we must append a further list of symptoms pertaining to the septic consequences of thrombosis and metastatic infections. Most unfortunately, this disease is frequently so acute and so rapid that even within the first day or two there is not only affection of the tissues comprising the bone, but extensive thrombosis of the veins either inside or alongside the bone, with purulent degeneration of thrombi and the rapid onset of the symptoms of genuine pyemia. To be sure, patients may die of septic intoxication before sufficient time has elapsed to permit of the formation of secondary abscesses. Yet that death may result from a true pyemia is only too well known. Other septic infections may occur in less classical manner,—as, for instance, septic pneumonia, metastatic meningitis, pericarditis, nephritis, etc. In fact, the writer scarcely recalls any apparently spontaneous infectious process which can be followed by death from so many causes, or which is so beset by dangers if not promptly attacked, as this under consideration.

So far but little attention has been given to acute infectious periostitis. Its causes are essentially the same; so also its symptomology and its possible dangers. There is only this to be said, that, as a rule, these symptoms and disturbances are a little less severe than those caused by infection within the depths of the bone; in other respects it runs a similar course, although spontaneous escape of pus, being more easily permitted by accident of location, is more likely to occur.

One need never be surprised in connection with these cases, to find other disturbances, either adjacent or distant, which in the absence of clear pathological views are quite likely to be misinterpreted.

With regard to the rapidity, of course, characteristic of this disease, one must acknowledge that all grades are met with between those foudroyant cases which pursue a fatal course within thirty-six hours from the first sign of the disease, to others which pursue a much milder course, which extend over several weeks, and finally make a partially spontaneous recovery at

the expense of sinus formation, extrusion of sequestra, periosteal thickening, functional impairment of joints, and perhaps chronic ill-health.

Just here the writer would like to mention two or three illustrative cases, which he will very briefly report.

One case was that of a young lady of about twenty-two, who seems to have been taken with an acute infectious periostitis involving all the main long bones of both lower extremities, which quickly followed exposure during menstruation and consequent cessation of the menstrual flow. There was acute sympathetic involvement of all the lower joints; and she was treated for a number of weeks for acute inflammatory rheumatism. When, two or three months later, she came into my hands, there were found extensive collections of pus; and it was necessary to make long incisions over each femur and over each tibia, the incisions being nearly twelve inches in length, extending down to the bone, which was found denuded, the overlying periosteum being separated by more or less pus with some loose, unhealthy, granulation tissue. Here the radical use of the sharp spoon, combined with packing and repeated dressings, extending over a long period of time, finally secured the readhesion of the altered periosteum to the bone, of which, fortunately, none had died. Her limbs were left crippled, however, and she came near yielding up her life as the result of a mistaken diagnosis.

A girl of fourteen was taken with acute symptoms of the above general character, referred to the upper end of the left femur. These followed over-exertion. She also was treated for acute rheumatism; but, her symptoms becoming rapidly worse, she was put on the cars to be sent to the Buffalo General Hospital for suitable treatment. When she left her home, her limbs were of the same length; when she reached our hospital, the left limb was two inches shorter than the right. Spontaneous separation of the upper epiphysis of the femur had occurred as the result of the journey, and it was only by an immediate and proper resection with removal of the sequestrum, that is, the head and neck of the femur, that her life was saved.

A little boy of ten, enjoying the first good skating of the season, exerted himself to an extreme degree, sat down upon the ice to rest, got home in pain and with commencing fever, became delirious that night, and suffered intensely for a number of days with agonizing pain in one leg, which he would not allow to be touched or moved. He, too, was treated for acute rheumatism, although swelling and edema rapidly took place, with a tenderness disproportionate even to acute rheumatism. His life was spared; but he was treated for rheumatism until several sinuses had formed, and until the lower end of the shaft of the tibia began to protrude through an opening made for its spontaneous extrusion. The homeopaths who had charge of him finally acknowledged their incompetency; and the case was carried a hundred miles to Buffalo for treatment. Only one long incision over the shin was required in order to lift out from its bed the tibial shaft, entirely loosened, bathed in offensive pus, and its exposed end blackened by exposure to the air.

These, of course, are extreme cases; and yet I could make out a list of at least a score of them which have come under my own personal observation. The majority of these cases are met with in the lower

extremity. Perfectly analogous or parallel cases, however, could be quoted in which the upper extremity was involved. In 141 cases, collected by Helferich, the tibia was involved in 66, the femur in 45, the humerus in 20, the radius in 6, the fibula in 4. This is a proportion which will be not widely departed from in the experience of those who have seen much of this disease.

It will be quite proper to stop here for a moment to speak of a similar infectious process involving the short and spongy bones, like those of the cranium, the tarsus and the carpus. While, to be sure, the affection is much rarer in these localities, it may pursue essentially the same course, as result of which we have periosteal separation, as well as speedy yielding and loosening of the ligaments which bind these small bones together, extensive swelling, edema, and later fluctuation overlying the affected area, while clinically the symptoms above mentioned will be repeated, varying only according to the part involved. There seems to be less tendency to pyemic disturbances or to wide dissemination of infectious products in these cases. In consequence, we hear much less of death in these instances. Locally, however, they may be equally destructive. These are the cases usually regarded as acute caries; but it is well to insist that their etiology is practically the same.

Cases of this general character which pursue a mild course are frequently the unknown causes, or at least the unrecognized causes of deformities which come later into the hands of orthopedists or of general surgeons for rectification. Subluxations, complete dislocations, deformity due to apparently spontaneous fracture—these are among the conditions met with, for which only clear pathological knowledge can afford an explanation. The so-called distention luxations are naturally spontaneous, and are in effect to be always explained by some process of this general character. These are met with particularly at the hip and at the shoulder. Another form of similar deformity is produced by first a loosening, later a regeneration along epiphyseal lines, as the result of which we have deformity simulating subluxation. Roser has described also another variety of luxation, permitted by an overgrowth of the restraining ligaments, which appears to be permitted by a protracted hyperemia due to active disease, as the result of which these ligaments become relaxed or elongated, with resulting condition much resembling that of an inflamed joint. Deformity is also produced by persistence of muscle cramp or contractures due to the violence of the acute disease. If these be allowed to remain too long unattended to, there will be fixation, also with more or less subluxation. Most serious joint deformity may be produced in this way. Again, by atrophy of certain groups of muscles, corresponding to the areas externally affected, there may be produced, at least, change in shape, with more or less loss of function and persisting deformity. Finally, deformity may be produced in still another way, by those actual disturbances of the growth of bones which may lead either to that form of atrophic elongation first described by Ollier, to which I have elsewhere devoted some attention, or to an absolute arrest of development by which a relative shortening of limb is produced.

One should perhaps stop here to rehearse some of the unusual or accidental incidents met with in some of these cases. We may have, for instance, subperiosteal

teal hemorrhages in the vicinity of the epiphyses, with perhaps complete detachment of the membrane. Just whence the hemorrhage comes is difficult to say, although the epiphyseal tissue itself may be intensely vascularized. Again, the periosteum may appear very differently along different areas of the same and involved bone. One may see it intensely congested at one place, and quite blanched or anemic at another. So one may find quite limited or small subperiosteal collections of pus; and it is worth knowing, that these may be distinct or multiple, and that to open a single collection does not necessarily imply that the entire trouble is thus relieved.

Along with the osteoperiosteal congestions, particularly the peri-epiphyseal or epiphyseal, one may observe also striking lesions among the neighboring muscles. Sometimes these are so circumscribed as not to be easily recognized. They may be even limited apparently to a comparatively small group of muscle fibres; they may consist of white points, or form white lines extending through the muscle tissue. Frequently the white points will be found to be minute collections of pus, but not invariably so. Sometimes the white lines represent linear abscesses, as though the path of infection had been limited to a given bundle of muscle fibres. Perhaps these signs are seen more often in the tibialis anticus and in the biceps of the thigh than in the other muscles. These muscular lesions appear at times to be something else than purulent degenerations. Such spots may even be found in the heart muscle in fatal cases, in which case the ventricular portions are those most involved. Here the condition is one rather of an acute myocarditis in limited patches. When these places are examined histologically, it will be found that we have to deal with an interstitial inflammation, extending sometimes into a genuine suppuration, sometimes stopping short with tissue necrosis.

In the liver and the kidneys, miliary disseminated white patches are often found. The lungs are seldom primarily involved; they may show hemorrhages, or conditions of that character.

Still another rare event, but one several times noted, to which allusion has been made especially by Gangolphe and Devars is the possibility of epitheliomatous degeneration of the fistulous passages remaining after spontaneous evacuation of some of these collections of pus. The cancerous process seems to begin at the external opening, and to extend slowly down toward the medullary depths.⁴

⁴ The malignant degeneration of osteomyelitic foci has been recently quite elaborately dealt with by Devars (*De la Dégénérescence Cancroïdale des Anciens Foyers Ostéomyélitiques*, Thèse de Lyon, 1894), who reaches, briefly, the following conclusions:

The fistulae persisting after osteomyelitic attacks are occasionally the site of malignant degeneration, the epitheliomatous being the most common of all the forms. This seems to be, perhaps, another expression of the well-known fact that old ulcers and cicatrices take on the same kind of degeneration, the form under consideration being either an internal extension or manifestation of the same lesion. These foci do not appear equally susceptible, nor to the same degree. Old tubercular granulations give place to papilliform vegetations, which are frequently difficult to separate—at least on first appearance—from the lesions of an epitheliomatous ulcer. Malignant degeneration occurs not infrequently in the cavities containing sequestra, which are also emptied by persistent fistulae. Devars has collected 39 cases of intraosseous epithelioma, most of the patients being in the middle years of life when attacked.

These epitheliomata appear sometimes as primary lesions, sometimes as secondary; in other words, they quickly succeed to the original trouble, or they develop by slow processes, as in the old ulcer. They develop always slowly, and may produce lesions quite concealed from external view. Secretions from these sources have usually a peculiar fetid odor, which to those familiar with it may even be diagnostic. As in all malignant neoplasms, the course of the disease is unfavorable. Nevertheless, the prognosis is not so bad in and of itself, so far as life is concerned, although it necessitates the ablation of the limb. If, on the other hand, some bone of the trunk

Gangolphe has also called attention to the horrible fetid character of the discharge from some of these cases, which persists in spite of irrigation and of all but the most radical measures. Although this has not yet been worked out bacteriologically, it is probable that this fetor is due to the activity of some extraneous organism belonging to the class of saprophytes.

Another phenomenon noted in some of these cases has been a peculiar eruption such as we see during other infectious diseases—an evident manifestation of septic poisoning, consisting usually of wine-red plaques, sometimes raised above the surface as in urticaria. These points are not painful; they disappear under pressure, and run a very variable course. It was in 1858 that Guebler first called attention to the existence of these eruptions, which have since been studied by many investigators. In October of 1892 Bouchard announced to the Académie de Médecine the existence in cultures of the microbes which often cause these conditions, of two toxines, which he called "ectasine" and "anectasine," by reason of their peculiar vasomotor action. The first promotes vascular dilatation and diapedesis; the second paralyzes the vasomotor dilators. Curiously, these two substances, of such contrary effects, seem to be produced by one and the same microbe, namely, the bacillus pyocyaneus. It is known also, as Arloing has shown, that the filtered cultures of the staphylococci contain a toxine which is a vaso-motor excitant. Gangolphe holds that the peculiar eruptions seen in some of these instances are particularly due to the effects of these particular toxines.

I have not yet mentioned fat embolism as one of the complications of the fulminating forms of these bone infections. The possibility of its occurrence, however, must not be forgotten; it is not frequent, but its gravity is extreme when it occurs. The first evidences of occurrence of fat embolism will probably be met with in the lungs, in the shape of rapid and embarrassed respiration. Lannelongue has insisted on certain other pleuro-pulmonary complications occurring usually during the third or fourth day of this disease, it being possible to have a unilateral (even a bilateral) pneumonia complicated possibly with adhesions; running an atypical course; frequently, but not necessarily, fatal; of short duration; not materially influenced by ordinary methods of treatment.

Albuminuria is also a not infrequent complication, while effusions in the pericardial or pleural sac occur sometimes without any warning whatever.

One of the most striking phenomena in connection with this disease pertains to the recurring character of certain cases. There is every evidence, both experimental and clinical, now at hand to prove that, particularly in the bones or beneath the periosteum, it is possible for collections of micro-organisms to lie latent or dormant for more or less long periods of time, their activity being re-awakened by accident, or by coincident infection, or by that lowering of vital resistance which is so often seen in connection with wasting disease or starvation; and there are clinical cases on record to prove that there have been concealed in the bone for twenty years such collections of organisms.

be involved, the prognosis is bad in every respect. In most of the cases the neighboring lymph nodes are involved. If not seen treated after this has occurred, prognosis is naturally worse.

Treatment must be thoroughly radical, amputation, if possible, being the only resource; and Devars has found a fair percentage of his recorded cases apparently cured by this measure. The entire thesis is well worthy of study.

which retain their virulence but hold it in a latent form. We have little to compare with this except the known properties of tubercle bacilli; and I know of no other disease in which this outbreak is anywhere nearly so striking as in the cases here alluded to. I have repeatedly seen instances which amply convinced me of such possibility. For instance, they give a history such as this: A young lad goes through an attack of acute osteomyelitis of the tibia. The disease often, if early recognized and operated on, apparently subsides; the limb heals with considerable scar, and everything goes well for years, until during an attack of scarlet fever, or typhoid, or after a fracture or some other untoward event, the old bone area becomes again sore, a fresh bone abscess is formed, and perhaps requires a repetition of the previous operation. Or, if this does not occur at exactly the site of the previous trouble, it occurs in the same bone within a short distance. I have at this moment in mind a young woman upon whom I have four times operated within a few years for this trouble, breaking out each time in a different portion of the left tibia, whose leg when I first saw her was already extensively scarred with the results of previous similar manifestations. This does not depend upon my evidence alone, but has been spoken of independently by several different writers. I have no explanation to offer for it, but desire to insist upon the clinical recognition of the fact.

It may seem somewhat at variance with the generally received ideas of the activity of micro-organisms which can produce such virulent disease, to think that these activities may be so long held in abeyance in certain instances. For the argument of diminished virulence of bacteria, we have as yet no satisfactory explanation; but there is nothing stranger about their capability of retaining the power of life and growth for years inside the human body, than there is in the fact that grain from the ancient Egyptian burying places should retain its power of growth when planted to-day.

SPECIAL FORMS.

Let us pass now from general considerations to a hurried consideration of two or three distinct or special forms. It is well worth our while to ask whether the different organisms which may produce this disease may call forth any such distinctive features, clinically or pathologically, that one may recognize their individual presence; in other words, whether special features may be assigned to distinct organisms. We are not yet in position to answer this elaborately, and yet certain things we may affirm. For instance, those cases of acute bone infections which occur during puerperal fever, or in conjunction with erysipelas in other parts of the body, are in almost all instances due to the streptococcus. The forms which are due to the pneumococcus are distinguished rather by a predominance of joint complications and by a lesser tendency to subperiosteal abscesses or to sequestrum formation; while clinically their course is more rapid, their symptoms more acute, and, when recovery follows, their duration is relatively short, while they show a prompt tendency to cicatrization and repair. This form may occur not alone during the course of a pneumonia, but even without pneumonia and without traumatism, as a manifestation of primary infection. The forms due to, in whole or in part, the presence of the bacillus pyocyaneus are more likely to show the

peculiar eruption already spoken of, while the odor from the discharge of these cases is usually preeminently unpleasant. Of the staphylococcus forms, or those mixed with streptococci, it is hard to state anything very definite. The staphylococcus aureus seems to be the organism at fault in the most rapid and malignant cases. Nevertheless, they may be found in the milder, although here usually with some other forms in combination. It would seem that in the post-febrile cases—for example, those following typhoid or scarlatina—we are more likely to meet with the streptococci alone or in relative abundance.

I may add to this statement another, that whereas in 1883 Rodet described an organism of osteomyelitis which was for three or four years separated and given an identity of its own, we now know that this was an error, and that the organisms which he found were simply those now recognized as so common, namely, the staphylococci.

Of the cases following typhoid, variola or diphtheria, I have nothing to say in particular, save that they do not necessarily go on to destructive suppuration. Multiple periostitis with considerable thickening is one of the rare complications of typhoid. One such case I recall in my own practice: Some years ago a young lad had nearly convalesced from his typhoid fever, when he was taken with symptoms to which I was at that time at first a stranger. These proved to be evidences of most painful inflammation of the periosteum covering the long bones of both lower extremities, extending upward, apparently by continuity of tissue, over the pelvis, and even up onto the lumbar vertebra. A more appealing picture of distress or of anxiety lest somebody should rudely jar his bed, or step heavily in the room, I have never seen and cannot imagine. This was my first introduction, years ago, to the surgical complications of these continued fevers, since which I have, of course, seen many illustrations. His periosteal complications ran a somewhat prolonged course without even a sign of the presence of pus, and his tenderness slowly subsided until, finally, he was able to use his limbs again. This will be the probable general course of certain cases occurring during these continued fevers and exanthemes, and I need scarcely say more about them.

The one particular form which I wish to describe, in addition to what has been already said, is that which finds description, or even allusion, in very few works, or even careful monographs and general articles. It is a form to which my attention was first called by the writings of Kiener and Poulet, and should be known as "acute tubercular osteomyelitis." It might also be called "acute tubercular panostitis." It corresponds to the ordinary forms of tubercular osteitis as do the most rapid and destructive miliary forms of pulmonary tuberculosis to the ordinary cases of consumption. There is no doubt but what the entire bone marrow, and, in fact, the entire integrity of one or more bones may be destroyed as rapidly as that of the lungs. It is a type of disease which runs a most acute clinical course, though never fulminating, which is equally destructive but less painful, in which there are perhaps more external disturbances with less tenderness than in the ordinary suppurative forms of this disease. The periosteum is likely to be more thickened, and we are quite likely to have more edema and swelling of the entire limb. Some years ago I had to amputate at the shoulder-joint an arm, all of whose bones were in-

volved in the most acute thinkable process of this kind. Why the condition did not disseminate I do not pretend to explain; but I would say that with the removal of the upper extremity, the patient quickly recovered and regained his usual health. On dividing the bones, one had in this specimen the most beautiful and typical picture of acute miliary tuberculosis of the bone marrow and the spongy-bone structure. I take particular pains to bring this form before you, because I know that it has received very insufficient description, and I am anxious that the possibility of this rare condition should be borne in mind.

DIAGNOSIS.

I need say but little in regard to the diagnosis of this type of disease in addition to what has been already said. I have deliberately reported a number of cases mistaken in the early stages, or until too late, for rheumatism. In my experience, the average general practitioner nearly always makes this mistake; and it is particularly to warn him against it that I would disseminate such information as is contained in this paper. To the best of my knowledge and belief, rheumatic conditions never suppurate. In nearly all of the cases to which I have called your attention, suppuration occurs early, sometimes very promptly; and by this means alone it would seem as if error in diagnosis could be avoided. It scarcely seems necessary to go into an elaborate differentiation between the two conditions because I am confident that this mistake has so often occurred simply from ignorance of the fact that we have such a condition as infectious osteomyelitis of acute type, and I do not wish to take up your time.

TREATMENT.

There is but little to be said concerning treatment, but it needs to be emphasized with all the power possible. We have in these forms of disease acute infections whose tendency is toward tissue destruction and suppuration within deep and pent-up cavities. The intense and agonizing pain which characterizes most of them is caused by the fact that this excitement is going on in spaces enclosed by rigid walls, while the generally grave nature, the sometimes overwhelming typhoidal character of the symptoms is due to the intensity of the process, the extreme toxicity of the bacterial products—in other words, to the intensity of the auto-infection; and the frequently grave and often fatal complications are due to the anatomical relations of the veins and lymphatics coursing through and alongside of the bones. With all the emphasis that I can bestow, I want to urge that the treatment of these cases be essentially surgical and promptly so. Remember that death has been known to occur within thirty-six hours from the first unpleasant symptom, and remember that this might have been avoidable had operation been performed within the first twelve hours. What now is necessary? Anesthesia, and incision with a firm hand, not merely through the skin, but to the bone, and by all means through the periosteum. These incisions can usually be made at such points of election as shall cause a minimum of disturbance to other important structures; but it may be necessary to expose the shaft of the tibia, for instance, from one end to the other by an incision extending from knee to ankle, which shall freely expose the bone proper; and if here ample explanation be not afforded for the intensity of the symptoms and pain—explanation in the

shape of exudate, of pus, or of infectious products—then the bone itself must be opened with the same freedom and the same purpose in view. These are cases where, after exposing the bone, it is perfectly justifiable to use a large bone drill to perforate at different points into the marrow cavity, as one would introduce the hypodermic needle into the soft parts, searching for pus. The thickening that may occur even within a few days will sometimes be astonishing. One need never hesitate to go with a sterilized drill into the depths of every accessible bone. So soon as anything but healthy bone marrow be revealed by these punctures, the chisel should be substituted for the drill, and the medullary cavity should be widely and mercilessly exposed. Ordinarily pus will be forced out through the drill opening even before the withdrawal of the instrument. With this guide, the chisel should be used until every pocket of pus has been widely opened and until sharp spoons and irrigator nozzles can be introduced freely, so that the parts can be absolutely cleansed from all pent-up suppurative products. It may possibly be enough to open the medullary cavity of a long bone near its upper epiphysis, and then near its lower; and then to draw through this instruments or plugs by which it can be thoroughly cleaned out. But, when once the patient is anesthetized and this procedure has been begun, the surgeon should never stop until he has completely evacuated every particle of infectious matter. The same is true of parosteal abscesses. One who is not familiar with these cases can scarcely conceive of the relief to pain which is hereby afforded, nor of the conversion which is so speedily effected of a grave septic case into one of mere extensive and open incision, but with the parts so exposed that there can no longer be any possibility of retention of pus or resorption of poisonous products. The cavities thus made are left widely open, it being much safer to allow them to heal by granulation than to attempt to close them prematurely. Extensive scars result from such radical operation; but not only are lives thereby saved, but limbs in more or less shapeliness, and joints in completeness of function, which would otherwise be lost—hopelessly lost.

NOTE.—The interested reader is referred especially to the monographs of Ullmann, "Beiträge zur Lehre der Osteomyelitis Acuta" (Wien, 1891), with its admirable bibliography; and Gangolphe, "Maladies infectieuses et parasitaires des Os" (Paris, 1894); also to an article by Garré, "Einige seltene Erscheinungsformen der akuten infektiösen Osteomyelitis," in Kocher's *Jubiläum Festschrift*, 1891, p. 43.

A SELF-RETAINING DRAINAGE CANULA FOR PREVENTING SCAR IN CERVICAL ABSCESS.¹

BY F. M. BRIGGS, M.D.,
Surgeon to the Boston Dispensary.

In the treatment of abscess of the neck, the avoidance of resultant scar is of great importance to the individual. While a scar in other parts can be disregarded, the exposure of the neck to constant inspection, and the undue prominence here of any appreciable scar, gives an additional consideration; for we have to consider not only the question of effecting a cure, but also that of leaving the least possible scar as a result.

Two years ago, the writer² reported three cases of

¹ Shown with five cases at the meeting of the Boston Society for Medical Improvement, February 4, 1895.

² Boston Medical and Surgical Journal, January 12, 1893, p. 34.

large cervical abscess treated by making the cut from one-fourth to three-eighths of an inch in length. The result was a cure with a little scar in two cases, and three small round cicatrices in one case. This latter was an extensive, suppurating cervical adenitis, extending from the ear to the clavicle, on one side, in an otherwise healthy male adult. Three short cuts were made at various times, as necessary. At one period of the case the neck was full of branching sinuses, which were treated by a method which will be spoken of later. After a tedious treatment of over three months, healing finally took place, and the man now has three imperceptible scars. He has been, and is, in fine physical condition.

Since the above report I have followed out the same treatment in similar cases. The results have been good, but there has been one defect in the method. In most cases the skin heals, but the abscess cavity does not. The cavity refills (usually with a serous fluid), and frequent reopening of the cut may be necessary before healing finally takes place. This has been a serious objection, for healing is delayed by the constant refilling of the abscess, and the patient naturally objects to a, perhaps, daily cutting.

As scar is limited to the cut through the skin, it follows that the shorter the cut the smaller the scar. Where skin unites by first intention, it not infrequently shows a slight line of cicatricial tissue; where it heals by granulation the amount of cicatrix is often large, and where, as is sometimes the case, the cicatrix hypertrophies and we have the keloidal scar, the disfigurement may be very decided.

If, in treating an abscess, a cut is made dividing the whole, or nearly the whole of the inflamed area, the contents evacuated and the cavity packed, we are doing all that can be done to bring about healing by granulation, and are doing just that which *will* leave a scar. The treatment of abscess is a question of drainage; and the reason why a long cut is effective is because it gives free drainage. If drainage is the only consideration, such treatment is unquestionable; but if the resultant scar is to be considered, it is bad treatment. When we see, as we do, necks covered with old cicatrices, some depressed, some bunched in keloid, usually

of a different color from the rest of the skin and always a disfigurement to the individual, certainly any treatment which cures the condition and which prevents such a result is very much to be preferred.

Aspiration and setons are two methods which have been used with the object of avoiding scar. Having had no personal experience with either of them, I can only say, on general principles, that aspiration drains at once, but does not give subsequent drainage, and that in many cases this is essential before healing can take place; that a seton drains partially, but that the drainage cannot be as free as is often necessary; and that both of these methods consider only one point — the scar — but do not dispose of the other, the very important question of drainage.

I have recently had Messrs. Leach & Greene of this city make a little instrument which covers both of these points satisfactorily. This is a self-retaining drainage canula and is as shown in Figures 1 and 2. It consists of two surfaces of silver, curved laterally, bent outward, and jointed at the angle. The cut through the skin being made (one-eighth of an inch), the knife is pushed into the abscess. Upon its withdrawal the canula is inserted, as in



FIG. 1.

Fig. 1. When the joint is reached the external arms are closed. This reverses it. The internal arms open, dilating the tissues in the vicinity of the cut and retaining the canula within the cavity, while the external arms come together and make a tube (Fig. 2). A projection at the end of each external arm prevents it from falling into the abscess cavity, and it is fixed *in situ*. It is removed by seizing one of the external arms and withdrawing it until the hinge is reached, when, by spreading, it is again as in Fig. 1, and easily slides out.



FIG. 2.

The canula can be cleaned and sterilized, and gives free, continuous, and, if necessary, permanent drainage through a skin cut of barely one-eighth of an inch. It reduces the cut to an undoubted minimum, gives surgical drainage, and leaves the least possible resultant scar.

Of the following thirteen cases, all but two, were treated at the Boston Dispensary during my recent service there.

No.	Diagnosis.	Location.	Canula Inserted.	Canula Removed.	Canula Reinserted	Time in Healing.	Age.	Remarks.
1	Multiple glandular abscess . .	Side of neck	Dec. 14th	Dec. 17th	Jan. 16th	15 weeks	Adult	
	Ditto (same patient).	" "	Jan. 16th	Jan. 19th	....	....
2	Single glandular abscess . .	Side of neck	Jan. 16th	Jan. 19th	....	7 days	Child, 1 year	
3	Multiple glandular abscess . .	Front of neck	Jan. 29th	Feb. 2d	....	10 days	Boy, 16 years	See cuts.
4	Non-glandular abscess . . .	Back of neck	Feb. 1st	Feb. 5th	....	7 days	Adult	
5	Single glandular abscess . .	Side of neck	Feb. 2d	Feb. 5th	....	6 days	Child, 3 years	
6	Multiple glandular abscess . .	Side of neck	Feb. 4th	Feb. 11th	Feb. 14th	....	Adult	Case disappeared.
7	Multiple glandular abscess . .	Both sides of neck	Feb. 5th	Feb. 8th	....	1 side, 10 d. 1 side, 21 d.	Child, 1 year	
8	Non-glandular abscess . . .	Back of neck	Feb. 9th	Feb. 12th	....	....	Adult	Case disappeared.
9	Single glandular abscess . .	Side of neck	Feb. 15th	Feb. 18th	....	6 days	Child, 6 mos.	
10	Non-glandular abscess . . .	Back of neck	Feb. 27th	Feb. 28th	....	14 days	Adult	
11	Multiple glandular abscess . .	Under ear	Feb. 28th	Mar. 1st*	....	....	Girl, 18 years	Still under treatment.
12	Single glandular abscess . .	Side of neck	Mar. 2d	Mar. 4th	....	6 days	Child, 3 years	
13	Non-glandular abscess . . .	Back of neck	Mar. 5th	Mar. 7th	....	7 days.	Adult	

* By patient — see notes of case.

From these cases it will be seen that abscess of a single gland, and simple, non-glandular abscess healed in one week or less. (Case 8, which disappeared after the canula was removed, undoubtedly healed in a few days, for the abscess was progressing as favorably as any of the others at the last visit.)

Case 3, whose photographs showing the appearance before and after treatment are here given, had, as will be seen, a multiple glandular abscess involving the front of the neck. The whole cavity was emptied and drained through one canula, inserted at D, and healing followed in ten days, leaving a slight inflammatory hardness, surrounding and defining the limits of the original triple-walled cavity. This slowly disappeared, and a second photograph taken two months later shows his present condition. There is no scar. Knowing where the canula was inserted, I can detect, by the most careful inspection, a very minute white line;

allowed the process to take its course, making short incisions when indicated, and effected a cure with no scarring. This man has been perfectly healthy since, and there is no reason to think that he will not continue so.

Case 1 of the above table was similar, but not so extensive. Three superficial glands and some of the deep ones were involved. The total inflamed area was about two and a half inches in diameter. As this case is illustrative of the various points to be considered, I will describe it in detail.

The patient, female, age twenty-five, married, and the mother of one healthy baby, presented herself at the Boston Dispensary, December 7, 1894, with a large inflamed glandular mass on the left side of the neck, over, in front of, and behind the sterno-cleido muscle. She had first noticed it about three weeks previously. December 14th pus was present in quantity, and a



Abscess before evacuation



Same case two months later.

but no one, who did not know the point of insertion, could distinguish it from the trifling blemishes which the patient has on other parts of his face and neck.

I have encountered the greatest difficulty in the multiple glandular inflammations, where the glands are only partially broken down. In the treatment of such cases there is a very important question for consideration, namely: Should these glandular masses be thoroughly excised at once, or is the surgeon justified in waiting?

The writer hopes to discuss this question in a later communication; but it is beyond the scope of the present paper to do more than refer to it, and to give the clinical history of five such cases treated upon the theory that immediate excision is not necessary. These are Cases 1, 6, 7 and 11, and the case already referred to as reported two years ago.

This latter was a case of gradual, extensive breaking down of both superficial and deep glands on one side of the neck in an otherwise healthy individual. I

canula was inserted at the thinnest point. It was removed December 17th, and from that time on for fourteen weeks there was the same tedious treatment that I think must be necessary in all similar cases treated by this method. The cavity closed down to a deep sinus, which discharged a small quantity of pus daily, and which showed no tendency to heal.

January 16th. Pus had formed at another point about one and a half inches distant from the first incision. I inserted a canula, and at the same time reinserted a canula in the original opening.

January 19th. Both canulas were removed. The second cavity slowly closed down to a sinus which connected with the first by a deep and tortuous tract. The connection was shown by injecting corrosive solution; when thrown into one opening, it came out of the other. The probe went in for about two inches, but could not be made to follow round through the connecting passage. The sinus ran well under the sterno-cleido mastoid.

February 7th. I treated the sinuses by the same method that I had previously used and with equal success. It consists in rapid but gradual dilatation with olive-pointed urethral bougies, curetting the sinus thoroughly, and giving injections later. I started with a No. 11 bougie and went up, one after the other, to No. 15. This went through with considerable pressure. I then introduced a small, sharp curette and scraped the lining walls on all sides. Iodoform and oil was injected.

February 9th. Tincture of iodine was injected into each sinus. This was followed by a sharp inflammation and profuse suppuration, but it had the desired effect. There was a free discharge of pus for about seven days, which then gradually diminished.

February 25th. Another abscess had formed lower down on the neck. It was superficial and healed very quickly. The canula was left in for three days.

The case showed final healing, that is to say, complete closure of sinuses, some fourteen weeks after the first canula was inserted.

April 7th. The patient reported for inspection. There were two, small, depressed, scarcely noticeable scars, which I think will be almost invisible in a few months.

Case 6 disappeared at the end of five weeks, not cured. This was a case of a small mass of partially broken-down glands, back of the sterno-cleido. At the last visit there was a deep sinus.

Case 7, a child, age one year, had both sides of the neck entirely filled with inflamed glands. I first saw her February 5th, when the glands on the left side were wholly broken down; those on the right side partially so. Two canulas were inserted on the left side and one on the right side. They were removed three days later. Healing occurred in ten days on the left side, but it was three weeks before the right side was in normal condition.

Case 11 is still under treatment. This was a mass of partly broken-down glands under the right ear. A canula was inserted February 28th, and was pulled out on the dressing, by the patient herself, the following day. It was pulled out with the inner arms open, and the cut was torn to three-eighths of an inch. There was very little subsequent suppuration, and the glands instead of showing abscess formation have been slowly disappearing. There is a sinus about one inch in depth. It may be that in this case a radical operation will be necessary later on, and that the glands will have to be cut out; but before doing this I shall give the patient at least eight weeks more. I think, however, that the adenitis will disappear spontaneously, or that further suppuration will occur, and allow of the insertion of another canula. At present, absorption is evidently going on. The swelling has diminished fully one-half in size, and the patient is in good physical condition. The final result will be reported in any event.

Before concluding, I wish to call special attention to the following details:

(1) The knife should be narrow-bladed (not over an eighth of an inch broad), and very sharp at the point. It should be pushed through the skin, well into the abscess and an even cut made; that is to say, the internal opening should be the same size as the external. The canula should be inserted as soon as the knife is withdrawn.

(2) The abscess cavity should be emptied at once by

slow, firm compression. This is said to be bad surgery. I have yet to see a bad result from it. The immediate emptying of the cavity places the walls in the best condition for rapid healing, and subsequent distention is prevented by the free drainage afforded by the canula.

(3) As a rule, I do not syringe. This is indicated in only three conditions: (a) Where the cavity needs sterilizing. (b) Where solid *débris* is present and will not come out. (Both of which are uncommon in my experience.) (c) Where a sluggish healing process calls for a stimulus or an irritant. This comes at a later period of the case.

For sterilizing and for washing out *débris* I use corrosive (1 to 2,000 or 1 to 4,000) or creolin (one or two per cent.). For a stimulus, iodoform and oil; and for an irritant, tincture of iodine.

(4) The dressing should be moist sterilized gauze, and in applying it, the bandage should be carried around the forehead by a number of turns, as well as around the neck. If carried around the neck alone, the dressing moves with every motion of the head, rubs over the canula and causes much irritation of the cut.

(5) In removing the dressing the very greatest care should be taken that it does not stick to the canula; for the skin is tender, and if the canula is adhering to the gauze, it can be easily pulled out with the inner arms open, tearing the skin, and enlarging the resultant scar.

As a rule, the canula should be left in three days, but I have taken it out in twenty-four and in forty-eight hours. It may have to stay in more than three days. It is impossible to lay down an invariable rule on this point. The principle of the treatment depends upon free, continuous drainage, and the canula should be taken out when it is evident that this is no longer necessary. This decision lies wholly with the surgeon. Any one who is familiar with these cases can tell at a glance whether further drainage is needed, or whether healing ought to take place if the cavity is left to itself.

Persistent sinus should be treated as already described.

In conclusion, where the case is a multiple, partially broken-down, glandular inflammation, the patient should understand clearly at the outset that the treatment may extend over a period of many weeks, and that a radical operation may be the final outcome. But from the results which I have obtained in such cases, I think that in any similar case the patient can be assured that there is good reason to expect a favorable result, and that if this does occur the neck will not be disfigured.

In cases where full suppuration is already established, in both glandular and non-glandular abscess, the result is very satisfactory. It is remarkable to see the inflammatory process subside in a few hours under the constant drainage, and to see a, perhaps, very large abscess entirely healed in one week. It is even more satisfactory to see the same case a few weeks later and to try to find the point where the canula was inserted.

A MEDICAL APPOINTMENT FOR A WOMAN. — A woman doctor, Madame Touransin, has been appointed Medical Officer to the Lycée Fénelon, in the place of the late Dr. Dujardin-Beaumetz.

A TEST OF THE ACCURACY OF CLINICAL MEASUREMENTS OF THE LENGTH OF THE LEGS.

BY THOMAS DWIGHT, M.D.,
Parkman Professor of Anatomy at Harvard University.

To take accurate measurements on the living with a tape-measure is admittedly difficult. What is worse is the uncertainty as to how great an error is likely to occur even when considerable care is exercised. This doubt is annoying in surgery and in medico-legal medicine. The fact that the legs, which most frequently come into question, are often of different lengths, complicates the matter. It is to be understood that I am speaking of clinical, not of anthropological measurements. As for obvious reasons it is not practicable, even *post mortem*, to institute a series of tests of the accuracy of measurements by disarticulating the legs and remeasuring them, we have to resort to some roundabout method.

In my researches in the dissecting-room of which the results were given in the Shattuck Lecture,¹ I measured before dissection the length of the legs in two ways. First, from the top of the great trochanter to the ground, and, second, from the anterior superior spine of the ilium to the internal malleolus. The former may seem the best guide to the length of the leg but it presents such great difficulties in execution that I consider the other more trustworthy and have relied on it alone in the following tests. It may not be amiss to mention a point of technique in finding the starting-point. If one feels without method for the prominence supposed to be caused by the anterior superior spine of the ilium, it is very easy to mistake for it a part of the crest. The finger should be laid on the crest and carried forward till it has rounded the superior spine. As soon as this is passed, by pressing upward the finger easily recognizes a definite point.

After dissection I measured the greatest possible length of the femur and the length of the tibia, including the malleolus, but not the spine. The test which I now make public is to compare the differences between the combined lengths of both bones with the differences obtained before dissection. Let it be remembered that we are not now discussing the difference between the legs but are trying to determine the accuracy of the measurements made in the flesh. If we find, for instance, that the distance from the spine of the ilium to the inner malleolus is the same on both sides, and then after dissection find that the combined length of the right femur and tibia precisely equals that of the left ones, the presumption is strong that the original measurements were very accurate. The difference between the results I have called the error. Thus, if the first measurements show that the right leg is six millimetres longer than the left, and the bones show that it is only two millimetres longer, the error is four millimetres. If the first measurement shows that the right leg is six millimetres the longer, and the bones show that the left is the longer by two millimetres, I have added the differences together and called the error eight millimetres. I am not at all sure that in this last point the method is the proper one; but I have adopted it because, by making the error appear as large as it possibly can, it is the severest test of the accuracy of the original measurements.

I have applied this test to 73 bodies with the results shown in the following table:

Error, in mm.	Times.
0	8
1	16
2	12
3	3
4	7
5	11
6	2
7	3
8	5
9	7
10	1
11	2
13	1
18	1
	73

The average error was almost half-way between four and five millimetres; but a better judgment is formed by analyzing the table. Thus it appears that 30 times (that is in 41 per cent. of the cases) the error was either absolutely *nil*, or less than three millimetres, which in such coarse work may be called a negligible quantity. Only four times did the error exceed one centimetre. In the worst case, in which the error was 18 millimetres, the original measurement made the left leg one millimetre the longer, while the left bones were the longer by 19 millimetres. I cannot help thinking that by a blunder .1 was put in place of 1. in recording the original measurements; but, be that as it may, this method shows a greater accuracy in measurements made with a tape-measure before dissection than I, at least, was prepared for.

Clinical Department.

A CASE OF CASTRATION FOR HYPERTROPHIED PROSTATE.¹

BY M. F. GAVIN, M.D.

THIS operation is still *sub judice*, and the history of this case, recently operated upon, may be of interest to the profession.

C. G., sixty-nine years old, a widower, entered Boston City Hospital, May 5, 1894, with the following history: Frequent and scalding micturition for five years, occasional pain over pubes, never any retention or dribbling. Examination by rectum showed a large, dense, symmetrically enlarged, smooth prostate, size of a large orange, occluding to considerable degree the rectum, the finger-tip reaching with difficulty the upper edge. The catheter was passed easily until the prostate was reached, which was surmounted with difficulty. The residual urine was five ounces, was acid and contained pus, some bladder cells, a trace of albumin, and very few renal elements. In five days the patient was discharged with directions to return to the hospital for catheterization weekly.

For four months the patient followed this treatment, but the symptoms increased rapidly, and constantly recurring pain made more frequent catheterization necessary, and he was taught the use of the catheter with poor success, the prostatic urethra being too difficult for the patient to pass the catheter through. He finally came to hospital with absolute retention which had existed for twenty-four hours, with great pain, distressing tenesmus, coated tongue, tremulousness, and prostration.

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

¹ Boston Medical and Surgical Journal, 1894, vol. cxxxi, p. 73.

A No. 9 Coudé catheter was passed with difficulty, and several ounces of cloudy urine withdrawn. Its specific gravity was 1.010, reaction alkaline and no albumin was present. Catheterization had to be performed every four hours, day and night, because of the irritable condition of the bladder, which was quieted by morphia. Pain was still a prominent symptom, and the patient was unable to pass water at all. This condition continued for nearly three weeks, when the urine was still cloudy, acid, 1.012, albumin a trace, and pus was found in the sediment. Castration was performed, and about eight hours after operation the patient had the first voluntary micturition for three weeks. Sixteen hours after the operation catheterization was needed. Voluntary micturition continued during the next day, and a second catheterization was demanded about forty hours after operation. From this time on no catheter was needed, morphia was omitted, and voluntary micturition, unattended by pain, continued. There was no more tenesmus or discomfort. At the end of a week the sutures were removed from the incisions, the wounds healing firmly. The prostate was then diminished markedly in size and consistency. The patient's nervous symptoms were quieter and disposition much more cheerful.

During the second week the patient was up and about the ward in clothes, passing his water during the day about every three or four hours, and three or four times a night. The force of the stream was increased. The character of the urine was unchanged except that there was a little less pus. The urine chart then showed a polyuria, as much as 120 ounces being passed in twenty-four hours, the average being about 98 drachms. Three weeks after the operation the prostate was diminished one-half, and in five weeks was only one-fifth of the size before operation. The patient was then discharged. The urine was then 70 ounces in twenty-four hours, acid, albumin a trace, pus much less in quantity, residual urine three ounces.

The patient reports from time to time at the hospital. He is grateful and enthusiastic, free from pain or discomfort, passes water every four hours during the day and two or three times at night. The residual amount is two to three ounces and is clear, specific gravity 1.010 to 1.014, albumin trace. Patient has gained thirty pounds since leaving the hospital. Prostate is now about one-sixth of the size before the operation.

This case has considerable interest in many ways; it goes to show that permanent benefit does follow the operation of castration for hypertrophy of the prostate. When contrasted with the many other operations that have been suggested, it has much to commend its use. It is rather repulsive to the average man to think of the loss of his testicles, but when we consider that this operation is only called for late in life, when the activity of those organs, to say the least, is on the wane, it must lose much of the repulsiveness that has been urged against this operation. The operation is a simple one and does not entail much risk to life. Of course it is only for a certain class of cases that this operation is called for — persons unable to follow out a systematic course of palliative treatment; where the passage of a catheter is attended with the loss of blood or great pain; where obliged to work and exposed to the changes in the weather, and where the liquor habit prevails.

The subject of this operation had tried the palliative

treatment faithfully without any gain; in fact, he was losing flesh and strength. He was told of the different operations — perineal drainage, suprapubic cystostomy, prostatectomy, and castration — but was willing to allow us to use our better judgment. When we think of the suffering that follows hypertrophy of the prostate and how difficult it is to reach even to afford relief, living with a disorganized condition of the bladder and later the kidneys, any remedy ought to be gladly welcomed by the surgeon. I have been greatly impressed with this case and the result that followed the operation.

The suffering of a woman with advanced ovarian cystoma is no greater than that of a man with an enlarged prostate and its consequences, and if ovariectomy is done to relieve the one, why not castration for the latter?

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

CHARLES L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, March 6, 1895
DR. M. H. RICHARDSON in the chair.

DR. ROSWELL PARK, of Buffalo, read a paper on

THE ACUTE INFECTIOUS PROCESSES IN BONE.¹

DR. J. C. WARREN: I am very much pleased that Dr. Park selected this subject for discussion this evening. I feel that the disease has not been understood by the general practitioner, and not only by the general practitioner, but a large number of surgeons have not and perhaps do not now appreciate the important bearing of this process on bone disease. Many of these cases, in fact the majority of them, are spoken of as necrosis, as if necrosis were a disease and not a sequel of disease, the process itself going unrecognized. The reason the general practitioner does not recognize the disease is because the teaching has been inadequate; and many of these bone affections have consequently been classified, as Dr. Park has already told you, with a number of acute types of disease. Many of them were fatal in their nature as bone typhoid, acute rheumatism, etc. They often run a rapidly fatal course, and I have no doubt many cases reported as blood-poisoning, typhoid fever, etc., were cases of acute osteomyelitis not recognized. On the other hand, the surgeon has not recognized the disease because he has not seen it in its early stages. I think it is remarkable to find how in a long hospital experience one comes to a realizing sense of the fact that one sees so few examples of acute osteomyelitis in its early stages, and the reason is because the doctors do not send the cases into the hospital for treatment. It is just as it was a few years ago in appendicitis. The hospital did not get these cases. It may be that we have an epidemic of appendicitis here, a larger number of cases than elsewhere; but this winter in the Massachusetts Hospital during my term of service there were something like forty cases of appendicitis in the hospital at one time. The general practitioner has begun to recognize the disease, and to send it promptly to the surgeon for treatment; and so I hope it will be eventually with acute osteomyelitis. If we can by

¹ See page 425 of the Journal.

such papers as Dr. Park has presented to-night enable the general practitioner to diagnosticate the disease, then we shall begin to see the disease in its early stage, and perhaps be able to rob future pathological museums of large collections of dead bone, etc., which adorn so many at the present time. I say it is rare for the surgeon to see these cases. I can only recall a comparatively few typical cases of acute osteomyelitis. I remember one which I saw in private practice, which I did picture for acute rheumatism, and for which I gave salicylate of soda. I might as well confess that I made just such a mistake as I deprecate in the general practitioner. A young man after going on a few days with symptoms of acute rheumatism broke out with suppuration in other joints, and died of septicemia in a very few days. An autopsy was refused; but I have no doubt in my mind that that was a case of multiple osteomyelitis terminating in septicemia or pyemia. I have seen two cases of acute osteomyelitis which were recurrent; one was in the space perhaps of about ten years, and the patient came in with the symptoms at the most typical part of the body, namely, the epiphyseal line of the femur, the patient groaning with pain all night. A large incision was made down to the periosteum which did not appear to be very much affected. An opening one and a half inches long by one inch in width was made; the bone chiselled out very freely. I was interested in the condition which I found in the interior of the bone at that time. There was no pus, but there was a dark, bloody, brownish-colored mass of softened cancellated bone, evidently tissue in a state of putrefaction from an acute septic process. This was curetted out and disinfected, as I thought at the time, thoroughly. The symptoms were relieved for the time being, but the disease reappeared. The temperature rose slowly; and finally a second operation was performed. I found then that the septic process was creeping slowly up the bone very much as in the carbuncular types of inflammation in the soft parts, foci of pus showing here and there.

That case eventually led to the so-called spontaneous fracture of the bone which Dr. Park has mentioned, and also had subsequently what I thought to be a secondary tuberculous infection of the tract. The patient through all this refused amputation, and finally came out victorious and has since been married. In another case I saw a return of the disease at the age of fifty, where there had been a history of acute osteomyelitis at the usual period, about twenty years of age. This case was diagnosticated as a case of neuritis by two very able physicians in its earlier stages; but as the swelling and inflammation in the thigh proceeded, it became evident that there was fluctuation, that an abscess was forming, and I was sent for. After inquiring into the case and finding a scar on the thigh low down in the customary place just above the knee-joint, I made the diagnosis of osteomyelitis. There was one especially interesting point in connection with that case. I made several free incisions, the patient refusing to take ether. The pus that was discharged was very foul indeed, of a grumous, brownish color. The shaft of the bone was as smooth and polished as marble and stood out in bold relief in the centre of this abscess. The patient was in poor condition, and as soon as the opening was made his condition became worse; and as I had predicted, he died in three or four days of acute septicemia.

The reference made by Dr. Park to the secondary

tubercular infection of old pus-cavities is a very important one, and of especial value in point of view of treatment. These cavities, although the sequestrum has been discharged, do not in many cases tend to heal. With removal of the dead bone the cure has not been effected by any means. The bone is enlarged. A section through the bone shows a tortuous sinus with an ivory induration of the bone around it, and we have a bone fistula which remains perhaps for a life-time; although it may not cause any active suppuration it is a weak point, a nidus for infection. Tubercular infection, I think, is common; and many of the so-called cases of scrofulous bone disease are really complications of this original acute infective process. A large number of cases come to out-patient wards, particularly young children who are in that state of debility which makes them so fit subjects for this form of bacterial infection; many of these cases are looked upon as cases of acute suppurative synovitis or tubercular disease, white swelling of the joint, perhaps of more or less acute nature. Koplick and Van Arsdale have called attention to this type of disease, in many cases of which the abscess instead of involving the shaft of the bone, either breaks through the epiphyseal lines, or develops in the epiphysis primarily, or the epiphyseal side of the epiphyseal line, and in that way involves the joint. Of course, the joint may be involved in a typical case finally; but it is much less common, as you all know. So that in these cases we want to recognize an acute infectious process and the importance of perhaps not merely making an opening in the joint to let out the purulent serum, but to follow the point of suppuration up to its fountain source in the bone. Cases of multiple osteomyelitis have been recognized as a type of osteomyelitis by most writers and care has been taken to differentiate them from the metastatic abscesses which occur in pyemia. A broader view of these cases perhaps would be to classify them with pyemia, because a more minute examination shows that we have not only abscesses in different bones in the body, but we have the ulcerative endocarditis type of inflammation, which shows that other systems beside the osseous system have been involved in the disease; but there are certain typical cases which I think are as well expressed clinically by the name multiple osteomyelitis, or better explained in that way than by the name "pyemia," where we do not have the general infection of the system in a hap-hazard sort of way, and which ran a much less malignant course.

In regard to treatment I can only say when we have got a case of acute osteomyelitis of the virulent type it is just as grave a disease as appendicitis and ought to be treated as promptly; but we have not got quite to the point of looking upon it in that intense way which our young doctors and surgeons do appendicitis. I think the time is coming when it will be recognized, and when surgeons will consider it much as they now do cases of abdominal surgery. I hoped Dr. Park might say something about the treatment of necrosis, which is, of course, the part which we usually have to content ourselves with, and some of the methods of healing of large bone cavities which are formed as a result of the disease, and possibly give us some information as to his experience with decalcified bone, and what conclusions he has come to as to the best way of dealing with these sometimes large abscesses with tortuous sinuses boring in various directions, and, in fact,

forming a suppuration which is perhaps as difficult to disinfect as the Augean stables themselves.

DR. E. H. BRADFORD: Dr. Park's paper deserves not only our welcome but our best thought; more so perhaps than the gentlemen here realize or Dr. Park himself. His work is that of a leader in the study of the pathology of bone, an investigation much needed. It will be admitted that at the end of the nineteenth century, although we have accumulated a great deal of knowledge as to the classification of diseases of the liver, kidneys and the larger organs, we know but little of diseases of the bones. The fact is, clinical observers have collected a greater amount of experience than the pathologists have been able to digest, and the busy practitioner has had too little time to devote to purely scientific research in this difficult branch of pathology. Investigations such as Dr. Park has brought to our attention are of the greatest value, not only for the interesting facts collected, but as a stimulus to further research. As he says, there are a great many questions that need to be answered. The whole matter of bacteriology demands study, especially as to the causative relation of germs to diseases of the bone. Is it true that osteomyelitis may appear shortly after typhoid fever, due to the bacillus of typhoid fever; and is it true that the same can happen after pneumonia? I can add one case to those referred to by Dr. Park, where acute osteomyelitis in the ankle followed pneumonia in a healthy boy, an interval of two years being dotted by a number of acute attacks of pain and swelling, culminating finally in complete destruction of the cuboid. There are other clinical facts which Dr. Park hardly had time to pay attention to, which present themselves for study. Why is it that acute osteomyelitis affects boys rather than girls? Why is it that it attacks between the years of ten and twenty more than later? and why does it attack by preference the lower end of the femur? These questions are all of importance, and we certainly owe Dr. Park all the thanks for bringing them so clearly before us.

Dr. Bradford showed a number of specimens of bones representing caries and osteomyelitis; also a specimen of sarcoma of the spine presented to the museum by Dr. Everett Flood, of Baldwinville. The particular interest in this specimen is that, although the sarcoma had disorganized the cord and portions of the vertebral bodies, the intervertebral substances were swollen to an unusual extent, but apparently not involved by the sarcomatous process.

DR. H. C. ERNST: I can add very little to the summary Dr. Park has given us of the etiology of this process, but it does not appear to me that it is quite so definitely settled as some suppose in a number of the points presented. One of them in particular is illustrated by what are spoken of as post-typhoidal abscesses in which the typhoid bacillus is found. It is quite possible, of course, that it may occur there; but this is only an illustration of the sort of process Dr. Bradford has just mentioned, the occurrence of acute osteomyelitis following an attack of pneumonia. The conclusion that because a bacterium occurs in a given situation it is therefore the cause of the process with which it is associated, seems to me to be entirely fallacious, and has in the past led to many erroneous conclusions, and will, I dare say, in the future if a serious protest is not entered to stop it. In the first place, we know in the laboratory nothing in regard to the bacillus of typhoid fever that induces us to believe

that under any conditions it can be made to produce suppuration. Therefore, why should we believe that because it occurs in an abscess it has taken on an entirely new function? We forget that the methods of bacteriology are of the most imperfect kind, and we know that practically the whole of the modern science was started by the introduction by Koch of the solid nutrient media; and we may look forward to some advance of the same sort in the future in regard to the etiology of these various processes. In such an instance as this of the typhoid abscess we have neglected largely one of the broadest fields of investigation; and so far as I am aware in these processes no attempt has ever been made to study the occurrence of the anaerobic bacteria; whether in these processes there do not occur other varieties of bacteria which will develop under anaerobic conditions and whether they have something to do with the etiology rather than forcing ourselves to the conclusion that the typhoid bacillus has taken on a new function. A second point is that possibly the physicians will not in the future be obliged to send their cases to the surgeons constantly in these processes, because, as it would appear, very considerable advance has been made in the study of the toxins of the staphylococci and the streptococci that certainly are the most common etiological factors in the production of acute osteomyelitis, and the laboratory experiments give promise of the possibility of protection against or the arrest of attacks of this sort by therapeutic agents derived from the cultures rather than by surgical interference.

I have listened to the paper with the greatest possible pleasure, and I can only join in what Dr. Bradford has said in thanking Dr. Park.

DR. R. H. FITZ: I may be allowed to say a word or two from the medical standpoint. It is obvious that physicians should bear in mind, after hearing such a paper, that, although the bones of the body are supposed to be especially the province of the surgeon, they may originate symptoms which apparently are remote and of more general character than concern the bones in particular. For many years the bone marrow has been looked upon as an important part of the blood-making apparatus closely allied, both in structure and function, to the lymphatic system. Its systematic examination shows that it, like the latter, quickly reacts to infectious agents, presenting a variety of consequent changes, not only those to which Dr. Park has referred, but degenerative changes also, attributable to milder degrees of infection. The physician should, therefore, appreciate that he may find anatomical changes localized in the bone marrow, although the symptoms may be conspicuously those of a pyemia or septicemia, with but ill-defined localizing symptoms—a very important consideration with reference to treatment.

Dr. Park referred particularly, in speaking of etiology, to the importance of the association of traumatism, or of local disturbances of nutrition with a general and perhaps a concealed source of infection. I remember many years ago that Dr. R. M. Hodges emphasized the frequency of osteomyelitis not only among young boys, but especially among very active young boys; in his experience cases being frequent in the summer among boys diving from wharves. Of course, this may represent merely a coincidence, but it is significant that the disease is not especially limited to those who are run down or subject to suppurative processes.

With reference to the relation to rheumatism. I have no doubt that Dr. Park will agree with me in considering that the terms acute rheumatism and osteomyelitis are to a certain extent indefinite, especially as regards the relation of results to causes, and that with the advance of our knowledge we may find that each term has been applied to the action of the same agent or agents, the one representing a milder, the other a severer result of infection. The search is constant for a more exact etiological classification, both for diagnosis and treatment; and, therefore, in behalf of the general practitioner I would say that at the time he may be thoroughly justified in calling his case acute rheumatism, appreciating that it is a mild degree of infection and need not feel called upon to seek the aid of the surgeon until the severity of the symptoms indicate that the integrity of the bone marrow is seriously threatened.

DR. A. L. MASON: I should like to express the great pleasure with which I have listened to Dr. Park's paper, affording, as it does, so clear an explanation of the painful symptoms with which we sometimes meet toward the end of acute fevers, especially typhoid I should say, and in pseudo-rheumatism. The cases, however, which fall into the hands of physicians I think are not so many, because these bone symptoms do not arise until late in convalescence or even perhaps many months after the patient has had the acute infection which gives origin to the bone inflammation. I presume this also is the reason for the fact Dr. Park has alluded to, that in the text-books and works on fevers little mention is made of this subsequent condition. I am quite sure that in 1878, when periosteal inflammation following typhoid first came to my notice, very little was known about it as a sequence of fever. The case in point was one of prolonged typhoid with sub-periosteal suppuration. The patient was operated on by Dr. Hodges, by incision through the periosteum, and recovered without loss of bone. At that time the matter was entirely new to me and since then, until recently, there has been very little information relating to it in medical text-books. The point which Dr. Park has referred to with regard to the non-suppurative nature of rheumatism I think is an important one. Rheumatoid cases which have been admitted to the hospital and which have shown suppuration have seemed to me improperly classified as rheumatism, since suppuration probably never occurs in true rheumatism.

DR. H. L. BURRELL: The paper which Dr. Park has presented has interested me very much indeed, and many of the clinical pictures which he has presented I recognize. I should beg to protest against the position taken by Dr. Fitz as classifying acute rheumatism with acute osteomyelitis. Acute osteomyelitis, as I have seen it, is an imperative disease; if there is a word which expresses the pathological condition it is a jugulation of the bone, and unless the periosteum is slit up and tension relieved the bone is killed. It is a condition in which it is wrong to wait, and I am very glad that Dr. Park takes the ground that immediate operation is necessary. There is one question that I would like to ask Dr. Park. As I have met these cases—extremely ill, delirious, with very high temperatures—and have been called upon to operate, in making the extensive incisions that are necessary to expose the bone there comes a time when it becomes a question how much the patient will stand.

In one instance where I was practically forced into an ablation of the whole shaft of the tibia, finding the periosteum stripped from the shaft of the bone and the bone lying bathed in pus, I lost the patient from shock. That has suggested to me that in these severe cases if we satisfied ourselves with simply draining at first and then did a secondary operation later when the patient was stronger, that perhaps we might save ourselves the disaster of an occasionally immediate death following the operation.

DR. PARK: I have been very much gratified at the discussion that has been evoked or provoked by the paper. I assure you that I read a paper here with no little diffidence, and I am glad to have found something which has been of interest to you. After all, as I think of what I have read, I want to assure you that the subject has been by no means fully covered. There is a great deal more that could be said which I could not say at such a time, and I regard this little essay as only an introduction to the subject of acute infections in bone. It carries one insensibly to similar troubles in and about joints which has been covered by Dr. Townsend of New York.

There are two or three matters upon which I would like to say a word. Why do boys have this trouble oftener than girls? And why particularly between the tenth and twentieth years of life? I have tried to impress that the predisposing causes, so far as externals are concerned, are fatigue and exposure; and these are two causes to which boys are more liable than girls, and boys between ten and twenty more liable than boys below ten years of age. Still I would like to cite an illustrative case occurring, this time, in a girl, but showing the influence of fatigue and exposure: A girl about fifteen years of age who lived at Niagara Falls went skating one day in winter, had no idea how far she went or how tired she was, but got so tired that she sat down upon the ice and cooled herself off in that way; after repeated exposure she got home lame and tired. The next day she was taken with all the signs and symptoms of acute osteomyelitis of the upper end of one femur. The case was treated at her home, part of the time under homeopathic, part of the time under regular auspices, always as acute rheumatism. After three and a half weeks she was so evidently in need of something more than had been done that the suggestion was to take her to the hospital in Buffalo. When she left her home the mother assured me the limbs were of the same length. When she reached Buffalo one limb was two inches shorter than the other. On resection of the hip, the joint end of the bone was found lying loose in a cavity which contained pus. There had been suppuration in that epiphysis. It shows how complete and how speedy this epiphyseal separation may be.

As illustrating also the effect of fatigue in predisposing to infections, there is the somewhat classic experiment which your bacteriologists could tell you about better than I can. Take the experiment with the ordinary domestic rat, which ordinarily is immune to anthrax. Put that animal in a cage with a turning-wheel and keep him working until he is tired out, and you can easily infect him with the germ. It shows the influence of fatigue and exhaustion in predisposing to bacterial infection. I think there is a lesson to be drawn from that in the liability to acute osteomyelitis (and to other infectious diseases) after exposure. The

germs may be in the system or near by where they can infect it, but are not likely to do so unless some one of these conditions obtain.

There is one condition on which I would like to speak which is still *sub judice*; we need more exact information about it. That is the very rare periostitis aluminosa, described by the French school of surgeons, regarded usually as merely a separation of the periosteum of the bone by albuminous or gelatinous material, for which in time past there has been no explanation; of which I have seen one or two cases and which some of the later pathologists suppose to be an expression of this same condition, save that the organisms have either been killed off or perished before the disease is attacked by the surgeon. There is opportunity for considerable research and study in settling a moot point concerning its etiology.

In regard to the treatment of necrosis, etc., the operation itself, of course, requires no consideration here, but I would like to say this about the treatment of the cavities. Nature makes an effort to extrude the sequestrum by provoking a formation of granulation tissue around it and at the ends, furnishes by ulceration an escape for a certain amount of discharge, granulation tissue replacing the bone and finally breaking down, usually by secondary infection, and thus forming the fistulous passages which permit often spontaneous escape of bone. Now the cavity in which the sequestrum lies is lined with this granulation tissue. It is provoked by the presence of this foreign body, this sequestrum. If the surgeon contents himself with cutting away enough bone to remove this, he takes away from that cavity, although he gives greater possibility for escape of discharge, the real exciting cause for further granulation by which it might be healed up. I think the thing for the surgeon to do is to introduce a desirable substitute for this sequestrum. I think the reason why so many of the cavities which we pack with gauze heal better is because the gauze packing serves as a stimulus and substitute for the sequestrum.

I think that many of these cases of necrosis are liable to the possibility of secondary tubercular infection. I am glad so good an authority as Dr. Warren agrees with me in that. It is a feature of the question which I think is not usually nor sufficiently noted in the books and general articles. At present I have a great deal of faith in guaiacol as an antidote to the tubercular process, and I am using packings composed for the most part of iodoform gauze or some such material, which is soaked in balsam of Peru to which is added about ten per cent. of guaiacol, perhaps with iodoform in addition to that.

Lastly, if you will permit me to so far digress as to pay a compliment: the subject with which I have dealt to-night is one I have long been forced to deal with as a teacher; and while I knew students needed that kind of knowledge, they could not get it in any standard text-book at that time. Not until recently has any adequate description of this condition crept into any English books. I am glad to say that in the new work which has just been issued by Dr. Warren, of this city, it finds adequate mention and description, and I think this is but one of the many valuable features which that book contains. I consider his monograph on "Surgical Pathology" a monument to himself and a very great credit to the profession in the community from which it emanated.

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THE THIRTEENTH CONGRESS OF INTERNAL MEDICINE.

AMONG the interesting papers read at the Thirteenth Congress of Internal Medicine just held at Munich, April 2-5, 1895, was one by Heubner, of Berlin, on the "Results of Sero-Therapy in Diphtheria." It was discussed by Widerhofer, Kohts, von Ranke, von Merling, and others.

Heubner (referee) indulges in the usual exhibit of statistics to prove the advantage of the antitoxin injections over all other methods of treatment. Thus, to quote his words: "Sero-therapy has caused in the city of Berlin a notable lessening of mortality. In 1894, before sero-therapy, there were 517 deaths in 1,332 cases of diphtheria (39 per cent.); since the employment of sero-therapy, out of 1,390 cases we have had a mortality of only 21 per cent. The mortality has then diminished about one-half since we have adopted the antitoxin treatment."

The presence of the Löffler bacillus is to this writer the criterion of true diphtheria, and all false membranous affections resembling diphtheria but devoid of this bacillus are simply *diphtheroid*.

The success of the antitoxin treatment depends on its early commencement rather than on the apparent benignity of the affection. The febrile symptoms are less marked under sero-therapy, and the pulse is less frequent. Early treatment diminishes the chances of albuminuria, causes the local symptoms sooner to decline, the false membranes to become detached and fall off sooner than under the old treatment, and when they fall off they are seldom reproduced. Cases subjected to sero-therapy in good season are remarkably exempt from laryngo-tracheal complications. Out of 16 cases where the larynx was invaded from the first, the disease was arrested and recovery followed in nine.

Out of 181 cases of pure diphtheria recorded by this authority, all that were treated by the serum injections on the first and second days got well; and of

those treated on the third day, two only succumbed. In only three of these 181 cases was there any relapse; nine presented symptoms of cardiac weakness, and 12 had partial paralysis. In a few of these cases, an erythematous eruption followed the injections. There was in no case any swelling or suppuration at the point of injection.

Preventive injections were practised on 64 children; two of these were afterwards attacked with diphtheria and one succumbed.

"If," says Heubner, "we compare the observations before and since the introduction of antitoxin, we have to note in favor of the new treatment two important modifications: diminution of the fever, and early expulsion of the false membranes; these facts support the views of those authorities who accord a truly specific value to this treatment. The other characters noted in the course of cases of diphtheria the last year might rigorously be attributed to the 'epidemic genius,' since they have been very generally observed; in reality, it must be strange, to say the least, if the relative benignity of these late epidemics has everywhere coincided exactly with the institution of sero-therapy with no relation between these facts but one of mere coincidence."

Baginski, of Berlin, stated that from the 15th of March, 1894, to the same date, 1895, 525 cases of diphtheria had been treated with antitoxin at the Friedreich Hospital; at first Aronson's serum was employed, then that of Behring. The epidemic which prevailed then was one of the gravest; for during the months of August and September, when the supply of serum had run out, the mortality was 52 per cent., while during the four previous years it had been successively 50 per cent., 33 per cent., 36 per cent., and 42 per cent., the average being 41 per cent. Of these 525 cases, corresponding to the period during which sero-therapy was employed, the mortality only attained the figure of 15.81 per cent.

From a clinical point of view he holds that it is incontestable that sero-therapy exercises a marvellous action on the general state of the diphtheritic, if not from the first day of the injection, at least from the second or third day, provided that the quantity injected is sufficient. These are summed up in a comparatively mild run of the disease, and a prompt return of the appetite and strength. There is, notably, a speedy return of the temperature to the normal. The local processes are more speedily arrested under sero-therapy than under any other treatment.

Baginski agrees with Heubner as to the advantages of early treatment by antitoxin. The mortality of those treated from the first day of the disease by antitoxin was 2.5 per cent.; of those treated from the second day, 10 per cent.; of those treated from the third day, 14 per cent.; of those treated from the fourth day, 23 per cent.; of those treated from the fifth day, 35 per cent.

Among the secondary effects imputable to sero-therapy, were noted the abscesses observed in seven

cases where the injection was made deeply into the muscular layers; in the pus of several of these cases no pyogenic bacterium could be found. In 15 cases, erythema multiforme followed the injections, but the speaker did not attribute this complication to the sero-therapy; in fact, long before this treatment came into vogue, diphtheritic erythema was known.

Baginski does not attempt to explain the action of the serum, but believes that the efficacy of the remedy is now sufficiently established empirically.

Widerhofer, of Vienna, in summing up his experience with antitoxin in the hospitals of Vienna, finds a diminution of the mortality of diphtheria by more than one-half since the introduction of sero-therapy. In 130 cases he has used preventive injections with good results, none of these persons contracting diphtheria, though previously exposed. In two other series of cases the preventive injections were practised, and with nearly identical results. No local treatment was used conjointly with the injections; in a few cases of heart weakness, small doses of digitalis, strophanthus or strychnine were given to sustain the circulation. Bronchitis and catarrhal pneumonia, as complications, had been very infrequent since the precaution was taken to give the patients moist, instead of dry, air to breathe by the constant evaporation of water in the wards.

Von Ranke, of Munich, spoke with enthusiasm of the success of the antitoxin treatment in the hospitals of Munich; the mortality had been lessened by more than one-half since the use of sero-therapy. In his estimation antitoxin arrests the spread of the disease and grave cases soon become mild under its use. Sero-therapy is an excellent adjuvant to intubation in laryngeal cases. Kohts, of Strasbourg, also testified to the benefits of sero-therapy in opposing the extension of the pseudo-membranes. He prefers to combine its use with local antiseptic treatment. From the point of view of mortality, he does not, however, find that sero-therapy has furnished results superior to the older methods of treatment. It was admitted, however, that the statistics furnished by Kohts were relatively meagre, and that in almost all his cases, the treatment by antitoxin was instituted late.

Seitz, of Munich, spoke of the greater frequency of erythema since the use of sero-therapy, and thought this complication for the most part due to the injections.

Von Mering, of Halle, said that at Halle out of 74 cases of diphtheria treated by antitoxin from the second day, only four died. The mortality which before had been 28 per cent., was reduced to five per cent. No complication of any gravity had followed the injections. With this statement all the other speakers agreed; only it was affirmed by one or two that the paralytic sequelæ were a little more frequent after sero-therapy.

It was thought by one of the speakers (Vierordt, of Heidelberg), that the favorable results attending the new treatment might be in part due to the benign-

nity of epidemics the past year or so; people were more than ever frightened at the name diphtheria, and the mild cases (such as used to be kept at home), were now sent to the hospitals. Moreover, it should, he thought, be remembered that the local antiseptic treatment has been used more perseveringly and with greater success by physicians of late years.

It will be seen that there was at this discussion, participated in by some of the most careful observers among the German clinicians, almost entire agreement as to the efficacy of the antitoxin treatment in reducing the rate of mortality in diphtheria. There was also a general consensus that thus far no serious complications or sequelæ imputable to the antitoxin serum have attended the injections.

ANTI-STREPTOCOCCIC SERO-THERAPY.

ANOTHER application of sero-therapy has gone on record. It is the treatment of erysipelas, puerperal septicemia and other diseases due to the streptococcus, by injections of the serum of animals rendered immune to the streptococcus infection.

The curative serum is prepared on the same general principles as the antitoxin of diphtheria. Hares, then a horse, are vaccinated against the streptococcus. The serum of these immunized animals is used first upon animals which have been inoculated with the streptococcus, and with results so favorable as to warrant the application of the same treatment to human diseases caused by that baneful microbe.

At the meeting of the Société de Biologie, February 23, 1895, Roger reported a case of puerperal fever treated by Charrin and himself with streptococcus antitoxin: "Despite the gravity of the infection," he says, "this woman got well in forty-eight hours."

At the session of the society held March 30th, he reported another case of puerperal septicemia treated in the same way and with the same success.

"What struck us particularly in both cases," he adds, "was the prompt amelioration of the general state, the sense of comfort experienced a few hours after the injections, and the speediness of the convalescence."

Roger subsequently treated a case of erysipelas in the same way, and with equally good results. The patient was an infant three weeks old, suffering from erysipelas of the left side of the face. Five cubic centimetres of the antitoxic serum were injected under the skin; this was attended with a fall in the fever and a diminution in the extent of the erysipelas, and at the end of four days the child was well. This case, Roger observes, is the more interesting from the fact that the erysipelas of new-born infants is almost always fatal.

In still another case, the serum was injected in a woman, who twenty days after her confinement was attacked with a pseudo-membranous streptococcus-angina, with high temperature (between 39.7° C. and 41.3° C.). The pulse was rapid, feeble and irregular

(148 per minute); the heart-beats had the fetal rhythm. The patient received 60 c. c. the first day in two injections, and 30 c. c. the second day. Thirty-six hours after the first injection, the temperature fell from 41° C. to 38.3° C., and twenty-four hours later it became normal.

These facts present the greatest interest, and suggest the ultimate extension of this treatment to other and still more grave cases of streptococcus-infection. The injections are said to be perfectly innocuous.

ANNUAL REPORT OF THE BOSTON BOARD OF HEALTH.

THE twenty-third annual report of the Boston Board of Health for the year from February 1, 1894, to February 1, 1895, contains, as usual, some interesting statements. The death-rate, calculated on the basis of a population of 501,000, was 22.98 per 1,000 inhabitants. This is 1.04 less than that of the previous year, and the lowest since 1890. Last year pneumonia caused the largest number of deaths; this year consumption resumes its usual place as the principal factor in the city's mortality. The deaths from consumption numbered 1,425, 12.36 per cent. of the total mortality. The deaths from pneumonia numbered 1,119, or 9.71 per cent. of the total. Diphtheria became epidemic during the year, causing 817 deaths, and its increase was noticeable in every month of the year over those of 1893. It assumed an epidemic form in the last week of September, reached its climax about the first week in December, and gradually fell off at the end of the year. It will be of interest to note in future reports what effect the medical inspection of public schools, as well as the use of antitoxin and the early treatment and isolation of cases discovered by the application of the culture test, have upon the prevalence of this disease. It is fair to expect a decided diminution in its fatality, and ultimately in its frequency.

It is stated that during the past four years diphtheria has shown an increasing tendency in Boston—the rate per 1,000 inhabitants being .505 in 1891, .881 in 1892, .976 in 1893, and 1.630 in 1894. Of the other contagious diseases reported during the year, the deaths from scarlet fever, typhoid fever and measles were respectively less than the year previous. The increase in diphtheria and cholera infantum raised the number of deaths due to zymotic causes to 2,357, an increase of 315 deaths of this class over the previous year, or a percentage of 20.46 to the total mortality. The deaths of children under five years of age were also increased to 4,108, or 35.66 per cent. of the whole number of deaths. This is the highest per cent. since 1887, and the highest number of deaths for any one year on record. The increase of deaths of children was due to diphtheria, cholera infantum, and an unusually large number of enteric diseases, the result of malnutrition.

At the commencement of the year small-pox had

made some headway in the city. In was totally suppressed in May, there having been 77 cases and 22 deaths.

The report concludes from the comparatively low death-rate, and the deaths due to constitutional, local, developmental and violent causes, numbering 9,140, over which little or no control can be exercised by health regulations, that the health of the city is in a fairly satisfactory condition.

The Board, as has been previously stated, hopes soon to have a supply of antitoxin serum from its own laboratory, which will be furnished free to the public institutions and to the poor of the city. It has under consideration a proposition for extending this distribution at cost price to the well-to-do and to the health authorities of the smaller communities forming part of what is known as the Metropolitan District.

The fifty physicians selected by the Board for medical inspection of the public schools began their work November 1, 1894. The reports of these inspectors, for the months of November and December, show that 4,962 pupils were presented to them for examination; and 564 were found to be too ill to remain in school for the time being; 212 were suffering from contagious diseases; 43 were suffering from diphtheria; and 131 were too ill from troubles in the eyes and ears to be in school. Diseases in the throat were most prevalent, and were found in 1,749 pupils. Diseases of the eye, ear, and spine occur sufficiently often among the school children to warrant a more careful examination to detect those who may be suffering from mild forms or early stages of such diseases. School children often suffer serious and unrecognized disadvantages by reason of mild forms and early stages of these ills which would not generally be seen and appreciated by the teachers; nor could this be reasonably expected of them.

The Board of Health purposes to pursue this system of inspection as far as it may be found to be agreeable to the school management and profitable to the highest interests of school hygiene.

There is good reason to congratulate the Board and those connected with it upon the work accomplished by it during the year, for the welfare of the city of Boston.

MEDICAL NOTES.

A HAHNEMANNIAN HOSPITAL FOR THE INSANE.—According to the *Medical News*, the Pennsylvania Legislature has before it a petition signed by 20,000 Philadelphians for the establishment of a Hahnemannian Hospital for the Insane.

A NEW TREATMENT FOR PROSTATIC HYPERTROPHY.—It is stated that at the recent German Congress of Internal Medicine, Reinert, of Tübingen, reported three cases of prostatic hypertrophy which had been considerably relieved by the ingestion of a preparation of the prostate glands of animals.

A GREWSOME DISCOVERY.—According to the *New York Times*, an investigation of the cause of the prevalence of contagious diseases in the schools of New York City has disclosed the fact that out of 112 school trustees 23, or a little less than 20 per cent., are undertakers; a fact which the *Times* says would be amusing were it not so tragical.

THE REGULATION OF ANTITOXIN IN EUROPE.—The German Government has ordered that antitoxin shall not be offered for sale in the German Empire before being submitted to the Institute of Infectious Diseases at Berlin. After examination the Institute will stamp on the bottle the date and number of the sample. This went into force April 1st. A similar proposal is now before the French Legislature.

TRANSPOSITION OF THE HEART, LIVER AND SPLEEN.—George S. Dixon, M.D., reports in the *Medical Record*, April 20, 1895, a case of transposition of the heart, liver and spleen, in a boy sixteen years of age, of Russian parentage. The case was shown before the Pediatric Section of the New York Academy of Medicine, February 14, 1895, and the transpositions verified by Dr. A. Jacobi.

BURNS DUE TO INTENSE COLD.—M. Raoul Pictet has described the "cold burns" experienced by himself and his assistants during investigations at low temperatures. In some cases the skin is first red, then blue, and subsequently the area of the injured spot extends to nearly double what it was originally. There is a painful itching sensation in the surrounding tissues, as well as at the affected spot, and healing usually takes five or six weeks. In more serious cases the skin rapidly becomes detached, and there is a long and stubborn suppuration, the wound remaining open for more than six months in one instance after a drop of liquid air had fallen on the hand.

A STERILIZED BILL OF FARE.—The physicians of the government of Podolia, says *La Médecine Moderne*, recently held a meeting to devise measures to be taken against the cholera. Like every self-respecting medical meeting, this one was concluded by a banquet, of which the following is the *menu*:

Vodka bactéricide et hors-d'œuvre immunisateurs.
Bouillon stérilisé.
Roastbeef aux phagocytes, sauce serum No. 3.
Dinde rôtie, immunisée, contre le choléra des poules, aux marrons stérilisés à l'étuve.
Glaces préparées au lait stérilisé dans des appareils centrifuges et servies dans des boîtes Petri.
Fruits de l'arbre de la science du bien et du mal.
Vins Pasteurisés. — Vin blanc filtré sur bougie Chamberland.
— Bière et porter en cylindres hyalins. —
Champagne ayant subi la quarantaine à Riga.
Café, liqueurs et cognac pour parfaire la désinfection.

LAY COMMENTS ON A LITHOPEDION.—The *Journal of the American Medical Association* is responsible for the following interesting conversation: A surgical operation was recently performed at the Religio-Medici General Hospital at X—, for the removal of a lithopedion from an adult male. The operation was successful as to the delivery by laparotomy of the fetal remains, but the parent did not survive. Two ladies travelling in one of our public conveyances were over-

heard discussing the singular operation. One of them remarked: "So odd, was it not, and in a young man at that."—"Yes," replied the other in a subdued tone of voice, "and a bachelor, too."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, May 1, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 58, scarlet fever 38, measles 166, typhoid fever 13.

THE AMERICAN PHARMACY FAIR.—An American Pharmacy Fair, the first of its kind ever attempted in America, will be held in Mechanics Building from May 1st to May 25th.

THE KEELEY BILL.—The Committee on Public Charitable Institutions have reported adversely to the bill proposing to compel the employment of the Keeley cure at the Massachusetts Hospital for Inebriates.

CHILD INSURANCE IN MASSACHUSETTS.—On April 30th the Massachusetts House of Representatives, by a vote of 149 to 23, refused to order to a third reading the bill to prohibit insurance of the lives of children under ten years of age, thus ending the matter for the present session.

DR. FORSTER APPOINTED SURGEON-GENERAL.—Lieutenant-Colonel Edward Jacob Forster of Boston, Medical Director First Brigade, M. V. M., has been appointed Surgeon-General by Governor Greenhalge, in place of Brigadier-General Herbert L. Burrell, retired.

THE SUFFOLK DISTRICT MEDICAL SOCIETY.—At the annual meeting of the Suffolk District Medical Society the following gentlemen were elected officers for the ensuing year: President, John G. Blake. Vice-President, Francis H. Brown. Secretary, Herbert L. Smith. Treasurer, Edward L. Buckingham. Librarian, B. J. Jeffries. Member of the Nominating Committee of the Massachusetts Medical Society, W. L. Richardson. Committee of Supervision: F. Minot, S. L. Abbot. Committee on Social Meetings: G. A. Leland, E. Reynolds, P. Thorndike, John Dane. Censors: H. F. Vickery (Councillor), F. B. Harrington, R. W. Lovett, E. O. Otis, George Haven.

NEW YORK.

LEPROSY.—One case of leprosy in New York and two in Brooklyn have recently been reported. While all were in different families all three occurred in colored lads who were born in the West Indies. The New York case has been sent to North Brothers Island, and the patient is stated to be in an advanced stage of the disease.

A YOUNG MOTHER.—One day last week at the Court of Common Pleas, in a suit for damages against a landlord, there was presented the novel spectacle of a woman of fifty accompanied by a married daughter

thirty-seven years of age, and the mother looked about as young as the daughter. She stated that she had been married at the early age of twelve, and that her child was born when she was only thirteen.

A CENTENARIAN.—Mrs. Catharine Scott, who is believed to have been the oldest woman in Brooklyn, died at her home in that city on April 21st. She was a native of Ireland and her age is given as one hundred and three. But for a fall three months ago in which she suffered a fracture of the thigh, she would probably have lived several years more, as she always enjoyed excellent health. Despite her great age it is stated that she had not a gray hair, and that she was able to read without glasses. She had had three daughters and one son, and the last surviving daughter died about three months ago at the age of sixty.

A CONTAGIOUS HOSPITAL FOR PAYING PATIENTS.—A project has been set on foot for the erection of a hospital for the treatment of patients suffering from diphtheria, scarlet fever, and other contagious diseases, who are able to pay for their accommodations. It is designed especially for those attacked with contagious diseases while stopping in hotels and boarding-houses. The bill for the incorporation of the institution has now passed the Legislature, and the site for the proposed building in East 16th Street, near the Willard Parker Hospital, has been surveyed. The prime mover in this very useful and practical philanthropic work has been Mrs. John B. Minturn, who has contributed \$25,000 towards it. In addition \$36,000 has been subscribed by others, and there now remains but \$14,000 to be raised to complete the \$75,000 endowment fund required. It is hoped that the building may be erected during the coming summer, and be ready for occupancy in the autumn.

TENEMENT-HOUSE REFORM.—The tenement-house reform bill which recently passed the Legislature has been sent to Mayor Strong for his approval, and on April 25th he gave a public hearing in regard to it. Among those who spoke in favor of it were President Wilson and Dr. Cyrus Edson, of the Board of Health, and Richard Watson Gilder, the President of the Tenement-House Commission, who stated that it was the result of the most careful and painstaking investigation on the part of the Commission and was probably as good a bill as could be framed at the present time. Among the vital points in the bill are the provisions forbidding the covering of more than 75 per cent. of any tenement lot with buildings, instead of 78 per cent., as at present, and permitting the Board of Health to condemn an unsanitary tenement. The principal objections to the bill came from contractors and builders, who claimed that in many of its provisions it was impracticable and theoretical, and that it would largely increase the cost of tenement buildings. The mayor thanked Mr. Gilder for his arduous labors in behalf of tenement-house reform, and stated that he would approve the bill, though he might possibly suggest some minor changes in it.

Miscellany.

A COMPLIMENTARY DINNER TO THREE NEW MEDICAL BARONETS.

THE *Medical Press and Circular* gives a rather amusing account of the "complimentary dinner" given to Sir John Erichsen, Sir Russell Reynolds and Sir John Williams, at the Criterion in London on the 27th ult., which it characterizes as "but a qualified success." The account shows that if the art of after-dinner oratory among British medical baronets is not in a high state of cultivation, at least one British medical journal cannot be accused of timidity in criticism. The account runs as follows :

"The proceedings were opened by the Chairman, Lord Reay, who, in a speech of inordinate length, which might have done duty as an introductory lecture at one of the medical schools, was understood to propose the health of the guests of the evening. The resolution was spoken to by Sir Henry Thompson, who, much to the disappointment of his old pupils, was inaudible, and failed to make any impression or to relieve the monotony of the proceedings. Dr. Champneys, who had been selected to champion the cause of Sir John Williams, spoke distinctly and scored the first success of the evening. Sir John Erichsen, in reply, delivered a speech which was full of pathos and stirred to a marked degree the feelings of the audience. Sir Russell Reynolds spoke with his accustomed fluency and precision, and illustrated his remarks with numerous appropriate and amusing anecdotes. Sir John Williams was lachrymose to a degree, and was clearly unable to rise to the occasion. The proceedings terminated with a speech by Sir William Broadbent proposing the health of the Chairman, who took advantage of the opportunity to inflict on the remnants of the company another oration."

A SUCCESSFUL OPERATION FOR PURULENT PERICARDITIS.

SURGICAL intervention in pericarditis is so rare as to render the case operated by Eiselsberg, and reported in the *Wiener klin. Woch.*, for January, 1895, of especial interest. The case was that of a boy of seventeen who developed a purulent pericarditis after a stab-wound of the pericardium. Puncture of the pericardium having been performed several times without relief, the surgeon decided upon incision. The cartilage of the fourth rib on the left was resected, and the thickened pericardium exposed. After exploratory puncture it was opened by a transverse incision four centimetres in length, and two litres of a sero-purulent fluid were evacuated. The cavity was washed out with warm salicylated water, the borders of the pericardial incision stitched to those of the wound, and two drainage-tubes inserted. Complete recovery took place in four weeks. Examination of the exudate showed the presence of an organism resembling the colon bacillus, but it was of course impossible to say whether its presence was primary or the infection took place through the wound. The writer insists upon the importance of suturing the pericardium to the lips of the wound, the advantages of which procedure in preventing infection of the pleura are evident.

Correspondence.

THE GOOD OLD TIMES.

JAMAICA PLAIN, April 29, 1895.
MR. EDITOR:—The following item clipped from a Boston daily paper dated August 15, 1865, and sent me by a friend, may interest your readers as it did me :

THE "GOOD OLD TIMES."—The *Worcester Spy* prints a genuine curiosity, in a doctor's bill, dated no longer ago than 1830. The price of a visit in those days was fifteen cents, but when the conscientious physician took one ride to see several patients he divided the price among them, so that the most frequent item in the bill is "to part visit, 8c." The charges for medicine range from five to twenty cents, and the highest amount in the column is "to sundry medicine, compound tincture, and tin box, 39c." The total of the bill, which is for constant attendance and medicine for a period of eight months, the visits averaging as often as once a week, is less than five dollars.

Though the services of our profession are by no means rewarded at their full value even at the present day, we may yet be thankful that we did not practise in the "good old times."
Very truly yours,
ARTHUR P. PERRY.

[It would be interesting to ascertain, if possible, the amount of the necessities of life which the fee of 1830 would purchase, such information being essential to a fair comparison. How far the greater purchasing power and the lower scale of living would go to make up for the comparatively small size of the fee is an open question.—Ed.]

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, APRIL 20, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal Diseases.	Diphtheria and croup.	Measles.	
New York . .	1,956,000	913	3·6	14·63	21·56	2·20	5·50	3·41	
Chicago . . .	1,900,000	—	—	—	—	—	—	—	
Philadelphia .	1,139,457	505	146	9·80	14·50	1·40	4·80	·20	
Brooklyn . .	1,043,000	382	137	12·84	24·18	·52	6·76	·78	
St. Louis . .	540,800	—	—	—	—	—	—	—	
Boston . . .	501,107	194	53	8·67	23·97	·51	3·57	·51	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Washington .	285,000	103	26	4·85	13·58	1·94	·97	—	
Cincinnati . .	325,000	115	29	2·58	19·78	—	·86	—	
Cleveland . .	325,000	113	34	8·23	17·13	2·67	1·78	—	
Pittsburg . .	272,000	88	34	11·40	21·66	—	—	1·14	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	29	8	7·40	31·65	—	3·45	—	
Charleston . .	65,165	31	11	—	12·92	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . .	100,410	29	15	13·80	10·35	3·45	3·45	—	
Fall River . .	92,233	40	19	12·50	42·50	7·50	5·00	—	
Lowell . . .	90,613	22	7	9·10	17·30	4·55	—	—	
Cambridge . .	79,007	32	9	9·39	25·00	—	—	—	
Lynn	65,123	15	—	13·33	—	—	—	—	
Springfield .	50,784	13	5	13·94	27·88	—	—	6·97	
Lawrence . .	49,900	17	6	17·64	23·52	—	—	—	
New Bedford .	47,741	18	4	—	16·66	—	—	—	
Holyoke . . .	43,348	—	—	—	—	—	—	—	
Brockton . .	33,939	9	2	11·11	11·11	—	—	—	
Salem	33,155	8	0	12·50	—	—	—	—	
Haverhill . .	32,925	16	4	12·50	25·00	—	6·25	6·25	
Malden . . .	30,209	13	1	13·94	13·94	—	—	—	
Chelsea . . .	29,806	13	3	20·91	6·97	—	—	—	
Fitchburg . .	29,393	6	0	—	33·33	—	—	—	
Newton . . .	28,737	7	1	—	14·28	—	—	—	
Gloucester . .	27,293	—	—	—	—	—	—	—	
Taunton . . .	26,954	7	1	—	—	—	—	—	
Waltham . . .	22,058	6	1	—	33·33	—	—	—	
Quincy . . .	19,642	6	1	33·33	—	—	16·16	—	
Fittsfield . .	18,802	—	—	—	—	—	—	—	
Everett . . .	17,585	11	6	36·36	9·09	—	—	—	
Northampton	16,391	4	2	25·00	—	—	—	—	
Newburyport .	14,073	6	0	—	—	—	—	—	
Amesbury . .	10,920	2	0	—	—	—	—	—	

Deaths reported 2,861; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 522, acute lung diseases 570, consumption 319, diphtheria and croup 124, measles 40, diarrheal diseases 40, typhoid fever 34, scarlet fever 27, whooping-cough

25, cerebro-spinal meningitis 14, erysipelas 9, malarial fever 6, small-pox 3.

From typhoid fever Philadelphia 10, New York and Brooklyn 4 each. Pittsburgh 5, Boston and Cleveland 2 each. Washington, Cincinnati, Lowell, Lynn, Lawrence, Brockton and Quincy 1 each. From scarlet fever New York 10, Brooklyn and Pittsburgh 4 each; Chelsea 2, Philadelphia, Boston, Nashville, Cambridge, Lynn, Lawrence, and Salem 1 each. From whooping-cough New York 6, Brooklyn 5, Boston 3, Cincinnati, Providence, Worcester, Springfield, Lawrence, Northampton and Clinton 1 each. From cerebro-spinal meningitis New York and Everett 1 each; Washington, Worcester, Somerville, Chelsea and Waltham 1 each. From erysipelas New York 5, Brooklyn 3, Boston 1. From malarial fever New York 3, Brooklyn 2, Philadelphia 1. From small-pox Cincinnati 2, Philadelphia 1.

In the thirty-three greater towns of England and Wales, estimated population 10,591,530, for the week ending April 6th, the death-rate was 21.1. Deaths reported 4,280, acute lung diseases (London) 427, whooping-cough 93, measles 53, diphtheria 51, diarrheal diseases 38, scarlet fever 21, fever 17, small-pox (Derby) 1.

The death-rates ranged from 10.9 in Croyden to 33.0 in Bernley; Birmingham 26.9, Bolton 23.6, Bradford 19.3, Gateshead 20.7, Hull 25.5, Leeds 21.9, Leicester 23.1, Liverpool 24.9, London 19.0, Manchester 26.4, Newcastle-on-Tyne 16.9, Nottingham 15.4, Portsmouth 20.0, Sheffield 20.7, West Ham 15.7.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending April 13th, the death-rate was 20.5. Deaths reported 4,160; acute diseases of the respiratory organs (London) 398, whooping-cough 108, measles 68, diphtheria 68, diarrhea 50, scarlet fever 26, small-pox (Birmingham) 1. The death-rates ranged from 2.4 in Cardiff to 28.2 in Preston, Birmingham 25.5, Bradford 18.2, Halifax 17.8, Hull 22.9, Leeds 19.0, Leicester 16.7, Liverpool 24.1, London 19.3, Manchester 24.6, Newcastle-on-Tyne 20.1, Norwich 20.4, Nottingham 19.8, Portsmouth 16.1, Sheffield 19.8, Sunderland 18.9, West Ham 18.2.

METEOROLOGICAL RECORD.

For the week ending April 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.				Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S. . 14	29.69	46	51	42	100	100	100	E.	E.	8	8	R.	R.	1.63
M. . 15	29.75	44	48	39	85	92	89	N.	N.E.	9	13	O.	R.	.07
T. . 16	30.12	39	44	34	91	65	78	N.	N.	22	8	N.	C.	.06
W. . 17	30.12	44	53	35	38	49	43	N.	S.	9	4	C.	C.	
T. . 18	30.08	46	52	39	59	66	55	N.W.	N.E.	2	7	O.	C.	
F. . 19	29.92	50	41	39	49	51	51	N.W.	S.E.	5	6	C.	C.	
S. . 20	30.12	46	50	42	70	64	67	E.	E.	5	3	C.	C.	
Mean	29.97		51	39			70							1.76

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 20, 1895, TO APRIL 26, 1895.

PROMOTIONS.

LIEUTENANT-COLONEL DALLAS BACHE, deputy surgeon general, to be assistant surgeon general with the rank of colonel, April 18, 1895.

MAJOR DAVID L. HUNTINGTON, surgeon, to be deputy surgeon general with the rank of lieutenant-colonel, April 18, 1895.

CAPTAIN WILLIAM C. SHANNON, assistant surgeon, to be surgeon with the rank of major, April 18, 1895.

By direction of the president the retirement from active service April 18, 1895, of COL. JOSEPH R. SMITH, assistant surgeon general, is announced.

Leave of absence for six months, with permission to go beyond sea, to take effect upon his relief from duty at Fort Columbus, New York Harbor, is granted CAPT. WILLIAM P. KENDALL, assistant surgeon.

BOOKS AND PAMPHLETS RECEIVED

Annali di Medicina Navale, Gennaio, 1895. Anno 1. Fascicolo 1.

Nervous Disease in Early Syphilis. By G. Frank Lydston, M.D. Reprint. 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 27, 1895.

M. W. BARNUM, assistant surgeon, ordered to examination for promotion, May 15th next.

J. E. PAGE, assistant surgeon, ordered to examination for promotion, May 15th next.

F. G. BRATHWAITE, assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.

T. C. WALTON, medical inspector, ordered as delegate to American Medical Association, Baltimore, Md.

S. H. DICKSON, surgeon, ordered as delegate to American Medical Association, Baltimore, Md.

SOCIETY NOTICES.

THE WARREN CLUB.—A regular meeting of the Club will be held at 80 Marlborough Street, on Tuesday evening, May 7, at 8 o'clock.

Dr. John T. Bowen: "Modern Theories and Treatment of Eczema."

Dr. Paul Thorndike: "Points in the Treatment of Strictures of the Deep Urethra."

W. E. PAUL, M.D., Secretary.

AMERICAN ASSOCIATION OF MEDICAL EDITORS.—The Annual Dinner of the American Association of Medical Editors will take place Monday, May 6, 1895, at the Equitable Building (ninth floor), Calvert and Fayette Streets, Baltimore. A Business Meeting will be held at 6.30 P. M., at the same place. Members may bring guests upon purchase of tickets for them. Banquet tickets, \$5.00. Those expecting to attend will please write immediately, stating number of tickets desired, to

WILLIAM B. CANFIELD, M.D.,

1010 N. Charles Street, Baltimore, Md.

RECENT DEATHS.

MOSES REUBEN GREELY, M.D., M.M.S.S., died at South Weymouth, April 23, 1895, aged sixty-seven years.

CHARLES PARKER SPALDING, M.D., M.M.S.S., died in Lowell, March 25, 1895, aged forty-six years.

NATHAN FRENCH, M.D., M.M.S.S., died at Malden, April 27, 1895, aged eighty-four years.

KARL THIERSCH, M.D., died in Leipsic, April 28th, aged seventy-three. He had been professor of surgery in Leipsic since 1867. His contributions to surgical progress were many and important, and his method of transplantation of large pieces of skin, "the Thiersch grafts" is one of the most valuable of recent surgical procedures.

KARL LUDWIG, M.D., the eminent physiologist, died at Leipsic, April 26th, aged seventy-nine years. He had been professor of physiology in Leipsic since 1865, and for the preceding ten years had held the chair of physiology in Vienna. He was the inventor of the kymograph, and the importance of his work and that of his pupils to physiology can hardly be over-estimated.

GEORGE CUPPLES, M.D. (Edin. and Paris), died at San Antonio, Texas, on the 19th of April, in his eightieth year. He had practised in San Antonio for upwards of fifty years. He was buried on Sunday, the 21st inst., and the body was followed to the grave in San Fernando Cemetery by probably the largest procession of mourners ever seen in the city of his adoption.

Dr. Cupples was president of the State Medical Association in 1874 and again in 1878. He was a skilful and courageous surgeon. He was the first to introduce into Texas anesthetics — ether first and chloroform afterwards. He was the first in the United States to perform the extirpation of the tongue for cancer, by Nunneley's method, and to perform the operation of ovariectomy in a child under eight years of age, and to perform Freund's operation for the extirpation of uterus and ovaries. He was the first in Texas to amputate at the hip-joint and knee-joint with success.

Dr. Cupples first became connected with the naval service, having enlisted as staff assistant surgeon in the Spanish service, in 1836. In 1838 he resigned, and in August of the same year he graduated from the University of Edinburgh, studying also in the hospitals of London. He then went to Paris, where he studied until 1843 for the purpose of occupying an official position in the hospitals of France. In 1844 he sailed for America, coming direct to San Antonio from Paris. During the Mexican war he enlisted in Hay's second regiment of cavalry and served throughout that struggle as a surgeon. When the civil war began he entered the Confederate army as first surgeon of the seventh Texas regiment of mounted volunteers, serving in the campaign of New Mexico. In December, 1862, he was appointed medical director of the Eastern Military District of Texas and continued in charge until he was ordered to join Sibley's brigade in Louisiana. The following summer he served as senior chief surgeon of division, and in June, 1864, as medical director and inspector of the cavalry corps of the Trans-Mississippi Department up to the close of the Red River campaign. He gave his parole at San Antonio at the surrender.

Original Articles.

OBSERVATIONS ON DIPHTHERIA.¹

BY J. H. MCCOLLOM, M.D.

It is generally supposed that diphtheria is a disease of modern times, but Aretæus, a Greek physician of Cappodocia, wrote a description of a disease similar to diphtheria in 111 A. D. In the sixteenth century the disease was prevalent to a greater or less extent, according to written statements of the physicians of that time. In 1821 Bretoni wrote the first full and elaborate account of the disease. After that time, until 1847, the disease did not seem to attract much attention among the physicians of the Continent. In 1847 an outbreak of diphtheria occurred in England, which was traced to its origin at Bologne, and was known as the "Bologne sore throat." Since that time diphtheria has been more generally recognized and more carefully studied; and for this reason, although diphtheria is somewhat more prevalent at the present time than formerly, yet the apparent increase is due in a measure to the better recognition of the disease.

Diphtheria was first recognized in Boston in 1859, in which year there were 19 deaths from this cause, reported. From what is known of the disease to-day it seems reasonable to suppose that if 19 deaths from a so-called new disease were reported, there must have been many cases of the same disease that were not recognized. The following year there was only one death from this cause reported in Boston. Since that time the death-returns have shown a gradual increase in the number of deaths. In 1863 and 1864 in Boston, with a population of 186,526, there were 106 and 108 deaths respectively. From 1865 to 1875 there were very few deaths from diphtheria. In 1875 the number of deaths from this disease increased to an alarming extent, from 72 to 420. In 1881, there was quite a severe epidemic of the disease in this city; the deaths for that period numbering 601, giving a rate per 1,000 of the living of 1.657. Since 1881 the number of deaths from diphtheria has varied from 232 to 817 each year. The number of cases reported in 1894 was 2,019, with 817 deaths. The death-rate from this disease per 1,000 of the living for 1894 was 1.630, while that of 1893 was .976. The most marked increase in the cases of diphtheria in 1894, as compared with that of 1893, occurred in the last six months of the year.

In England the increase of the mortality from diphtheria has been much more marked in the larger towns than in the rural districts. In London this has been more particularly noticeable. For instance, during 1871 the death-rate was .10 per 1,000 of the living; while in 1890 it was .33 per 1,000.

Dr. G. B. Longstaff, in a paper on the "Geographical Distribution of Diphtheria in England and Wales," shows that in the past few years there has been an increase in urban districts as compared with the rural. For the purpose of this investigation the twenty-six years from 1855 to 1880 were divided into three periods, and the districts into dense, medium and sparse. In the first period, 1855-60, in which the death-rate from diphtheria per 1,000,000 for the whole country was 182, it was found that the rate was 123 in the dense districts; 182 in the medium districts; and 248

in the sparse districts. In the period from 1861 to 1870 the death-rate from diphtheria per 1,000,000 was 163 in the dense districts; in the medium, 164; in the sparse, 223. In the period from 1871 to 1880 the rate in the dense districts was 114; medium 125; and the sparse districts, 132. It will be seen from this that in the period from 1855 to 1860 the death-rate from diphtheria per 1,000,000 was twice as great in the sparse districts as in the dense; that from 1871 to 1880 there was a difference of only 18 between the death-rate of the sparse districts as compared with the dense districts.

It is now generally conceded that imperfect drainage and unsanitary conditions should not be considered important factors in increasing the frequency of this disease. Twenty years ago diphtheria was considered to be a filth disease; but careful investigation of the course of epidemics in various parts of the world and the discovery of the specific organism of this disease have proved the fallacy of this opinion. In an epidemic of the disease occurring a few years ago, in a neighboring city, investigated by the State Board of Health, it was found that in localities where the hygienic conditions were good, where the drainage was perfect, the disease was much more prevalent than in localities where there was not sufficient drainage and the most marked unsanitary conditions existed. An analysis of the cases of diphtheria reported in Boston for five years from 1888 to 1892 shows that in the crowded and poorer localities of the city the disease was not so prevalent as in the better portions of the city. For instance, in Ward 16, with an average population of 213 to the acre, the morbidity was much less than in Ward 25 with an average population of seven to the acre. Elevation above tide-level in this city does not seem to have any bearing upon the prevalence of the disease. As an illustration of this point, a comparison of that portion of East Boston the elevation of which is only a few feet above mean low water, with that in which the elevation is much greater, shows that the disease was much more prevalent, for five years, in the latter than it was in the former.

The discovery by Klebs of the bacillus of diphtheria in 1883 and the investigations by Löffler a year later placed the etiology of diphtheria upon a scientific basis. The result of these researches shows conclusively that diphtheria is distinctly an infectious disease; that it never originates spontaneously; and that it is a local disease; that the constitutional symptoms are due not to the presence of the organism in the blood, but that they are due to the toxine caused by the growth of the bacillus. The term diphtheria should only be applied to those cases in which the bacillus exists. All other cases of disease of the mucous membrane of the mouth and throat characterized by the presence of a false membrane should not be considered as diphtheritic in their nature. The diagnosis of diphtheria, particularly in the milder cases, is impossible without a bacteriological examination. In the milder cases the appearance of the membrane has nothing distinctive on which to base a diagnosis. The term "pseudo-diphtheria" has been used to designate cases of sore throat where there is a membrane, but in which the bacillus of diphtheria is not found. In these cases the streptococcus pyogenes and the staphylococcus pyogenes aureus and the albus have been found.

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 20, 1895.

Much has been said regarding the liability to error in technique, in making cultures, in cases of membranous sore throat. While it is perfectly true that in certain instances where there is an extensive membrane in the throat, diphtheritic in its nature, through some error in technique the bacillus is not found, yet the chance of failure is not so great as to invalidate to any appreciable extent the accuracy of a bacteriological diagnosis. In a mild case of diphtheria, with very little membrane the liability to error is very slight.

In regard to the manner of taking cultures, there is this very important practical point. Experience has shown that the bacilli on the exposed surface of the false membrane frequently die, so that if the wire is passed simply over the surface of the membrane the result, so far as the bacillus of diphtheria is concerned, will be negative; but it may be positive so far as other organisms are concerned, as streptococci and staphylococci. It is, therefore, necessary to pass the wire either through the membrane or along its edges, and then inoculate one tube. It is also well to inoculate a second tube with the secretions from the throat near the site of the membrane. If this is done, in every instance, the liability to error will be very much diminished.

A second very important point is, that the patient should not use any disinfecting gargle for at least an hour before the culture is taken. The result of the investigations of Dr. Park in New York showed that while antiseptic gargles did not restrain the growth of other bacteria they did prevent the growth of the bacillus of diphtheria.

Much has been said regarding the existence of a bacillus morphologically similar to the bacillus of diphtheria, found in the throats of healthy individuals, and it has been claimed that this organism is a productive source of error in bacteriological diagnosis. Investigations, however, have shown that this organism does not interfere to any considerable degree with the accuracy of the diagnosis.

The examination of 70 non-diphtheritic throats made at the bacteriological laboratory of Harvard Medical School showed that the existence of this bacillus was not sufficiently frequent to be an element of error in bacteriological diagnosis. In the cultures from these 70 throats bacilli of many varieties were found; but in no instance was an organism seen that with care would be likely to be mistaken for the bacillus of diphtheria. In cultures made from the throats of 60 patients in the Children's Hospital, some of whom had been exposed to diphtheria, but in whom there was no clinical evidence of disease the bacillus of diphtheria was found in only one instance. It would seem from the result of these 130 cultures that the pseudo-diphtheritic bacillus cannot be a source of very great error. The bacillus of diphtheria may become after a time non-virulent and in this condition may remain in the mouths of patients who have had diphtheria for a long time; but it is reasonable to suppose that it may at any time acquire virulence, and therefore should be regarded as an element of danger.

The bacillus of diphtheria is a straight or slightly curved rod with rounded ends. Irregular forms are very frequently seen. As it is a pathogenic organism it grows more rapidly at the temperature of the blood than at a lower temperature; and for this reason it is important for the purposes of diagnosis to place the inoculated tube in an incubator over night. This

organism grows readily on all the usual culture media. It has been claimed that this bacillus will not grow on potato prepared in the usual way, but careful and extended experiments have shown conclusively that although the growth is very slight and that irregular forms are quite common, yet at the end of forty-eight hours a thin film, which can be seen by careful inspection, forms on the surface of the potato. The growth of the needle culture in gelatin is not sufficiently characteristic to be of any very great importance from a diagnostic point of view. Milk is an exceedingly good culture-medium for this organism, and therefore may be a source of infection. The best culture-medium for diagnostic purposes is Löffler's mixture, composed of blood serum three parts, with one part of bouillon containing one per cent. of peptone, one per cent. of grape-sugar and one-half of one per cent. of sodium chloride. Upon this culture-medium, at the end of twenty-four hours, moderate-sized white colonies will appear, while other bacteria will not have developed colonies to any considerable extent.

Welch and Abbot found that this organism died after an exposure of ten minutes to a temperature of 58° C. (138° F.) This has an important bearing on the subject of disinfection by heat.

In regard to streptococci throats, it is a question just how infectious they are. That they are infectious to a slight degree is reasonable to suppose; but thus far experience has shown that their degree of infectiousness is much less than that of diphtheria.

One very important factor in the spread of diphtheria is the existence in cats and dogs of diphtheria. The disease manifests itself in cats and dogs not by the existence of marked membrane in the throat but by the condition of the lungs simulating pneumonia. The animal has a peculiar strident cough; has anorexia and loses flesh rapidly. At the bacteriological laboratory, recently, cultures taken from the throats of a cat and a dog that had been exposed to diphtheria revealed the presence of the bacillus of diphtheria. This organism disappeared from the throat of the cat in about two weeks; as the dog was killed, no further investigation could be made.

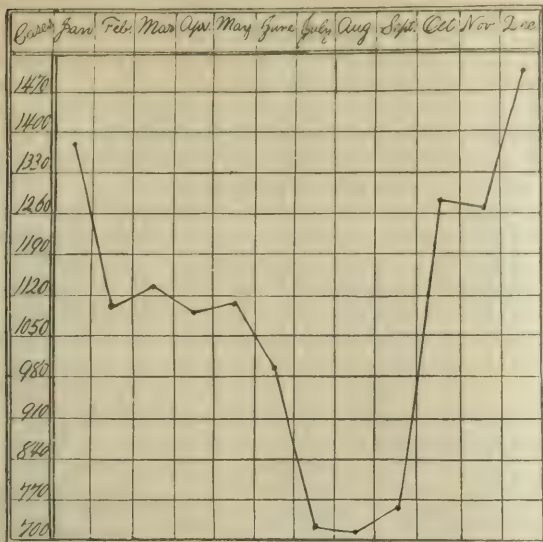
The bacillus of diphtheria in the case of the lower animals is a trifle longer than that found in human beings; but it has the same cultural peculiarities and is as virulent as that in human beings.

Cows may have diphtheria, and when suffering from the disease may be a source of infection.

Klein, in a report to the Local Government Board of London, traced an epidemic of the disease to milk from cows that gave unmistakable evidence of being ill of diphtheria. Small areas of false membrane were found on the teats of these cows. Cultures made from these lesions contained the diphtheria bacillus. Cats fed on the milk from these cows contracted diphtheria. While there is no positive evidence that the milk in the udder contained the germ of the disease, there is every reason to believe that the milk was contaminated by the hands of the milkers.

The influence of mild cases of diphtheria in the public schools has a marked effect on the prevalence of the disease in this community. In one of the primary schools, a short time ago, where there had been an outbreak of diphtheria, four children were found attending school who gave unmistakable evidence of having diphtheria. The chart which gives the num

ber of cases of diphtheria reported in this city, by months, for ten years, shows that when the schools are in session the number of cases is much greater than during vacation time.



The result of the investigations of 500 cases of suspected diphtheria examined at the bacteriological laboratory of the Harvard Medical School proved conclusively the importance of a bacteriological investigation in cases of a doubtful nature. Of these 500 cases, diphtheria was found to exist in 133 instances, or 26.6 per cent. These investigations did not embrace the well-marked characteristic cases of diphtheria, but comprised those in which a diagnosis, so far as the clinical appearances were concerned, would have been impossible without a bacteriological examination.

Since the 1st of November, 1894, by an agreement of the Board of Health with Prof. H. C. Ernst, physicians have an opportunity to send cultures to the bacteriological laboratory of Harvard Medical School for examination. From the 1st of November, 1894, to the 1st of February, 1895, 1,846 cultures were examined, and of this number in 462 instances the bacillus of diphtheria was found. In 1,292 instances the bacilli were absent, and in 92 cases there were no growth. In regard to cases in which no growths were found, it may be said that this result is due to some error in technique. Allusion would not be made to this were it not for the fact that some physicians seem to think that when there is no growth that therefore the case is not one of diphtheria. Such is not the fact. In a culture taken from any throat there should always be a growth of some sort, if proper precautions are taken. In addition to the question of diagnosis the time when the bacilli disappears from the throat of a person who has been ill of diphtheria, and the time when this person ceases to be a source of danger to the community, can only be established by a bacteriological examination. The benefit of these bacteriological examinations is evident from the fact that in November and December, when these examinations were commenced, the number of reported cases of diphtheria was about 18 daily. They have now diminished to an average of about 11 a day. On the other hand, from November, 1893, to January, 1894,

the disease showed a gradual increase from November to December and from December to January. The result of these investigations has proved that statistical compilation on the epidemic spread of diphtheria, as well as on the character of epidemics of this disease, cannot be considered reliable unless based upon bacteriological examinations of all cases of suspected diphtheria.

In regard to the treatment of diphtheria by the ordinary methods, very little need be said; thus far clinical experience has shown that in severe cases where there is a general infection of the system very little is to be hoped from the usual modes of treatment. When there is laryngeal obstruction, intubation and tracheotomy relieve the dyspnea, and frequently save life; but are powerless for good when there is a general infection of the system with the toxic principles derived from the growth of the diphtheria bacillus. A diphtheria patient dies from one of three causes: either from laryngeal obstruction or from toxic infection or from failure of the heart, due to the peculiar effect of the toxine of diphtheria on the nervous centres. To relieve the two latter symptoms, or, to speak more correctly, to prevent their occurrence, many things have been advised.

Peroxyde of hydrogen has its advocates. A weak solution of corrosive sublimate in the form of a spray has been tried; douching the mouth with hot water either pure or containing a certain amount of salt has been advised. The use of strong caustics must be deprecated, for they only destroy the mucous membrane and offer a favorable nidus for the extension of the disease. The experiments of Roux and Yersin show conclusively that the bacilli of diphtheria, as a rule, will not grow on intact mucous membrane. In these experiments the fauces of a certain number of guinea-pigs were painted with a virulent culture of the bacillus of diphtheria without any result. It was not until the mucous membrane was wounded that it was possible to infect these animals with diphtheria.

At the present time the attention of the profession, both in this country and abroad, is directed to the treatment of this disease by the use of serum from animals rendered immune to diphtheria.

Some three years ago Behring commenced his investigations upon the action of the antitoxins of diphtheria. These investigations have been conducted continuously up to the present time. Since 1891 Mr. Roux has pursued his investigations in the treatment of diphtheria by antitoxin; at first on animals and then on children. At the present time he states that the investigations in all essential points correspond to those published by Behring and his co-laborers.

The animals that are to furnish antitoxin are rendered immune against diphtheria, that is to say, they become accustomed to diphtheria, so that the diphtheritic toxine has no effect on them. The toxine is prepared by cultivating virulent diphtheria bacilli in bouillon for one month, at a temperature of 37° C. or 98.5° F., so that the poison may accumulate. Before commencing to prepare the toxine the virulence of the diphtheria bacilli must be tested by its effect on guinea-pigs. A procedure requiring less time has been advocated by MM. Roux and Yersin. This method consists in growing the cultures in a current of moist air. It must be borne in mind that in the preparation of antitoxin the bacilli of diphtheria are not used, but the substance caused by their growth,

the specific poison, caused by them, is used. Toxine thus prepared should be of such a virulence that one-tenth of a cubic centimetre should kill a guinea-pig weighing 500 grammes in from twenty-four to forty-eight hours.

Fränkel first rendered guinea-pigs immune against diphtheria by injecting pure cultures of the diphtheria bacillus which had been sterilized at 70° C. Since then Behring has recommended a mixture of toxine and Gram's solution of potassic iodide.

MM. Burger and Wasserman arrived at satisfactory results by growing a culture of the diphtheria bacillus in a bouillon made from the thymus gland. This culture had been exposed to a temperature of from 65° to 70° C., during a quarter of an hour.

The method which has given the best results is that used by MM. Roux and Vallard in their researches on tetanus. This method consists of the addition of three parts of Gram's solution consisting of iodine one part, potassic iodide two parts, and water three hundred parts to one part of the toxine. The injection is to be repeated after a few days, and either the dose of the mixture must be increased or the proportion of Gram's solution diminished. A little later the toxine can be given pure. It is sometimes necessary to omit the injection for a time, if the animal is losing in weight.

Dogs have been rendered immune against diphtheria by many experimenters, among the number Bardach and Aronson. Sheep and goats are quite sensitive to the action of the diphtheritic poison. The immunization of milk animals, as cows and goats, is of particular interest from the fact that the milk of these animals has a certain antitoxin power.

Of all the animals capable of furnishing great quantities of the anti-diphtheritic serum, the horse is the most easily rendered immune. He bears the toxine much better than any of the animals to which allusion has just been made. By injecting gradually increasing doses of the toxine at various intervals, the horse in two months and twenty days is rendered immune; that is, he can receive from 200 to 300 c. c., according to his weight, of toxine of definite strength without disturbance. The serum from this animal has a protective power of 50,000, that is to say, a guinea-pig resists the inoculation of one-half a cubic centimetre of a virulent diphtheria culture if it receives, twelve hours previous, an injection of the antitoxin equal in amount to a fifty-thousandth part of its weight. The curative action of the antitoxin has not been satisfactorily explained, but it appears from numerous experiments that this agent does not destroy the toxine, but that its remedial power is due to stimulation or some other special action on the tissue cells.

In some of the experiments made for testing the action of antitoxin, diphtheria was caused in female guinea-pigs by rubbing pure cultures of diphtheria bacilli on the excoriated surfaces of the vulvæ. In these cases the pigs recovered if the serum was injected before the inoculation, otherwise they died. A membrane was formed, at the point of inoculation, but there was very little constitutional disturbance. After the second day the false membrane became detached and repair of the mucous surface commenced. In these experiments the protected animals received one ten-thousandth part of their weight of serum.

The most interesting experiments to the physician were those in which guinea-pigs and rabbits were inocu-

lated in the trachea. Guinea-pigs inoculated in this way died in three days, if not protected by the serum. When inoculated with diphtheria cultures, after having been injected with the serum, they did not contract diphtheria, if the dose was sufficiently large. The animals injected with toxine, after the serum treatment, gave no evidence of diphtheria. The presence of streptococci with diphtheria bacilli had an injurious effect on the action of the serum. Cases of this nature did not improve under the treatment because the cells depressed by the poison of the streptococci did not respond to the action of the serum.

In February of 1894 after the beneficial effects of antitoxin on animals had been proved, as the preceding brief *résumé* shows, the treatment of diphtheria by this method was commenced in the Children's Hospital in Paris. During the four years from 1890 to 1893, inclusive, in this hospital, 3,971 cases of diphtheria were treated, with a death-rate of 51.71 per cent. From February to July 24, 1894, 448 cases were treated, by antitoxin, with a death-rate of 24 per cent., a diminution of more than one-half. It should be said that all the cases treated by this method were extremely severe in their nature. It must also be borne in mind that in many of the cases there was in addition to the diphtheria infection a streptococcus infection which, as has been shown, has a nullifying effect on the action of antitoxin. The effect on the local lesions in the throat was similar to that observed in the experiments on guinea-pigs. MM. Martin and Chaillon have found, that of 120 children treated by antitoxin, 54 did not have albuminuria; 12 had this symptom one day, and 54 had it during the whole course of the disease. It seems, therefore, evident that the use of the serum diminished the action of the diphtheria poison on the kidneys, and therefore considerably diminished the frequency of albuminuria.

In the Children's Hospital in Berlin from 1891 to 1893, there were 1,081 cases of diphtheria treated, with a mortality of 38.9. From the commencement of 1894 to March 14th, 86 cases were treated with antitoxin, and the mortality has fallen to 13.2 per cent. Since the middle of March, 1894, according to the statement of Virchow in *La Semaine Médicale* of December 12, 1894, 303 of 533 cases of diphtheria admitted to the hospital were treated by antitoxin, with a death-rate of 13.5 per cent. Of the 230 who were not treated by the serum 47.82 per cent. died.

The following table compiled by Dr. Sims Woodhead shows the result of treatment by antitoxin in different cities. The whole number of cases treated was 2,237, with an average percentage of deaths of 20.2. The average percentage of deaths in cases reported to the Board of Health of Boston for the past ten years is 29.38. When the percentage of deaths from diphtheria in Boston for 1893 is compared with the average percentage in Woodhead's table, it is found that there is a diminution of 12.29 in cases treated by antitoxin, the former rate being 32.49 and the latter being 20.2. It will also be seen, from this table, that the percentage of deaths when antitoxin was not used was 45.6, while that where antitoxin was used was only 23.95, a diminution of nearly one-half.

So far as is known, there has been no injurious effect from the use of antitoxin. In some instances there has been a slight redness about the region of the injection; but this has not been sufficient to cause any annoyance. In a few cases a slight general erythe-

matous blush has appeared, which disappeared in a few hours; and in some instances there has been a marked attack of urticaria.

Dr. Morrill, in the *Boston Medical and Surgical Journal* of January 24, 1895, says that in the Children's Hospital, for the purpose of securing immunity, 50 children were given five cubic centimetres of antitoxin. In no instance was there any injurious result following the injection. Urticaria was noticed in four instances; slight diarrhea in seven; temporary increase in micturition in nine; anorexia and slight vomiting in four; well-marked tenderness over the site of the injection in two; erythema around the puncture in three. In one case 45 cubic centimetres were injected, but the child died sixty hours after the first dose. The autopsy proved that the patient died from a broncho-pneumonia and that the death could in no way be attributed to the injection.

RESULTS OF SERUM-THERAPY IN DIPHTHERIA.
DR. SIMS WOODHEAD.

	Cases	Deaths	Mortality	Previous Mortality
Roux, Martin and Chaillon, Paris.	448	109	24.5%	51.7%
Ehrlich, Kossel and Wassermann, Berlin.	220	52	23.6	34.7
Canon, Berlin.	15	3	20.0	25.0
Schubert, Berlin.	34	6	18.0	—
Woswinkel, Berlin.	60	19	33.3	46.5
Ehrlich, Berlin.	89	12	12.3	—
Kossel, Berlin.	233	54	23.0	—
Körté, Berlin.	121	40	33.1	53.8
Bokai, Budapest.	35	5	14.2	53.8
Heubner, Budapest.	96	37	38.5	62.5
Katz, Berlin.	128	17	13.2	38.9
Aronson, Berlin.	255	31	12.1	41.7
Ranko and Outel, Berlin.	19	4	21.0	—
The <i>Lancet</i> , Austrian Riviera.	70	7	10.0	—
Weibgen, Berlin.	65	18	28.0	40.0
Muchlick, Philadelphia.	2	0	—	—
Dr. White, Willard Parker Hospital, New York.	32	8	25.0	42.7
Cases reported in the <i>Lancet</i> and <i>British Medical Journal</i> .	79	9	11.4	—
Trieste.	236	52	22.0	56.0

A few words should be said regarding the manner of using antitoxin. In order to arrive at any satisfactory conclusions, it is all important that in every instance where antitoxin is used, there should be a bacteriological examination of the throat. It is also important that the urine of the patient should be examined for albumin before and after the injection. The dose for procuring immunity, according to some observers, is three cubic centimetres for any age over three years, and a half of that for younger children. For a cure of the disease during the first two or three days, under two years of age, ten cubic centimetres; from two to ten years of age, fifteen cubic centimetres; over ten years of age, twenty cubic centimetres. After the third day, in a severe case, a larger quantity may be used with positive advantage. If the disease does not seem to be ameliorated by the first dose a second should be given in twelve hours.

Roux states that his practise has been to give

twenty cubic centimetres of serum to each patient on admission to the hospital, and the same quantity, or half the same quantity, according to the severity of the case, twenty-four hours afterward; and if the pulse and temperature still remain high, the same dose is repeated. He also adds that the smallest dose that he ever gives, in the first stage of the disease, is twenty cubic centimetres, and frequently, in severe cases, two or three times as much. There seems to be no doubt from the accounts published abroad as well as from the experience in this city that antitoxin is a remedial agent, of very great efficacy, in the treatment of diphtheria; that it will cure every case has not been claimed, that it is particularly advantageous in cases of mixed infection where streptococci and diphtheria bacilli are associated, has not been proved; but that it is an invaluable agent for the treatment of diphtheria has been abundantly shown.

One advantage of the treatment is, that after the injection into the back or abdomen there is no interference with the patient; no swabbing of the throat; no tearing of the mucous membrane. It is stated that even in the worst cases that proceed to a fatal end, there is a marked amelioration in the suffering; that the dyspnea is relieved to a certain extent. If the patient dies, his death is comparatively painless.

In regard to the kind of syringe that should be used, it must be said that the common subcutaneous syringe is not adapted for the purpose, because it cannot be properly sterilized by heat. Koch's syringe, which consists of a detachable rubber bulb, a glass barrel and a needle, is the most satisfactory instrument for this purpose. The barrel and steel needle can be put in a test-tube in the bottom of which a little cotton is placed, the tube plugged with cotton, and then put in the oven of a cooking-stove and kept at a temperature of 150° C., for half an hour or more, or until the cotton is slightly singed. A syringe prepared in this way will remain sterile for four or five days.

In conclusion it may be said, that antitoxin has now been in use for about one year, and that to-day the reports regarding its remedial power are made more favorable than they were ten months ago. It is, therefore, self-evident that in antitoxin we have an agent, that, while it will not cure every case of diphtheria, will have a very marked and decided effect in diminishing the death-rate from this disease.

CRITICISM ON THE USUAL METHOD OF MEASUREMENT OF CHEST-EXPANSION IN LIFE-INSURANCE EXAMINATIONS, AND STETHOKYRTOGRAPHICAL STUDIES OF THE BILATERAL EXPANSION OF THE CHEST.

BY RICH. HOGNER, M.D., BOSTON, MASS.

MEASUREMENTS of thorax circumference on inspiration and expiration have a long time played a certain rôle in determining the condition of the lungs; but they have been put to no more universal use than in life-insurance examinations, where, as a rule, they have been and yet are compulsory.

The life-insurance companies have their questions to be answered by the examiner, such as: "Girth of chest under vest, forced expiration? Same, forced inspiration? Circumference of chest on full expiration. In forced inspiration? How many inches does the sub-

ject measure without coat, round the chest, at the armpits, during forced inspiration and expiration? Is the expansion of the chest normal?" etc. These questions must be answered with exact figures or with more or less varying replies, such as, "of normal condition," "of ordinary expansion," or a simple "yes" or "no"—words usually clear enough, but in this case leaving altogether too much scope to individual opinion. In any case the answer must be based upon some kind of measuring, either with an instrument (measuring-tape, spirometer, thorakometer, etc.), or by the eye.

The above quoted questions seem to have gained favor the world over, for they are common to the Old and to the New World's most celebrated life-insurance companies; and yet they are far from being satisfactory, for what physician does not know that the changes in the lungs most to be feared, the tuberculous, begin in the apices (therefore high above the nipples, and considerably over the plane of the armpits), also that the total (that is bilateral) capacity may be "normal," while a greater or less part of the lungs is functionally incapacitated? The respective questions, therefore, involve too little, but they could not well be phrased otherwise, in view of the methods at present used.

As to these the thorakometer and compass, also the spirometer and pneumatometer are impractical, while the latter two are in some cases injurious to the health; for which reason the measuring-tape is generally used, which, however, cannot be comfortably and reliably placed any higher than the level of the nipples or thereabouts. Because the measuring-tape—which is unsatisfactory—cannot be placed higher than in one plane of the lungs which has so little to do with tuberculosis that it is only attacked in the last stages, the companies have inquired after the condition of the chest at this level, concerning which physicians waste their time in answering. By what has already been said, it can be seen that tape measurements of the "chest's deepest inspiration and expiration" are illusive and should not therefore be employed, especially in such an important examination as that in question. If one may draw conclusions from an unreliable method, the life-insurance company has to take greater risk and the insured person secures less justice. With life-insurance companies, the rule which governs shoemakers cannot apply: "that the certain pay for the uncertain"; but as a result of present measuring—methods of the expansion of the chest—it happens not infrequently that some of the insured ones receive "a clear paper," which is not deserved, while others get "a poorer certificate" than they should justly receive.

I may be permitted to add further criticism on the method of employing measuring-tapes in examination of the chest expansion.

The method of this measuring with the tape is, as is well known, to place the tape around the "patient's" thorax, from behind, forward, at the height of the nipples; to adjust it as it lies horizontally or somewhat symmetrically on corresponding points, and with the ends or points of contact so placed on the breast, that making fast the zero point, one can at once read its expansion upon the graduated tape. While the examiner tries to hold the tape with an even tension, the person examined breathes in and out as vigorously as he is able, whereupon the band or

tape adapts itself as well as it is possible for it to do. The "patient" must, of course, stand as immovable as a statue and in some certain position, but there is no existing rule for this. He is allowed to raise one or both shoulders; bend his head—like a Chinese porcelain image—back at inspiration, forward at expiration; hold his hands on his hips, or let his arms hang down loosely; if only he will stand still and sigh—the deeper the better—without the examiner appearing to have the least idea what great differences of results occur in different positions. But, furthermore, it sometimes happens that with "weak eyes" and poor light, the examiner, after the deep inspiration has been made, moves one hand in order to fix the maximum point with the fingers, and then after the deep expiration, moves the other hand to fix the minimum point, in order after the band has been removed, to read between the fingers in some better lighted part of the room the difference between inspiration and expiration. Can any greater uncertainty in a physical method be imagined, any greater lack of scientific exactness?

He who has undergone observingly, such a measuring of the chest's power of expansion, has not failed to feel the uneven pressure of the measuring band at inspiration and expiration, owing to the fact that the examiner nearly always holds the band more loosely at inspiration and draws it more tightly at expiration, unconsciously suggesting that it is meant for the company's sake (if done in a life-insurance company's interest) and for the applicants to obtain the greatest possible difference; a phenomenon somewhat like "table moving," when the predisposing thought "it must move" is the power that unconsciously sets both arm and hand muscles and consequently the table in motion.

The *first* defect in tape-measuring is, therefore, that it lacks an unvarying, unbiassed pressure.

The *second* lies in the fact that the tape band often glides more or less easily, according as the skin is smooth or rough, dry or moist, in which latter case, it sometimes will not move but presses the skin.

A *third* defect is that the tape-measurement only records the bilateral total chest-girth. Therefore, one cannot measure the right and left side at the same time each by itself; and yet this is often necessary, for reasons easily understood. Who has not had experience with the vicarious functions of the organs, or how if one organ is sickly or weakened, its mate works so much the harder? For instance, in the case of inflammation of the lungs, the well lung becomes overworked for the sake of the sick one, etc. Therefore, by the use of the measuring-tape, one can easily gain a great bilateral difference between inspiration and expiration, displaying thus a great sum of capacity even when the expansive power of one lung is lowered, but when the well lung was obliged to bear so much greater share of the burden of respiration and to work so much more. To seek to measure the power of dilatation of the two halves of the chest with the measuring-tape, first the one from the processus spinosus to the middle of the sternum, and then immediately after the other half, and then to compare the results so obtained, is in the highest degree uncertain (even if the almost impossible case should arise in which every tape-measurement should be accurate); for what guarantee is there that one breath is drawn precisely as deeply as another. It is more probable that

after a very deep first breath, the lungs are in a sort of apnoe, and the one following is so much the more superficial (because the necessity for respiration this second time, thanks to O-surplus, is so much less); and the second tape-measurement in this case gives too low a result.

The custom of measuring on a level with the nipples seems passing strange, just as one is surprised that in many blanks, not a word is to be found about the height at which the measurement shall be taken, precisely as if it made no difference about the plane.

When we know that tuberculosis first attacks the apices, and that the more diseased a part of the lung is, just so much more the healthier parts must work, it is easily understood that the coefficient of expansion on the mammillary plane will be, not only relatively too high, but also, perhaps, really greater where there is a mild affection of the apex of the lung than if the person in question were healthy. A great degree of expansion in the mammillary plane may, therefore, be rather a "memento" than a proof of healthy lungs. Why then not take the measures upon the supra- and infra-clavicular regions, or in their immediate vicinity? Simply because it cannot be done with the measuring-tape. The forward springing posterior and anterior axillary folds are so many hindrances for the measuring-tape, which it cannot gauge so easily as the smooth path round the mammillary plane, and carries the measuring-tape sidewise, upward against the upper chest aperture; the tape rolls up more or less, or "cuts in" under the arms and is hindered then in its movements; so that, even if the measuring be not wholly impossible, it will be at least more unreliable.

From this it will appear that the method of measuring the chest-expansion with tape is to be rejected. It does not conform to the exact requirements of science, and therefore should not hold the prominent place it does at present, in so many cases of chest measurement, namely, in life-insurance examinations. There is no doubt, on the contrary, that measurements of the thorax expansion may be of great service in making a perfect diagnosis for the final decision as to the condition of the lungs, if only a practical and reliable method of examination were adopted. I have, therefore, sought to construct a little autographic instrument which might possess the advantages denied to the measuring-tape, namely, the stethokyrto-graph, the description of which is to be found in the *New York Medical Record* of the 8th of March, 1894, to which you will permit me to refer you.

If it has been demonstrated that the tape, in measurements of the chest-expansion, as a rule, gives unsatisfactory and unequal results, it cannot, however, be denied that an experienced hand may in favorable cases get results approximately good enough to control other measurements. After a number of tape-measurements (for the purpose of getting the right sense in the hands), I have, therefore, made the following comparative measurements between the tape and the stethokyrto-graph, in order to test the accuracy of the latter.

COMPARISON BETWEEN THE RESULT OF MEASUREMENT OF CHEST-EXPANSION WITH THE MEASURING-TAPE AND WITH THE STETHOKYRTOGRAPH.

It can be set down *à priori* that a critical and conscientious measuring of the chest with the measuring-tape will give a lower result than with the stethokyrto-

graph, for, as has been before maintained, the measuring-tape clings more or less to the body, and so has even on a dry skin a greater resistance to overcome than the gimp which with the exception of the back, comes only tangentially into contact with the fourteen small metal discs.

On the other hand, the stethokyrto-graph would seem to give too high a result, because the gimp slides on the discs three, five, seven or nine millimetres distant from the surface of the body. The weight of the cylinders often presses down the discs into the skin and lessens the height; a large part of the gimp nearly touches the skin of the chest; the "ends of the chain," the two stationery discs, lie lower than the nearest movable discs; the gimp cuts into the back more than glides; all of which conditions, however, clearly reduce the apparently too great result obtained by the use of the stethokyrto-graph.

If the results of the measuring-tape, often too low,¹ be compared with those of the stethokyrto-graph, the latter are found to be just as much higher as one would suppose the correct ones to be. Also, if the results with the stethokyrto-graph should have been too high, this signifies nothing. The most important point is that they give reliable comparisons of the two halves of the chest, between the respective expansive capacities of the lungs; and this they seem to do.

A computation from Table 7, "Comparison of Bilateral Measurements, etc.," shows that the results with the stethokyrto-graph were as follows:

MALES.	
In 16.2% cases, . . . . .	.5-9 mm. less than with tape.
2.7% "	the same as with tape.
56.7% " . . . . .	.5-10 mm. greater than with tape.
13.5% "	14.0-20 mm. " "
8.1% "	22.0-27 mm. " "
2.7% "	36 mm. " "
FEMALES.	
In 23.8% cases,	1.0-11 mm. less than with tape.
0.0% "	the same as with tape.
31.0% " . . . . .	.5-10 mm. greater than with tape.
34.5% "	10.5-19 mm. " "
3.4% "	26 mm. " "
3.4% "	31 mm. " "
3.4% "	44 mm. " "

Or collectively, with 66 comparisons of 37 males and 29 females:

In 19.7% cases, . . . . .	.5-11 mm. less than with tape.
1.5% "	the same as with tape.
45.5% " . . . . .	.5-10 mm. greater than with tape.
22.7% "	10.5-20 mm. " "
6.0% "	22.0-27 mm. " "
3.0% "	31.0-36 mm. " "
1.5% "	44 mm. " "

The stethokyrto-graph's superiority has thus been in 45.4 per cent. cases .5-10 millimetres; or, if one will, in 68.1 per cent. cases one centimetre on the average, depending certainly on its superiority in sliding.

Convinced of the reliability of the stethokyrto-graph by thousands of measurements with it, I will now quote only the results of these measurements in

THE BILATERAL (TOTAL) CHEST-EXPANSION.

The results have been arranged in tables,² in order to facilitate reference to them, Nos. 1 and 2 containing 517 persons each (of whom 315 are men, 202 women). Nos. 3 to 6 each contain 636 persons (401 men, 235 women) of varying ages, from three years to nearly ninety years; of unequal height, from that of the dwarf to that of a giant almost; also of different

¹ This is only a question of the critical and self-evident examinations.

² For lack of space; the tables, with one exception, have been omitted.

occupations, though the majority of them belonged to the country population. As lung-tuberculosis has been uppermost in mind, the persons have been placed in four principal groups, according to the condition of the lungs, namely: "Sound," "Sound, with prolonged sound of expiration," "Infiltration" and "Consumption." By which is meant that the "Sound" are persons in whose lungs the sound of respiration (in the apices) was softly vesicular and the sound of expiration shorter than that of inspiration; "Sound, with prolonged sound of expiration" are those whose breathing has the same sound as the foregoing group, but in which the expiration sound was at least as long as that of inspiration. Both groups have, as a rule, been "easy-breathing," have not lost breath from running, climbing stairs, etc. The group "Infiltration" includes cases where the sound of respiration — especially expiration — was rough or harsh, the expiration prolonged, and breathing not so easy as in the foregoing groups. Under "Consumption" have been classed those with pneumonia chronica, those with more or less advanced phthisis pulmonis. Other chest diseases, such as chronic bronchitis, heart-failure, a couple of cases of pleuritis, etc., have been met, but were so few in numbers that on the whole they signified little. They have been grouped according to the above principles.

It is scarcely necessary to add that all who have been examined have had to take the position necessary to the use of the stethokyrgraph, that is, they have stood immovable, with the head bent forward, hands resting lightly on the hips, shoulders still, etc., and the breathing has been "deep and slow," as deep as possible without changing the position of the body in any respect.

On examining Table 1, we see the 517 persons divided into six groups, according as the expansion of the chest in the "subclavicular plane" was 80 mm. or more, 70 to 79.6 mm., 60 to 69.5 mm., 50 to 59.5 mm., 40 to 49.5 mm., or under 40 mm., independent of the condition of the lungs.

Few persons (18, or 3.5 per cent.) belong to the first group, of greatest expansion, with ages ranging from eight to sixty years, and the height from that of a child to the average of an adult. No height of 180 cm. or above (5 ft. 11 in. or above) has appeared in this group, neither has any consumption. The majority of persons having the lungs "Sound, with prolonged sound of expiration" are of average height, 170–179.5 cm. (5 ft. 7 in. to 5 ft. 11 in.), and mostly young or in early middle age, that is, from fifteen to twenty or thirty to thirty-nine years old. Of the eighteen here only one was a woman, of good average height and in her "best years."

The next group, 70 to 79.5 mm., contains 27 persons, or 5.2 per cent., mainly like the foregoing group, with the addition that very tall persons (180 cm. or more) are found represented here.

The third group, 60 to 69.5 mm., includes 80 persons, 15.5 per cent. of all examined — persons of all ages, all sizes and of all conditions of the lungs.

The three remaining groups, 50 down to less than 40 mm., with about 25 per cent. each of the number examined, also include persons of all ages, sizes and conditions of lungs.

The question of the expansion of the chest can be answered, according to Table 1 thus:

The greatest chest-expansion in the subclavicular

plane, 80 mm. or more ($3\frac{1}{8}$ in. or more), does not accompany developed consumption, and only in exceptional cases "infiltration."

A chest-expansion on the subclavicular plane of 70 to 79.5 mm. ($2\frac{3}{4}$ to $3\frac{1}{8}$ in.) does not accompany developed consumption, but is not infrequent with "infiltration."

A chest-expansion on the same plane, below the last-named limit, can, on the contrary, be met in the perfectly "sound" as well as in those with consumption.

Concerning chest-expansion in the mammillary plane, it may be seen by Table 2 that on the whole it resembles the subclavicular plane, only being upon an average about 10 to 15 mm. higher, according to the anatomical form of the chest, in the majority of cases.

The numbers in the higher groups have, therefore, increased, while those of the lower groups have decreased correspondingly.

In the highest group 80 mm. or more ($3\frac{1}{8}$ in. or more), there is, therefore, no consumption found, but very tall persons (180 cm. or over, 5 ft. 11 in. or over) have gained entrance into this group. The number with "infiltration" has increased.

The next group, 70 to 79.5 mm., contains, on the contrary, several with consumption, and also persons of all ages, sizes and conditions of lungs, precisely like the remaining groups.

The question of the expansion of the chest on the mammillary plane, can, according to Table 2, therefore be answered thus:

The greatest chest-expansion on the mammillary plane, 80 mm. or over ($3\frac{1}{8}$ in. or over), does not accompany developed consumption, but is not infrequent with "infiltration."

A chest-expansion on the mammillary plane, below the last-named limit, can, on the contrary, be met as well with the perfectly "sound," as with those having consumption.

Table 3 shows only that the plurality of chest-expansions belongs to the smallest sizes, 40 to 69.5 mm., but as a rule, higher numbers for men than for women. A noteworthy exception, however, appears in the group of men fifteen to nineteen years old, "Sound, with prolonged sound of expiration," where, in the sub-clavicular plane, a chest-expansion of 80 mm. or over appeared in not less than about 25 per cent. of cases, and in the mammillary plane on the average, an unusually high expansion figured. In the remaining groups, such a high record of expansion has seldom appeared.

Table 4 shows how infinitely varying the total chest-expansion can be in the same group of persons, and in the subclavicular as well as in the mammillary plane; it shows us the records of the lowest limit so low that we might think they represented only the lightest breathing (and yet the examined ones have done their best to breathe as deeply as possible without changing the position of the body), while the figures of the highest limit are so high that they rival the high figures uncritically so often obtained with the measuring-tape. There is no doubt that some of the lower figures could have been raised, if the patient had practised "breathing after command," for many persons seem to find difficulty in breathing calmly and deeply while the physician stands ready to measure the expansion of the chest; but in reality these measurements have been made under the same conditions as

the usual life-insurance examinations, and have, as a rule, been made without previous training of the patient. Besides, there is a class of persons who seem to have a very slight expansion of the chest, even when the condition of the lungs is good; for instance, the very fat, because with them, chest-expansion has been constantly and unexpectedly small, in men as well as women. One often gets the impression from their breathing that they prefer to increase the frequency rather than the depth of their respirations, and that habit finally prevents them from breathing deeply or expanding the chest appreciably which is intensified by a certain change to fat of the outer muscles of respiration *in modo circuli vitiosi*.

It may be specially stated that the lowest chest-expansion never accompanied consumption, either in the subclavicular or mammillary plane; and as to the figures recorded in consumption, they are not so low, and many times are as high, especially in the mammillary plane, as for "Sound." The greatest chest-expansion that has occurred in the subclavicular plane, 104.5 mm. ($4\frac{3}{8}$ in.), was that of a professional runner, especially interesting because his lungs gave out a respiratory sound far from normal physiologically. The man had trained his lungs, and what was lacking in quality was supplied by the quantity of vesicular working capacity. The highest figures in the subclavicular plane have belonged to the group "Sound, with prolonged sound of expirations," and nearly always at all ages (to this belonged the case quoted above), depending, as probably indicated, upon the fact that while these persons are "sound" in their functions, and the demand on the lungs is in proportion thereto, nature compensates the little change which is here represented by "prolonged sound of expiration" by allowing the chest—that is, the lungs—hyperdilatation, as it were, and for day after day. A portion of the lung having a physiological sound of respiration, the expiration shorter than the inspiration, would, for lack of exercise, not be expanded so excessively, as a rule, as a portion with vesicular respiration but with a "prolonged sound of expiration," at least, not before training had come to help it. This tendency to increase the chest-expansion seems to continue so long as the part of the lung beneath is not too diseased. For we constantly find it, as before stated, in the subclavicular plane, for the group "Sound, with prolonged sound of expiration," and quite often in the group "Infiltration"; whereas in the group "Consumption," although the disposition is certainly to be noticed, it is not sufficient for so great expansion of the chest as in the best cases of the preceding groups.

Looked at broadly, the same tendency is detected in the mammillary plane. In the group "Sound" one often gets higher figures than in the subclavicular plane (corresponding, one might think, to the anatomical form of the chest), and therefore in the groups "Sound, with prolonged sound of expiration" and "Infiltration," often higher figures than in the first named; but what is still more noticeable is, the high figures in the mammillary plane for the group "Consumption" show that the chest-expansion was just as high, sometimes higher, than for "sound" persons of the same age.

As to the relation of chest-expansion in the subclavicular and mammillary planes, the latter has generally been 10 to 20 mm. greater in the same person. It

has happened often enough, that persons have been found having dilatation in the mammillary plane less than in the subclavicular; and it has often happened that a renewed examination gave the same results, but not infrequently it has depended on the fact that the patient was tired after the first examination, which was always the one in the subclavicular plane. The figures in Table 4 do not always correspond, therefore; and probably the figures in the mammillary plane would often have been 10 to 20 mm. higher if the examination had begun in that plane. The greatest chest-expansion (106.5 mm., $4\frac{3}{8}$ in.), was that in the mammillary plane of a "sound" averaged-sized soldier thirty-two years old, with unusually fine chest, and not especially trained lungs.

Moreover, the tables show that during childhood is established—because of the more movable chest—a comparatively greater chest-expansion; also that a great expansion of the chest may remain (80 mm.) even to the early years of middle life.

By Tables 5 and 6 it appears that the average chest-expansion is not great, and that the difference in the various groups is not so great as *a priori* one would expect. If the chest expansion in the subclavicular plane for groups "Infiltration" and "Consumption"—which have mostly shown 40 to 49.5 mm.—are excepted, then in the rest of the cases the expansion in both planes, on an average, has been 50 to 59.5 mm., with distinct tendency, to be sure, for the consumptives to fall below these figures in the mammillary plane, even. As we have already seen by Table 4, the expansion of all groups fluctuates considerably, above and below these limits. From Tables 5 and 6 it is further seen that the chest-expansion of women in all groups has been, as a rule, lower than of men, which has not prevented some exceptions here and there.

Regarding the expansion of the chest or the bilateral differences between dilatation of the chest with deep inspiration and expiration, as I have already in some regards shown in an article in the *New York Medical Record*, March 3, 1894, p. 264, they seem to vary within considerable limits, in the subclavicular plane from 14 to 104.5 mm. in the groups "sound" and "sound, with prolonged sound of expiration," also from 14 to 81 mm. in the groups "Infiltration" and "Consumption"; and in the mammillary plane from 17 to 106.5 mm. in the former groups, and from 85 to 91.5 in the latter.

The expansion, however, has been in the most of my 517 cases in the subclavicular plane only 50 to 59.5 mm. in the two first groups, and 40 to 49.5 mm. in the second two groups; and in the mammillary plane respectively 50 to 69.5 mm. and 40 to 59.5 mm. The measurements were taken only on Swedes.

The result of these studies of bilateral or total chest-expansion is this, that one cannot, as a rule, draw any conclusions about the condition of the lungs from measurements of the bilateral girth of the chest at the time of deepest inspiration and expiration, or from measurements of the total chest-expansion in some certain plane, be they made on the subclavicular or the mammillary plane, and that such measurements, therefore, should not be taken into consideration in life-insurance examinations, and least of all should they be used as the basis of judgment as to the applicant's place in the "risk scale." The only measurements of the bilateral or total size of the chest which

ought to exist, and which, therefore, ought to be introduced, are in my estimation, those as well in the plane of the axillary folds as in the mamillary plane (or at least in the latter), while the chest is at rest, that is to say, during the faintest respiration; because these measurements give a certain idea whether the normal proportions of the body are ascertained or not, precisely as so often happens in the present life-insurance examinations, that the abdomen is measured to see if it corresponds to the proper proportion between abdomen and body's length, etc. For such measurements the tape is adequate, if critically and carefully used; just as surely it is to be condemned in measuring the expansion of the chest.

If the bilateral (total) measurements of chest-expansion have been cast aside as meaningless, then it remains to investigate whether the "contemporary unilateral," that is, the "simultaneous single and double-sided" measurements can be of any practical value; but that subject may be left for another paper.

VAGINAL HYSTERECTOMY AFTER MARTIN'S METHOD.¹

BY HOWARD A. LOTHROP, A.M., M.D.

VAGINAL hysterectomy is now recognized as a perfectly legitimate operation, and is generally acknowledged to be the most desirable mode of procedure in certain cases, hence, most gynecologists are accustomed to practise one or other of the various methods devised for the vaginal extirpation of the uterus. The earliest operation was performed by the elder Langenbeck; but this route for uterine extirpation failed to receive much attention until 1878, when Freund established certain methods of procedure which still serve as the basis for this operation, although different operators have devised more or less radical modifications.

Having had an opportunity to observe the methods of some of the most skilful operators, the technique adopted by Martin, of Berlin, appears to me as possessing the most advantages, and the reasons for my conclusion I shall hope to make clear later. His early cases date from 1880; but at that time this operation was tedious and attended with considerable risk to life, either from hemorrhage during the operation or from sepsis soon after, while the statistics were far from being encouraging. As performed at the present time by Martin himself, this mode is the most rapid, attended with the least hemorrhage and fewer accidents during the operation, and less liable to be complicated by septic infection during convalescence, than any method I have had the opportunity to follow. My sources of information for this communication, are personal observations and Martin's publications.

The indications for uterine extirpation, according to Martin, I will briefly enumerate as follows:

- (1) Carcinoma of corpus or cervix.
- (2) Sarcoma.
- (3) Adenoma.
- (4) Certain cases of prolapse not amenable to other less radical mode of treatment.
- (5) Also, wherever the patient becomes a chronic sufferer, or runs the risk of losing life by the non-removal of the uterus, as might occur in: *a*, persistent uterine hemorrhage; *b*, dysmenorrhea persisting in

spite of all attempts for relief; *c*, myomata; *d*, certain suppurative conditions of the uterus; *e*, certain cases of rupture of uterus in connection with pregnancy, or as the result of a necrobiotic change.

If feasible, the vaginal route should be chosen; but if not practicable, we should resort to the abdominal method.

The contraindications for vaginal hysterectomy are:

- (1) Extension of malignant disease beyond the uterus.
- (2) Large size of that organ, particularly if rigid and not pliable; and these points must be determined by the examiner for each individual case.
- (3) Presence of adhesions between uterus and other pelvic organs, which render extirpation difficult and wearisome, and may interfere with convalescence, as being the source of hemorrhage and oozing; and furnishing a nidus for a septic infection.

To this last group belong more than fifty per cent. of Martin's fatal cases; and the improvement in his statistics of late is, in part, due to the fact that he is less prone to operate on these cases per vaginam. Hence, given a case where extirpation is indicated, Martin would choose the vaginal route as most appropriate for some cases, the abdominal for others, and the question of choice would depend on his judgment, there being no hard and fast lines to serve as guides.

PREPARATION FOR OPERATION.

On the day before operating the patient should take a warm bath, and a suitable cathartic should be administered. Before undertaking such an operation, all patients should be carefully examined while under the influence of some general anesthetic, in order to determine the exact condition of the pelvic organs, particularly as regards the size of the uterus, the presence of adhesions, and the possibility of any further complications which would contraindicate a vaginal hysterectomy. This opportunity should be taken advantage of, and the vagina carefully cleansed with soap and water and weak antiseptic solutions. All ulcerations of the cervix should be carefully curetted and cauterized if necessary, so as to remove as much source of infection as possible, and then the vagina should be packed with iodoform gauze, which is to be retained until just prior to the operation. If the endometrium is in a septic condition the uterus should be carefully curetted.

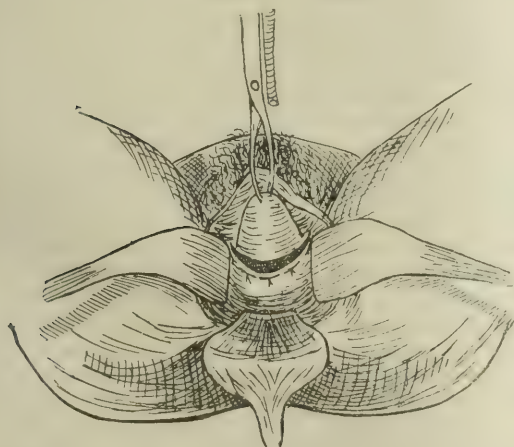
Just prior to the operation on the following day, the rectum should be carefully cleansed by enemata, and the anesthetic administered. At this time the vaginal tampons (if any have been introduced) should be removed, and the vulva and vagina made as aseptic as possible by the use of weak antiseptic solutions. The bladder is not to be emptied, but is to remain distended with urine until the operation has been completed.

The only necessary instruments are the following: one perineal and two lateral retractors (after Martin's pattern), two pairs of so-called "bullet forceps," one pair long curved scissors, one pair long-toothed dissecting-forceps, needle-holder, several strong curved needles of different sizes, and a scalpel, catgut of large size serves for ligatures and ties. In addition, a douche apparatus should be arranged on the fountain plan, so that a very small constant stream of boiled water or a solution of corrosive sublimate (1-20,000), can be made to play over the field of operation, the advan-

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, January 23, 1895.

tage of which will be mentioned below. No sponges or clamps of any sort are ever used, thus saving much time and annoyance. There should be three assistants in addition to the one administering the anesthetic.

All hands and instruments having been rendered aseptic, the vulva and vagina as nearly so as possible, the patient is put in the lithotomy position facing a good light. The operator takes his seat in front. While the assistant on the patient's right attends solely to the perineal and right lateral retractors and corresponding leg, the assistant on the left looks after the left lateral retractor with his left hand, while the right holds both the nozzle of the fountain syringe and the "bullet forceps" which have been attached to the cervix, thus constantly irrigating the field of operation and exerting traction on the uterus as may be desired. The hands of the third assistant are free to pass instruments, thread needles, and attend to any wants of the operator that may arise. This small current of water does away with sponges, and many of the operations appear almost bloodless.



The retractors having been properly placed, the first step in the operation consists in applying the "bullet forceps" to the posterior lip, and, without any hesitation whatever, drawing the uterus as far out of the pelvis as possible, so that the cervix will rest on the pubic arch. This renders the field of operation readily accessible, and makes the posterior vaginal wall taut, showing where the line of attachment of vagina to cervix is to be found. On this line, transversely, the first incision is made, which severs the posterior attachment of the vagina from the uterus. Under normal circumstances this incision would open the cul-de-sac of Douglas; but if there are adhesions, the operator should carefully work his way up between the uterus and rectum, keeping close to the former until the peritoneal cavity is opened. There will be no bothersome hemorrhage, provided the cervix uteri is strongly drawn forward and upward, so as to rest on the pubic arch, and the field of operation constantly irrigated, both of these duties being performed by the right hand of the assistant on the patient's left. The next step is the application of four or five catgut sutures, by means of a small strongly curved needle, to the severed end of the vagina. It is of the greatest importance that these sutures include the free edges of the peritoneum and vagina, as well as the connective-tissue between, the needle coming out about one centimetre from the point of entrance. Thus the

hemorrhage is stopped at once, and the connective-tissue spaces shut off from the danger of infiltration. If there should be any hemorrhage from the uterine end of the incision, a large ligature is passed through the cut surface of the uterus, and the ends left long, so as to retract the uterus. Then with the cervix strongly drawn to the patient's right, the left forefinger, as a guide, is introduced into the fossa of Douglas, and sutures are firmly applied to the left side-wall of the vagina just distal to the cervical attachment, and the vagina severed close to the cervix, a small amount of tissue being cut with the scissors after each suture has been applied. Just as was done posteriorly, the peritoneum and vaginal wall are closely approximated. The deeper sutures on the side should be very carefully and firmly tied and left long, so that, after the uterus has been severed, this mass can be pulled down and be securely fixed between the free edges of the



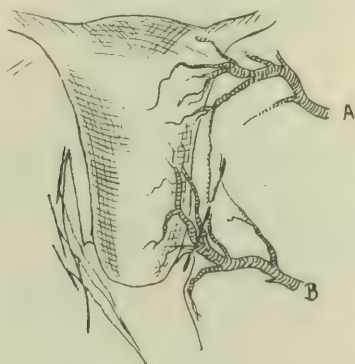
peritoneum and vagina. The important uterine artery, which enters the uterus near the junction of the corpus and cervix, is then first securely ligatured and then severed. The right lateral vaginal wall is cared for in a similar manner; three or four sutures suffice for each side. The higher up in each side the uterus is severed, just so much easier it is to invert that organ later.

The anterior vaginal wall remains to be freed. To accomplish this the cervix is pulled out and down so as to render the parts tense. The lateral incisions are united by one passing around the cervix in front, along the line of vaginal attachment, keeping close to the cervix and merely going through the vaginal wall. With the finger, the bladder (now distended with urine), is carefully separated from the anterior surface of the uterus until the anterior cul-de-sac is reached, and then the peritoneum is opened, leaving the uterus suspended only by the lateral ligament. Peritoneal and vaginal edges are united just as was done posteriorly and on the sides, the bladder being carefully pushed forward and kept from injury; about four sutures serve this purpose.

All hemorrhage having been stopped, the finger is introduced into the posterior cul-de-sac, and the uterus carefully explored as regards size and the presence or absence of adhesions. If small and pliable, it can be readily rotated on the lateral ligaments, and the fun-

dus extracted through the posterior opening, merely by the use of the fingers, or aided by bullet forceps. If large and not pliable, this may be a very difficult part of the operation; and, as further aid, the posterior opening can be kept dilated by means of a spatula, so that traction on the fundus can be accurately applied by means of forceps, while the finger of the other hand pushes the cervix up behind the pubic arch. Pressure over the hypogastrium should never be resorted to.

Three ligatures, applied in the ordinary manner suffice to tie off the lateral ligaments from the uterus, thus completely severing it from its pelvic attachments. If only the uterus is to be removed, they should be applied close to that organ, which is then severed and the catgut left long, so as to control the free ends of the lateral ligaments. In the majority of cases, it is possible, if desired, to remove the ovaries and tubes with the uterus by careful traction, provided they are not too large or bound down by adhesions. In this case the ligatures are applied as before, except they are on the other side of these organs.



All hemorrhage must be stopped; and when assured that there is to be no danger from this source, the edges of the lateral ligaments are carefully pulled down even with the free edge formed by the peritoneum and upper end of the vagina, and then all these free edges united by a continuous transverse catgut suture. If viewed from the abdominal cavity, all we would see at the site of operation is a short transverse line, formed by the approximated surfaces of peritoneum, which readily adhere and serve as a barrier against infection; viewed from the vaginal end a small, puckered, wounded surface over which iodoform has been dusted. No tampon is left in the vagina, nor is any drainage-tube used; and on completing the operation, the patient should be catheterized for the first time.

During the operation the intestines are very rarely seen, and with care there is but slight risk of injury to the bladder or ureters. In well-chosen cases there is but slight risk of hemorrhage, which is apt to be very annoying in cases where adhesions have to be overcome. The secret of rapid and successful removal of the uterus by this method, depends largely upon the ability of the operator to handle the curved needle, while the work is made much easier by remembering the fact that the uterus can be drawn well toward the vulva.

The after-treatment is merely expectant and the danger during this period is that of sepsis. Unless called for by the general symptoms, the wound is not

inspected until the fourteenth day, when the stitches, which have not been absorbed, are removed, while on the twelfth day the patient is allowed to leave the bed. A profuse secretion is the signal for vaginal douches. The catheter is used if necessary, and the bowels are moved on the fourth day by enema.

STATISTICS.

Comparative statistics for different methods by different operators are of but little value as determining the merits of any mode of procedure. Some operate hopeless cases, others weigh the probabilities with the greatest of care before they will risk operation; some tabulate all their cases; others neglect to report failures. From 1880 to 1887, Martin removed the whole uterus per vaginam 106 times, with 14 deaths as result of operation; from 1887 to 1893, 153 times with 14 deaths. Of the fatal cases about one-half were due to sepsis, while embolus, shock, and broncho-pneumonia figure as the remaining more common cause.

Having seen different operators and various methods of vaginal hysterectomy, that of Martin appeals to me as possessing the most advantages. It is the most rapid, requires fewer instruments, the field of operation is not obscured by hemorrhage, and the cut edges are all turned toward the vagina, thus allowing for free escape of all exudation, while the approximated surfaces of peritoneum rapidly adhere and shut off the general peritoneal cavity from infection. Cases must be well chosen for any method of removal per vaginam. The uterus must not be much enlarged, and should be comparatively free from adhesions, otherwise the abdominal route should be selected. If malignant disease has extended beyond the uterus, any procedure is practically hopeless. Given a case where total extirpation is indicated, the vaginal method, when practicable, *as done by Martin himself*, seems to me to offer the patient the best chance of recovery, and to present fewer difficulties for the operator.

Clinical Department.

A SUCCESSFUL OPERATION ON A SPINA BIFIDA.

BY SAMUEL BAYARD WOODWARD, M.D., WORCESTER, MASS.,
Surgeon to City and Memorial Hospitals.

THE large mortality of the surgical interference with spina bifida, whether by tapping, injection, ligation or excision, has been so discouraging that one almost confidently expects on the third or fourth day that gradual rise of temperature indicative of beginning infection of the meninges with its invariable termination.

Not infrequently either does everything apparently progress favorably for even seven or eight days, with the then insidious or sudden change for the worse and the soon following fatal ending.

The favorable issue of the following case under somewhat unfavorable circumstances leads me briefly to report it.

February 18th of this year, I was asked by Dr. E. L. Sawyer, of Barre, to see a child born under his care eight days before. An otherwise well-nourished, perfectly-formed male child had in the lower cervical

region a semi-transparent, thin-walled pediculated tumor the size of a baseball. The pedicle at its junction with the body about two inches in circumference, was covered with apparently normal skin, which also reached about an inch up the cyst wall on every side. The remaining wall was thin, translucent, and where it rested on the child's back discolored and apparently breaking down, while from a minute perforation at its most prominent part was oozing a watery fluid somewhat stained with blood. Pressure, carefully applied, lest the cyst should rupture prematurely, caused no disturbance, nor could the size of the tumor be perceptibly diminished.

As the sac was evidently about to rupture, there could be little question as to the proper course to pursue; and after a somewhat imperfect cleansing of the base of the cyst, chloroform was given, a trocar introduced, and about six ounces of fluid as clear as spring-water withdrawn. The thumb and finger being as closely as possible applied to the base of the cyst to limit the loss of cerebro-spinal fluid, and the child being also kept in a prone position, the sac was then laid open and examined. It was judged that the closure of the sixth and seventh cervical vertebrae was imperfect. With the exception of a small opening at the upper portion of the cleft from which when pressure was removed clear fluid exuded, this cleft was filled with a dark cord, which ran straight across the cyst cavity to the point where was the opening previously described. This cord was of the size of a lead pencil, and seemed to largely consist of blood-vessels, though from various points on its circumference ran in all directions minute nerve fibres to the cyst-wall.

Quilting sutures of silk, one of which surrounded the base of this cord were introduced through skin and sac at the base of the pedicle in such a way as completely to obliterate the cavity. The cyst and redundant skin were removed, and the resulting raw edges carefully approximated by numerous fine sutures. A voluminous dressing of baked gauze carefully bandaged on completed the operation and the child was left to the care of the trained nurse fortunately present. It is needless to say that instruments, hands and sponges were carefully sterilized.

The inaccessibility of this patient to Dr. Sawyer, eight miles from his house over roads almost impassable after the severe snowstorms of the winter, which had prevented him from seeing the mother after her confinement until he went there with me, caused his first visit to be made only on the third day, when the quilting sutures was removed, and his second on the eighth, when the superficial ones were taken away.

A note from the nurse, Miss McGill of the New England Hospital, informs me that the baby slept well, ate well, grew very rapidly, and gave no sign of disturbance from the wound in the neck. The temperature taken thrice daily, reached 101.5° twenty-four hours after the operation, and fluctuated between 99° and 99.7° until the removal of the stitches.

The child is now well, with no sign of the tumor beyond a slightly projecting ridge. Dr. E. H. Baker, of Worcester, who kindly examined the specimen, could find but little in the cord alluded to in addition to the vein and artery, which were of large calibre.

A WRITER in the *Southern Practitioner* for May, 1895, speaks of ovariectomy as the "emasculat[i]on" of women, evidently using the word in its secondary sense.

Medical Progress.

REPORT OF PROGRESS IN GYNECOLOGY.

BY F. H. DAVENPORT, M.D.

SUPRAPUBIC FIXATION OF THE UTERUS IN CERTAIN CASES OF RETROVERSION AND PROLAPSE.

DR. THOMAS KEITH¹ describes an operation for cases of intractable retroversion and prolapse which has proved efficacious in his hands. The uterus is pushed up against the abdominal wall with a sound, and a small opening made over the fundus a little larger than sufficient to admit the forefinger. Guided by the finger the right round ligament is seized by forceps, and slowly pulled up with the broad ligament until the ovary is reached. This is brought out with as much of the broad ligament as will come, and the pedicle drawn together by a small silk thread and tied. The stump being held by forceps, the abdominal wound is accurately closed with several sutures, care being taken not to strangulate the stump. This is dried with perchloride of iron, and the ordinary clamp applied on a level with the encircling ligature, so that the tissues do not spread out, and there is thus a slender stump left to separate. In none of the cases has there been a trace of hernia, and no wound has ever suppurated. Dr. Keith has done the operation 34 times, and his son, 17, and all the patients were cured permanently.

The advantages of the operation are, that the uterus being attached only by the right ligament has freer movement than by any other method; there is less risk to life, as there is no invasion of the cellular tissue by needles and stitches; and the fixation is more sure as the ligament is fastened into the wound, whereas simple peritoneal adhesions may become absorbed. The only objection is the loss of one ovary, but one ovary seems to be as useful as two. The right ligament is chosen, because if the left is taken there is generally more tension on the bowel. The advantage over the Alexander is, that the latter has only the round ligament to depend upon, while this has all the tissues that go to make up the broad ligament, and all covered by peritoneum.

THE SIMULTANEOUS OCCURRENCE OF CARCINOMA AND FIBROIDS IN THE UTERUS.

Geuer² has collected 46 cases of this character from the literature, and classes them as follows: (1) primary carcinomatous degeneration of the myoma; (2) carcinoma and myoma of the body of the uterus; (3) myoma of the uterus, and carcinoma of the cervix or portio. There were 10 cases of the first class, but only four of them can be considered as trustworthy examples of true primary cancer. Of the second class there were 23 cases, of which in only two was the disease secondary in the myoma. In these cases the myoma was submucous.

There were 13 examples of the last group, of which Geuer says that there is little evidence that the myoma is the direct cause of the cancer of the cervix, but like other morbid conditions predisposes to malignant disease. Suspicion of beginning malignant degeneration is aroused when, especially at the menopause, in cases of long-standing myoma, hemorrhage, foul dis-

¹ Lancet, September 22, 1894.

² Cent. für Gyn., No. 14, 1894.

charge and loss of strength occur. Diagnosis is confirmed by the microscopical examination of scrapings from the uterus. Vaginal hysterectomy is the most satisfactory operation, as with abdominal hysterectomy secondary infection of the peritoneum is likely to result. This must be especially guarded against by thorough curetting of the vaginal portion, packing with iodoform gauze, and sewing together the lips of the cervix.

PATHOLOGY OF THE UTERINE MUCOSA.

Van Tussenbroek and Mendes de Leon³ have given a very thorough anatomical and clinical study of this subject, of which the following is an abstract: The diseases of the uterine mucous membrane which by the majority of gynecologists are included under the name of inflammation must be separated into endometritis and pseudo-endometritis.

The true endometritis is histologically characterized by the appearance of leucocytes, which, at first distributed among the normal structures, finally displace these and cause them to disappear. The final result is a small cell fibrillary connective-tissue without glands or surface epithelium. Pseudo-endometritis is histologically characterized by changes in the vessels, which result partly in hyperplasia of the stroma and glands, and partly in atrophy with destruction of the tissues. Both forms of endometritis are, as a rule, confined to limited portions, the microscopical field shows alternately diseased and healthy portions.

True endometritis is characterized clinically, at least at certain stages, by a purulent discharge. Pseudo-endometritis is clinically evidenced by hemorrhages, menorrhagia or metrorrhagia. Sometimes also by profuse mucous discharge. In addition both can be the indirect cause of symptoms referable to neighboring or distant organs.

True endometritis of the corpus uteri (corpus catarrh) is much more common than is usually supposed. It occurs more frequently than catarrh of the cervix. Catarrh limited to the cervix is comparatively rare.

The differential diagnosis between a catarrh limited to the cervix, and a combination of corporeal and cervical catarrh can only be definitely made by the microscopical examination. On clinical grounds one can arrive at a probable diagnosis, if one considers—

- (1) That a thin, purulent discharge points to catarrh of the corporeal endometrium;
- (2) That with multiparæ cervical catarrhs occur seldom;
- (3) That when reflex symptoms are prominent, they point to a pathological condition of the corpus mucosa;
- (4) That cervical catarrhs are rare in virgins, and the combination of cervical and corporeal catarrh still more rare.

True endometritis occurs in virgins more rarely than pseudo endometritis; occasionally it is dependent upon previous infectious diseases. The two forms may occur together, in which case they usually follow subinvolution or abortion, where at the same time disturbances of the circulation and infection take place.

Treatment depends upon the intensity of the symptoms. Serious cases of endometritis, as well as of pseudo-endometritis, require removal of the diseased mucous membrane by curetting. Energetic after-

treatment is of the greatest importance; where this is neglected, a speedy relapse is likely to occur. It is seldom that treatment confined to the cervix is successful.

TREATMENT OF CHRONIC ADHESIVE PELVIC-PERITONITIS.

Under the name "Pelveoperitonitis chronica adhesiva," Martin⁴ describes this common affection of the female sexual organs, with special reference to the appropriate treatment. He refers to the opportunity of learning the appearances and results of this form of inflammation from the abdominal operations which are now so common. Less, however, is known about the cause. As regards treatment, Martin says, "No one will attempt more radical measures until medical resources have been tried in vain." As regards massage, the first enthusiasm for this form of treatment has cooled somewhat. Some few cases benefit, more either remain unchanged or are made worse. Where these means fail, there is no doubt that operative measures are indicated. The prognosis of the operative method of treating chronic pelvic peritonitis depends not so much upon the cause of the infection, as upon the character of the lesions found. It will naturally differ widely in cases where the peritonitis is complicated with inflammatory processes or new growths in the pelvic organs, ovaries, tubes and uterus, and where pus-cavities exist in the parametric tissues, from what it is where the condition is merely a more or less complete matting together of the pelvic contents. This last result Martin has found following both septic and gonorrheal infection, and probably also simple catarrhal conditions. The consequent displacement of the uterus is by no means always the most important factor. The obliteration of the tubes, the dislocation and pathological fixation of the often healthy ovaries, the implication of bowels and bladder, and the stretching of the thickened pelvic peritoneum, are usually of more moment than the retro-displaced uterus.

Both ovaries and uterus are often healthy; rational treatment would therefore consist in some method of curing the pelvic peritonitis with preservation of these organs. Both castration and, recently, hysterectomy have been urged and practised for this condition. Martin has found that the separation of the adhesions by operation fills this indication. He has learned, however, by experience that simple separation is a doubtful procedure; hence for five years he has in addition to separating the adhesions stretched the pelvic peritoneum as much as possible with incision of the cicatricial bands if necessary and in addition performed ventro-fixation.

In order to stretch the peritoneum after freeing the organs, Martin uses stroking movements with the fingers in the depth of the pelvis, from behind forwards, employing considerable force. Five times he has cut subcutaneously the fibres of the sacro-uterine ligaments. He then convinces himself of the patency of the tubes and the (macroscopic) healthy condition of the ovaries, and brings them into their proper position. The uterus is then fastened with three silk sutures into the lowest angle of the abdominal wound.

Where the peritoneum is torn and ragged, Martin covers the surfaces with sterilized olive oil which he believes hinders their growing together again.

³ Archiv. für Gyn., Band xlvii, 1894.

⁴ Zeit. für Geb. und Gyn., Band xxx, 1894.

Of 33 patients treated by this method, 26 had been operated on more than six months previously. From 21 he had late information, and of these 19 were free from pain, and able to work, while in two the improvement had been only temporary. The adhesions had so stretched that the uterus was quite movable, in good position, tubes and ovaries normal to the feel, and the parametrium not sensitive.

THE OPERATIVE CURE OF SIMPLE AND ADHERENT RETROFLEXION OF THE UTERUS BY THE VAGINAL METHOD.

Dührssen⁵ in a long article on this subject gives first the detailed history of 207 operations, and then describes his mode of operation and its results. The principle of the operation is the attaching of the fundus uteri to the anterior cul-de-sac. This can be done in three ways: (1) by fixing the fundus through the unopened vesico-uterine pouch; (2) by opening the peritoneal fold and drawing the fundus down to the vaginal wound; (3) by opening the fold and drawing the body of the uterus down to the vulva. A simple incision in the anterior cul-de-sac suffices in all these methods. The bladder is pushed away, and the highest part of the uterus which can be reached drawn down with a hook or by a strong ligature. A second and a third, each higher than the last, are then inserted, and drawn upon until the fundus appears, when it is sewn into the vaginal wound. The details of the operation should be read in the original. Where there are adhesions they can be reached and separated after the peritoneum is opened as by the third method.

Dührssen says: "All three methods of operation lead to a permanent cure; the first and second with a movable uterus, the third with an adherent one. The term cure does not merely mean that the position of the uterus is normal, but the patient is well; that she is freed from all the symptoms caused by the retroflexion, without in any way compromising any function of the uterus; menstruation becomes regular, and a previous sterility the result of the displacement or its complication is often cured. Pregnancy goes on without trouble, and no difficulty occurs at delivery which can be connected with the operation. The improved position of the uterus persists even after pregnancy and child-birth if caution is exercised."

THE INFLUENCE OF SEA-BATHS AND PROLONGED IMMERSION ON MENSTRUATION.

Houzel⁶ in this article gives some very interesting facts in regard to the effect of sea-bathing upon the generative system of the woman, founded upon the experience of the fisherwomen of Boulogne and vicinity. He refers to the fact that it is generally considered that a woman during menstruation is in a state bordering on sickness, and should observe a strict hygiene, and baths are interdicted. While this may be true of the city women and is a result of our civilization, it is not true of healthy women living a more natural life. For these menstruation is a physiological act, which accommodates itself to the fatigues and the transitions which the necessities of their life impose upon them. Sea-baths far from interfering with menstruation, favor it, prolong the sexual life, and increase their fecundity. The author is of the opinion that if even delicate, neurasthenic women

should accustom themselves to take sea-baths regularly, even during menstruation, they would suffer less from amenorrhea and dysmenorrhea, and this function would become regular with great advantage to their general health.

In support of these opinions he calls attention to the habits of the fisherwomen, who are accustomed to remain in the water for hours at a time, thinly clad, submerged to the waist and sometimes to the arm-pits, bare legs and feet, making long marches with heavy baskets on their backs, their clothes dripping wet, in winter and in summer, menstruating or not; and all this without apparently suffering any inconvenience.

He has recorded his observations of 123 of these women as regards puberty, the menopause, their fecundity, and the results on menstruation. All these women were accustomed to go into the water every day, during their catamenia, when pregnant and when nursing. As regards menstruation, not one testified to the least inconvenience from their immersion in the water. Some noticed that their sickness came on without pain when in the water, and that they suffered if they did not pursue their ordinary habits; others flowed more freely; and the testimony was unanimous as to the good effects of the salt water. Nor did this apply alone to those who from childhood were accustomed to the life and began to menstruate under these conditions; even those who began long after puberty felt no ill effects.

The average age of puberty for the 123 women was thirteen years and ten months; and for those who had arrived at the menopause the average age was forty-nine years and a half, giving a length of sexual life of thirty-five or thirty-six years, which is several more than the average. Fecundity, too, is favorably affected. Taking the 63 married women of whom the record is complete, there were 497 children, giving an average of 7.8 children to a household.

Houzel therefore concludes that women can with advantage continue sea-bathing during their periods, provided they have become acclimated to the sea, and have no trouble with the appendages; that they tend to prolong the sexual life, and increase the fecundity in a remarkable manner.

His theory of the action of sea-baths is as follows: At the moment of immersion in the water, the whole economy receives a profound shock; often even somewhat painful. Under the influence of the sudden lowering of the temperature, and of the density of the water, which acts upon the skin by its weight and its salts, almost all the blood of the periphery is thrown back towards the centres; the heart seems to stop; then the pulse becomes small, hard, rapid; hurried respiratory movements succeed a rapid inspiration; the skin grows pale. This lasts a short while, when the equilibrium re-establishes itself, the economy reacts, and accustoms itself to its new environment.

The vessels of the splanchnic organs, sharply dilated by the considerable afflux of blood, react by virtue of their elasticity, to the exaggerated contraction of the vaso-motors of the peripheral vessels, succeeds a sort of temporary paralysis, which dilates their calibre, and the blood flows to the skin, which becomes red and suffused. This kind of gymnastics of the skin and the deep vessels, renders the circulation active in those organs where there is tendency to congestion. The uterus joins with the other organs in this;

⁵ Archiv. für Gyn., Band xlvii, 1894.

⁶ Annales de Gyn., 1894.

its circulation becomes more free and active, its nutrition more perfect; it gains in vitality, and is able to perform its functions more healthy and easily.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

J. L. AMES, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 20, 1895,
DR. G. M. GARLAND in the chair.

DR. J. H. MCCOLLOM read a paper entitled

OBSERVATIONS ON DIPHTHERIA.¹

DR. MASON: Dr. McCollom's paper is certainly most interesting, both from the bacteriological and clinical standpoints. The value of the bacteriological test must be regarded as fully established, especially in relation to the mild cases of nasal and laryngeal diphtheria occurring in schools and elsewhere, which otherwise would pass undetected. The more severe types are easily recognized in probably four-fifths of the cases by the clinical appearances. There are undoubtedly severe sore throats, membranous, which have every appearance of diphtheria but which turn out not to be so after bacteriological examination. But there are certain annoyances and inconveniences which occur from the rigid application of the bacteriological test. Dr. McCollom spoke of the pseudo-bacillus and the fact that certain throats, either without or after exposure to diphtheria, may present the Klebs-Löffler bacillus. Where a member of a family is found to carry about the Klebs-Löffler bacilli or the pseudo-bacilli in the throat, with no manifestation whatever of diphtheria, it becomes a serious question as to whether the house should be placarded, the family isolated, the expense of a nurse undergone, etc. It is a practical matter that has arisen more than once, and for myself I do not feel justified as yet, in the absence of symptoms, in putting a family to that expense and trouble, because the only means of determining whether these bacilli are virulent or not must be by the inoculation of animals. That is manifestly impossible in many cases, and in the absence of membrane in the throat, in the absence of symptoms of all kinds it seems to me that we must be guided by the clinical manifestations. The question arises not infrequently in the hospital as to whether a patient with the Klebs-Löffler bacilli who has no membrane shall be placed at once in the diphtheria ward. We have thus far done so. Patients who are not in the least sick, or very slightly so, have been placed in the diphtheria ward with no ill result to themselves thus far; but it is different in families, and it is a matter of serious importance, in which I should like to ask Dr. McCollom's opinion, as to whether it is the duty of physicians under all circumstances to report cases of such mild nature when the Klebs-Löffler bacilli are found, or bacilli having the appearance of the Klebs-Löffler. This may not seem to be a question which would be of frequent practical importance, but I have known of its being brought up.

The value of the use of antitoxin is now well established. At the City Hospital we have had one

hundred or more cases treated in that manner, and here again we cannot wait for the culture-test. The patient brought in on the third or fourth day of diphtheria becomes more septic every hour, and the delay of twelve or twenty-four hours may mean death to the individual; therefore it is important that the antitoxin should be injected at the earliest possible moment, the results on the first, second and third days being vastly better than when this substance is used at a later period. As Dr. McCollom said, even in the cases which result fatally after late injection, there is a considerable degree of benefit apparently derived from this source; the children become more comfortable; they may even sit up and seem to be improving, but after two or three days, perhaps, they relapse and die from septic influences or heart failure. As to the disagreeable results of antitoxin, the only one which has seemed to me of any great consequence as a cause of suffering to the patient has been the pain in the joints, like rheumatoid arthritis, which sometimes lasts two, three or four weeks. The urticarial eruption is of little importance.

DR. MORSE: As to the liability of error in a single bacteriological examination of the throat, it seems to me that where the diphtheria bacilli are found it is positive evidence; in a case, however, which is clinically diphtheria, and a single bacteriological examination does not show the diphtheria bacilli, it seems to me that we are not justified on the strength of that one examination in saying that the case is not true diphtheria. For a number of months I followed up every case which came into the diphtheria ward of the City Hospital which gave a negative report for diphtheria bacilli on the first examination, taking swabs every day from the nose and throat until the case left the hospital. In a very large proportion of these cases the second or third examination would reveal the presence of the Klebs-Löffler bacillus, and in some cases the Klebs-Löffler bacillus was not found until the membrane had disappeared. Of course, it is possible that the cases were infected after they entered the hospital, but it does not seem to me that that is the explanation of the majority. So if I receive a negative report on a case of clinical diphtheria, I should not be satisfied with that, but should treat the case as diphtheria, and should want one or two more examinations made before I was satisfied. I am glad Dr. McCollom and Dr. Mason have emphasized the importance of the examination of all sore throats; it seems to me that here is the great use of the bacteriological examination. It is the sore throat which does not look like diphtheria which is liable to confuse. As to the negative examinations in convalescence, it seems to me that one negative report during the convalescence is entirely insufficient, that you should have at least two successive reports. It very frequently happens that one report will be negative, the next report positive, the next day negative and the next day positive, and then perhaps two negative reports. It does not seem safe to fumigate the house until you have at least two negative reports.

As to the infectiousness of streptococcus throats, the Board of Health of New York investigated that last summer, and found it practically nil, very rarely being able to trace any infection from one case to another.

When the Klebs-Löffler bacillus is found in the healthy throat, the possessor certainly has not diph-

¹ See page 449 of the Journal.

theria, but I cannot see why he is not as dangerous to the community as is a convalescent case. It is the same bacillus in the same place. The fact that such bacilli may not be fatal to guinea-pigs, is no argument, as it is extremely probable that the Klebs-Löffler bacillus which in one throat is not pathogenic may be virulent when put on a different soil.

It seems to me that in every case of diphtheria antitoxin should be used, whether early or late; and, as Dr. Mason says, we should not wait for the bacteriological test. It should be used at once. It does not seem to me we are going to do any harm, and we do gain twenty-four hours. I see no reason, moreover, why, if you use antitoxin, you should not use other means as well, and not limit yourself to antitoxin alone.

DR. WITHINGTON: Possibly the most useful contribution which I can make to this subject is to speak of the results as I saw them in my own service at the City Hospital during the months of December and January. The cases in which the remedy was used were 91 in number, but 11 of those cases were rejected from the count from failure of the bacteriologist to report the specific germs of the disease in those cases, therefore leaving 80 cases in which the remedy was used. Of those 80 cases, 13 died; and of those 13, two died from scarlet fever which they contracted in the wards of the hospital, and both of them died with clear throats so far as diphtheria was concerned. Therefore these two are not properly to be included among the number of deaths in cases of antitoxin treatment; but as they died after antitoxin injection, I have left them in the list. That gives a mortality of 16 per cent. During the same period of time there were 40 cases of diphtheria in the wards, as shown by bacteriological tests, which were not treated by antitoxin; and they were not treated for various reasons, partly because of the lack of material, partly because of the patients entering moribund in four or five cases; in a few cases because the patients entered very late in the disease, beyond the fifth day from the onset of the disease. As the material was scarce, it seemed proper to withhold it where it did not promise to give good results; but the majority of those 40 cases were those in which the remedy was withheld because the cases were mild. Therefore, the group of 40 cases was a group of selected mild cases, as a whole, and yet the number of deaths among those was 12, or 30 per cent. The group of antitoxin cases, as a whole, were a severer type than those not treated in that way, and the mortality was 16 per cent. Adding all together and including the entire series of cases of diphtheria which appeared in those six weeks, of which two-thirds were treated with antitoxin and one-third without, we had a mortality of a little less than 21 per cent. As Dr. McCollom said, the average hospital mortality has been about 50 per cent. in the City Hospital for a number of years. Assuming that it is from 40 per cent. to 50 per cent., as it is in most large hospitals, we have here a very manifest and striking reduction in the mortality under this method of treatment. In two cases, there were autopsies, and the infection of the system was shown to a marked and surprising degree. Contrary to what we used to be taught as to the migration of the Klebs-Löffler bacilli from the site of the original infection, they were found in the lungs; both patients had broncho-pneumonia, and in the patches of broncho-pneumonia were found streptococci

and the Klebs-Löffler bacillus. The same diphtheria bacillus was found in other organs of the body. One of the patients had streptococci in the blood of the left ventricle, and the general toxic infection was very great in both cases. In six of the fatal cases death occurred within forty-eight hours of the first injection, and in four within twenty-four hours. These were cases in which the remedy was used after it was more plentiful than at first and where it was deemed wise to give it in the cases practically hopeless.

Therefore, the numerical results are certainly very promising. The results apart from the question of figures seemed to me very striking. The gentlemen who went into the wards at that time, I think, will admit that the wards bore a very different appearance when that treatment was in force from what they have generally done in years past. Usually in going into those wards one would see a lot of steam being used for the purpose of relieving stenosis of the larynx, and the amount of steam was very much less in patients put early under this treatment. In the second place, the general septic appearance of children with advanced disease, lying in a stupid, comatose way, had very generally given way to a very much brighter aspect of the children, many of them sitting up in their cribs, sometimes sitting up within twenty-four hours of the time of receiving an injection; so that the type of the disease was alleviated as well as the death-rate reduced.

I am very glad that Dr. Mason said a word in favor of still allowing the clinician a little part in the diagnosis of diphtheria. We have been gradually rather crowded to the wall by our friends the bacteriologists, so that we did not dare to express any opinion as to the existence of diphtheria in any case whatever; but there are cases of diphtheria where I think we have a right to an opinion, even though the bacteriologist fails to find the microbe on the first or second examination. Two of the cases were not injected because of a negative report on the first examination. On the second examination, however, diphtheria bacilli were found, but time had been lost and one of these patients died. I have reason to believe if the injection had been made earlier the case might have been saved. Another patient I remember came in with all the symptoms of profound sepsis of diphtheria of the most aggravated type, and lived three days. The first day the report was returned negative; second day negative; the third day, just before he died, the report was, "few Klebs-Löffler bacilli." Another patient was given an injection on the strength of the general clinical picture of diphtheria, membrane being abundant in the throat, and there were two negative reports on the throat. The child was growing sicker, and had profuse nasal discharge. It was thought diphtheria might be present in the nose. Two swabs were taken from the nose, both with negative reports. Finally, for the first time, twelve days after the child entered, we got a positive report on a swab from the nose. In accordance with the ordinary methods of interpretation of reports of bacteriologists, that child would have been assumed to be free from diphtheria all that time; but I am practically sure the child had diphtheria all that time, and the swabs failed to show it. The same thing is important in judging of membranous laryngitis. A case was in the hospital with a strip of membrane on the back of the pharynx, swab taken with negative result; the child choked up, was

intubed, died, and diphtheria bacilli were found post-mortem in the trachea and larynx. The situation of the disease was such that it was not reached by the swab. All these things are evidence that the disease may be overlooked by the most careful bacteriologist, and that the clinical evidence is not to be disregarded.

As to the other horn of the dilemma, what is to be done in cases of the presence of the Klebs-Löffler bacillus without disease, a very serious question comes up. A patient was admitted the other day to the hospital whom I saw first in ignorance of anything about him, and who showed nothing in his nose or throat. I asked him what he was there for, and he said he had the option of being there or in jail. The reason was that he had had diphtheria bacilli in the throat. I suppose he had had membrane in his throat. We had a swab taken, and the report was that there were no diphtheria bacilli present. Inasmuch, as at the same time I had the Klebs-Löffler bacilli in my own throat, as shown by two consecutive daily reports I felt a little guilty that I should be keeping this man there while I myself under the same construction ought either to be in the hospital or in jail. This man had been sent in by the health authorities because of the existence of this microbe in his throat, and we kept him twenty-four hours and discharged him. When the question came as to what diagnosis to put in the record, as he had no membrane and no bacilli, there was no resource but to enter him as having "no disease." I think, while we owe to the bacteriologist an enormous debt for the settlement of doubtful cases of diphtheria, we must still feel that as clinicians we have the right to an opinion, which we like to have confirmed by the bacteriologists.

DR. V. Y. BOWDITCH: I have very little to add to what I have already said at the Medical Improvement Society. I have been on duty two weeks in the infectious wards of the City Hospital, and my experience thus far has certainly been in favor of antitoxin. Twenty-six new cases have entered since I came on duty, of which four have died—all four being very severe cases when they came in, two moribund, and one had intubation three times and tracheotomy. All the others with the exception of two are doing very well. Those two I reported on Monday as still doubtful, are better to-day. One is a child who is decidedly septic, fighting his food and treatment and everything, but he developed last night a scarlet-fever rash, and was transferred to the scarlet-fever ward. In the other the amount of membrane is decidedly less this morning.

One point in reference to the immunizing dose is rather interesting. Two nurses who have come down with diphtheria, both having membrane and the Klebs-Löffler bacillus, received immunizing doses three weeks before they were taken. In one case I found that the dose was very small; and in the other I could not find out the exact amount given. Both proved to be very light cases.

DR. DURGIN: I have been much interested in this paper and the discussion. It seems to me extremely important that the clinician and the bacteriologist should agree as to whether this or that patient is dangerous to the public health, and that is the part of this question in which I am most interested. I am frequently asked whether or not some given case should be reported and treated as one dangerous to

the public health. For instance, a person who is apparently well, but from some slight irritation seen in the throat a culture is taken and found to contain the Klebs-Löffler bacillus. The question at once arises, What shall be done with this person? In the past we have been accustomed to look upon such person as not dangerous to the public health because we had no knowledge or reason to suspect that the diphtheria bacilli were present. This has been the position of the medical profession up to a recent date. Since, however, the bacteriologist has found that the Klebs-Löffler bacilli are evidence that the patient has diphtheria, and that through this bacilli the diphtheritic patient can spread the disease, we have felt sure that that was the person to put into isolation. We all know that by some unchecked influence diphtheria has continued endemic for years in our city, and we have wondered, in many instances, how the disease could have been contracted. The suspicions which some of us felt that the unrecognized cases were spreading diphtheria, has been fully borne out by the bacteriological work which has been reported to-night. I am constantly in trouble over the cases of diphtheria that continue so long to show the Klebs-Löffler bacilli after the patient has, apparently, recovered. I am importuned every day by the householder, parents and doctors to disinfect and release the patient from isolation. I do not know what to do except to act upon the belief that the patient is a source of danger until the bacilli have disappeared. If it can be shown that the Klebs-Löffler bacilli found in the throat, without coincident clinical appearances, are harmless, then I am ready to pull down the cards, disinfect, and release the patient when the ordinary clinical evidences of diphtheria are gone; but it seems to me that I am not warranted in doing this while the prevailing belief of the medical profession is against it. I was very much interested in what Dr. Withington said about the person who was in fear of the jail. I think I may have seen that patient, a boy who could not be controlled by his mother at home. He had had, according to bacteriological tests, diphtheria; lived at the North End, and was brought into the health office. I looked in his throat, found a little irritation, but no membrane. Professor Ernst is my authority for calling it diphtheria. I tried to have that boy isolated at home, not in jail, but this could not be secured. I then said, "You must go to the hospital," and I secured his admission there. I presume this is the same case; and, if so, two days must have elapsed after the examination by Professor Ernst before the hospital test was made, which gave time for the bacilli to disappear.

DR. MASON: It seems to be the case that there is clinical diphtheria and also laboratory diphtheria. They usually coincide; sometimes they do not, and then the responsibility must rest either upon the physician in charge, or, if he can shift it on to the health board, it will rest there. The practical difficulty is great. If a man with large interests under his care, who feels perfectly well, accidentally discovers that he has these organisms in his throat, I think we are not in a position to say that the organisms may not be benign; at least, the only way of proving it is by experimentation on animals, and that is practically rarely done. So I do not see how the Board of Health can take the responsibility in such a case of cutting a man off from his business, which may be important, and

subjecting themselves perhaps to great complaint from the individual.

DR. WITHINGTON, being asked if the men on service at the hospital had their mouths constantly watched every day, said he did not think they did. As a matter of curiosity, occasionally it was done, and swabs taken from the mouths of house-officers and from the nurses and articles of wearing apparel; and diphtheria bacilli had been found present in all these situations, but no regular system of watching the throats of the attendants was practised so far as he knew. In his own case he simply happened to find them. He had a trifling indisposition lasting about a day and a half, and after he got well thought he would see what sort of cocci a man had in his throat when he had that kind of throat. A test was made and the bacilli found.

Dr. Withington then read a note bearing on the question from a paper by Dr. Welch of Philadelphia.²

After stating that diphtheria bacilli may be present and multiply in the throat without symptoms or lesions, he further adds, that of 330 persons who gave no history of direct contact with diphtheria, eight were found to have virulent diphtheria bacilli in their throats. Of these, only two subsequently developed diphtheria. Bacilli, indistinguishable morphologically or in cultures from the diphtheria bacilli (including the formation of acid in forty-eight hours in bouillon), but entirely devoid of virulence, were found in 24 others of these 330 persons, in most instances in large numbers. Further the "pseudo-diphtheria" bacillus was found in 27 persons. This latter, while morphologically identical with the true diphtheria bacillus, differs from it in respect both of virulence and of mode of growth in certain cultures. So that it appears from this authority, that of 330 persons 8+24+27, or 54, showed bacilli which were morphologically those of diphtheria; and 32 showed an organism which would have required the experimental test on animals to show whether or not it possessed virulence.

DR. DURGIN: I would like to ask if Dr. Withington or Dr. Mason has seen any case where the Klebs-Löffler bacillus was found in the throat which was in a perfectly healthy state so far as could be seen.

DR. MASON: The throats have been slightly red-dened, no more than many throats are from the use of tobacco or other irritants. I think that the kind of case I referred to may be said to present no positive throat symptoms, and such patients are not infrequently, as I have observed them at the hospital and occasionally outside, in good general health, without fever, and with no symptoms of sickness. It becomes a serious matter to shut them up, placard their houses and subject them to loss.

DR. DURGIN: In a few instances where this question has been asked over telephone, I have advised the physicians to keep the patient isolated for a few days under observation, use gargles freely, take cultures, and if the case cleared up readily not to report it; but I am not certain that I am right in doing so.

DR. MASON: I should think that was a very judicious way of treating it. The public make no distinction between severe and mild cases, and where houses are placarded they might as well have plague or small-pox within, so great is the prevailing fear of contagion.

DR. McCOLLOM: In regard to what Dr. Mason said about not finding the diphtheria bacillus in cases of clinical diphtheria, it seems to me that this is always due to some error in technique in making the cultures. It sometimes happens that when there is a membrane the first culture may be negative, but the second culture almost invariably will be found to contain the characteristic bacilli. In connection with this there is one important practical point which does not seem to be fully appreciated by the profession. This point is the fact that on the surface of the membrane the bacilli frequently die, and therefore if the culture is taken directly from the surface of the membrane in the majority of cases a negative result will be obtained. If, however, on the other hand, the wire is passed through the membrane or along its edges a positive result is almost invariably reached. It is also advisable to take a second culture from the secretions of the mouth without reference to the site of the membrane. The advantage of this mode of procedure has been satisfactorily proved in a great number of cases examined at the laboratory the past year. It has been found that while the culture from the surface of the membrane did not contain bacilli, that from the secretions of the mouth, did. All false membranes in the throat are not necessarily diphtheritic, and in many instances it is impossible to decide upon the nature of this membrane simply by its appearance. This is notably the case in the membrane appearing in the throat during the course of the scarlet fever. Many cases of scarlet fever in which a membrane appears, without a bacteriological examination would be considered to be cases of scarlet fever associated with diphtheria. As a matter of fact, as has been proved by the examination of a large number of cases, the association of these two diseases is not so frequent as has been generally supposed. In a well-marked case of clinical diphtheria it does not seem to me that it is well to wait for the result of the culture before administering antitoxin; but certainly, if we are to arrive at any definite conclusions regarding the value of this agent, a culture should be taken at the time the antitoxin is administered. If the case does well and the culture shows the presence of the bacilli of diphtheria, we certainly have presumptive proof that the remedy is of use. If, on the other hand, the case does badly and the culture shows diphtheria bacilli and streptococci, or streptococci alone, we have no proof that antitoxin is not of advantage in cases of pure diphtheria. It has been shown in so many instances that a streptococcus infection is not affected in any way by antitoxin, that it is important that this fact should be fully appreciated.

In regard to the presence of the bacillus of diphtheria in persons comparatively well, this is so rare that it does not seem to have any important bearing on the subject. It does seem to me, however, that a person with diphtheria bacilli in the secretions of the mouth is a source of danger to the community, and that he is liable to communicate the disease, of a most virulent type, to other susceptible persons.

While it may be a hardship on the individual to isolate him for a few days, yet the well-being of the community demands it. A person with diphtheria bacilli in his throat is in a similar condition, so far as the community is concerned, to a person with a very slight eruption of small-pox. I think very few people would care to have a person with even four or five

² Archives of Pediatrics, February, 1895, p. 135.

small-pox pustules on his face at large in the community. In the case of adults, with diphtheria bacilli in their mouths, the danger of communicating the disease is perhaps not so great as in the case of children; for instance, a child with a mild attack of diphtheria, so mild that it could not be detected without a bacteriological examination goes to school, kisses the other children, uses the same handkerchief, and may in this way — nay, has — communicated diphtheria of the most virulent type to others. If anything is ever to be done in stamping out diphtheria the disease must be attacked in this direction. The importance of recognizing and isolating mild cases of disease is perhaps shown in no better way than by the history of small-pox in Boston for forty years. For the twenty years from 1852 to 1871 when the mild cases were not carefully isolated, the number of deaths was 1,197, with an average population of 187,969; for the twenty years from 1875 to 1894 when every mild case was isolated, the number of deaths was only 56, with an average population of 405,081.

Nobody pretends to say that mistakes may not occur in bacteriological examinations, but the chances of error are very slight.

In regard to the list read by Dr. Withington, it does not seem to me that it is conclusive; other observers have examined a much larger number of throats of perfectly well people and did not find the bacillus of diphtheria, although a bacillus somewhat resembling that of diphtheria was found. In regard to what Dr. Morse said in reference to two or three negative cultures, I think it is absolutely imperative that there should be, at least, two negative cultures from the nose and two from the mouth in a case of diphtheria before a person can be considered well of the disease.

NEW YORK COUNTY MEDICAL ASSOCIATION.

At a meeting of the New York County Medical Association held April 15, 1895, a paper by DR. THOMAS R. SAVAGE was read on

SYMPHYSEOTOMY, WITH REPORT OF A SUCCESSFUL CASE.

The patient upon whom symphyseotomy was performed was a young woman twenty-four years of age, pregnant for the third time. In her first pregnancy the birth was premature, at the fifth month. In her second she went to full term, and craniotomy had to be resorted to. When Dr. Savage was first consulted she had just entered the ninth month of utero-gestation. The child's head presented in the left occipito-anterior position. The measurements taken of the pelvis showed it to be of a decidedly funnel shape, normal in its dimensions at the superior strait, but contracted at the pelvic outlet to a transverse diameter of two and a half inches.

Three weeks before the date of the patient's expected confinement complete dilatation of the os uteri was secured, and she was placed under chloroform. The usual incision for the open method of operating was made, and the pubic joint was found to lie almost three-quarters of an inch from the median line. Dr. Savage expressed his belief that the articulation is commonly found in this situation and quoted Wehle's statistics of 60 cadavers. In only eight cases was the articulation in the middle; in 40 cases it was to the

left, and in 12 cases to the right. The strong sub-pubic ligament was divided, but no separation occurred at the joint. It was then found that the bones were retained in position by the post-pubic fascia; and when this was severed the joint surfaces sprang apart to the extent of one and three-quarter inches. The wound was packed with gauze, no hemorrhage having occurred. The patient's thighs were then placed upon the abdomen (the knees being still held together), and the child easily extracted with the aid of the forceps.

During its passage the separation of the symphysis did not exceed two and a half inches. It was estimated that the ischiatic diameter was increased from one to one and a half inches; and in extracting no compression was necessary. Careful experiments, said Dr. Savage, had demonstrated that during pregnancy the ends of the pubic bones could be separated three inches, or, if necessary, three and a half inches, without endangering the integrity of the sacro-iliac joint. He concluded, therefore, that in his case the same sized fetus could safely have been brought through a considerably narrower pelvic outlet.

The vagina and bladder projected into the wound after the removal of the gauze, and considerable difficulty was experienced in preventing them from being pinched when the bones were brought together. Silk-worm-gut sutures were used to close the wound, and broad bands of rubber adhesive plaster to support the pelvis. Not more than two drachms of blood were lost from the wound during the operation.

Primary union took place, but on account of extensive serous infiltration into the abdominal wall, the upper end of the cicatrix was opened for drainage, and a sinus existed for about four weeks. At the end of four weeks the patient was allowed to get out of bed, and she experienced no difficulty in walking at once, the union at the symphysis being quite firm. At the present time (a little more than three months after the operation) she is able to attend to her household duties as usual. There is slight mobility between the pubic bones, but not enough to cause her any inconvenience.

The child was asphyxiated when born, and it required fully half an hour to satisfactorily establish respiration. This, he said, was quite a common complication of symphyseotomy, the number of cases in which it had been reported being surprisingly large.

DR. WILLIAM T. LUSK said that he heartily congratulated Dr. Savage on the good results attained in his case, and that he would like to call attention to the good work in connection with symphyseotomy that has been done of late in Paris, especially by Pinard. In 48 cases at the Hôpital de Bandelœcque there were four deaths; but out of 44 cases in which the operation was performed under favorable conditions, there was but a single death. These 44 patients were women in good condition who were in the hospital before confinement. Out of four cases, however, in which the patients were sent into the hospital after being long in labor and already suffering from septic infection, no less than three died.

One formidable source of danger in symphyseotomy had always been loss of blood. Dr. Savage had been very fortunate in this respect in his case; but in a second case he might have the most alarming hemorrhage. Another reason why symphyseotomy had been fatal was too much delay in operating. If we could only be sure of our measurements of the pelvis and

of the child's head, there was no good reason why it should not be done early in labor. If these measurements could be accurately ascertained we could tell at once whether the operation was called for or not. At present, however, our measurements were very imperfectly made, and if we found that the pelvis was not extremely contracted we were apt to go on trying to get the head through. In this way valuable time was lost, and both mother and child were exposed to imminent risk. He was happy to state, however, that Farabourg had devised two instruments which, when perfected, it was hoped would enable us to make the pelvic and cephalic measurements with considerable precision.

If we wished to avoid hemorrhage, we should follow the directions laid down by Pinard. With the index finger and thumb the clitoris should be seized, and the suspensory ligament of the latter put upon the stretch and divided with the knife. Through the opening thus made the vessels could be pushed back with the finger placed behind the symphysis. Dr. Lusk then exhibited a metallic guard which was used for retracting the vessels and holding them out of harm's way.

In regard to common position of the joint to the left of the median line, as stated by Dr. Savage, he thought the latter must be mistaken. In hundreds of dissections made in Paris the articulation was found in all in the median line. The reason why asphyxia of the child was so common after symphyseotomy he believed to be because in this country and in Germany no attempt was made by the operator to separate the ends of the pubic bones, which were left to be forced apart by the head of the fetus. It was no wonder, therefore, that asphyxia resulted from the great pressure thus caused. In Paris it was the practice to separate the bones at once by means of an instrument furnished with a graduated arc. The separation should be made precisely equal on both sides, for if one of the bones yielded and the other did not irretrievable injury might be done to the joint. In case one of the bones should not yield the process could be facilitated by abduction of the limb on that side. He thought that Dr. Savage was mistaken in claiming that a separation of three inches, or even three and a half inches, could be safely accomplished. In France and Italy the separation was carried to two and a half inches, but never more.

If, in delivering the child the forceps were applied, it was of the greatest importance to have the cervix fully dilated. As there was no anterior support, it required great care to avoid making a rent in the soft parts. After the birth of the child the strong fibrous tissues should be united by means of silk ligatures. In this way the most perfect union could be secured. At the Hôpital de Bandelocque all the patients could hop on one foot a month after the operation, this exercise being used as a test. In this country, however, there was almost always imperfect union of the symphysis, and it was highly desirable that the method of holding the parts together should be improved.

DR. GEORGE T. HARRISON thought we should be over-hasty in assigning a definite place to symphyseotomy. It was true that it came before us with many promises; but the accumulation of a large number of cases was requisite in order for us to decide positively upon the position which it should hold. One difficulty was that a considerable number of cases had been un-

successfully operated on in which such an operation as symphyseotomy was not indicated. In one instance that he knew of, the patient had been a long time in labor and had a pulse of 150 and other signs of exhaustion. The question of whether the subcutaneous or open method of procedure should be adopted was one of interest. Dr. Grandin in his work objected to the open method on the ground that it subjected the patient to the greater danger of infection and of hemorrhage. But so far as the latter was concerned the method described by Dr. Lusk seemed to accomplish all that could be desired. At present Dr. Harrison was inclined to believe that the operation of symphyseotomy should, as a rule, be confined to maternities, for the reason that so few had the skill and experience required for its proper performance. In case the patient were to suffer from permanent disability from the lack of union in the joint the physician would be liable to a suit for malpractice.

DR. C. A. VON RAMDOHR said in regard to the status of symphyseotomy that as at the present time it is impossible to make accurate measurements of the pelvis and of the fetal head, so that only the most skilful and experienced can make a fair estimate of these diameters, and as the procedure is accompanied with the danger of hemorrhage, injury to the bladder, etc., it should, as a rule, be performed only in maternities, as Dr. Harrison had remarked. It was also an operation for multiparæ, since in women who had never borne children, unless the pelvis was known to be greatly deformed, there was always a chance of delivery by simpler methods.

DR. E. E. TULL said that there was clearly a selection between symphyseotomy and Cæsarean section. The mortality from symphyseotomy appeared to be steadily diminishing, and in Paris 39 successive cases had been reported without a death. Still, it was an operation which required a much more accurate diagnosis than Cæsarean section, and the latter, in selected cases, was only a little more fatal. In symphyseotomy there was always the possibility of non-union, of serious injury to the bladder, etc., and on the whole, it seemed to be an operation which has a very limited field.

DR. EDWARD VAN DEN HOFF said that he could not understand just why we should be so carefully warned against hemorrhage in the performance of symphyseotomy. It was, of course, an operation which should not be attempted except by a competent surgeon well prepared for any emergency that might arise, but in the anatomy of the parts concerned there was nothing which could not with ordinary care be avoided. As to the position of the symphysis, he had very frequently observed that it was not just in the median line, and that it was most often met with a little to the left.

FIFTY YEARS IN THE SAME OFFICE.—D. Colvin, M.D., writes to the *Journal of the American Medical Association* from Clyde, N. Y., that he has been fifty-one years in practice, and has lived for fifty years in the same house. He has also just completed his fiftieth year of married life. His inquiry as to whether any other member of the Association can boast of an equal number of semi-centennial anniversaries of like character, will, we opine, be answered only in the negative.

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A HISTORY OF THE PENNSYLVANIA HOSPITAL.

THE Pennsylvania Hospital, incorporated in 1751 and opened in 1752, was the first permanent, public provision made in this country for the care of persons "distemper'd in Mind and depriv'd of the irrational Faculties," or for the relief of sick and injured inhabitants. This fact alone would lend great interest to its history. But when there is added to that, the association with the foundation and development of this institution of many of Philadelphia's best citizens, and of many of the country's best physicians and surgeons, both in pre- and post-revolutionary days; and when still again we remember the contributions made by the former to the hospital and by the latter through the hospital to the advancement of medical science and medical practice — the interest in the history of such an institution is greatly enhanced to all students of sociology and of medicine. The very handsome volume¹ prepared by Drs. Thomas G. Morton and Frank Woodbury, the publication of which was authorized by the contributors at their annual meeting, May, 1893, and directed by the Board of Managers, does justice to the subject, and lays under obligation those to whom it is sent.

About ten years ago Dr. Morton discovered in an abandoned closet in an out-building of the hospital a large collection of letters, accounts and memoranda, which thirty years previously had been temporarily placed there during repairs to the library, and forgotten. That the valuable historical material therein contained might be rescued from further risk of loss and permanently preserved, it was determined to incorporate it in a publication; with the present result.

The idea of the hospital originated with Dr. Thomas Bond, who, however, found it necessary to secure the co-operation of Benjamin Franklin, the latter thus becoming almost the earliest and certainly one of the

most efficient promoters of the undertaking. Franklin practised with the happiest result the provisional subscription method — a method which continues to work successfully under similar circumstances in our time. The Provincial Assembly, unwilling to appropriate £2,000, was finally induced to do so on condition that the inhabitants of Philadelphia subscribed a similar sum — a result regarded by the objectors as unlikely of realization. In a short time £2,750 was subscribed, and the Assembly made good its pledge. In regard to this consummation Franklin subsequently wrote: "A convenient and handsome building was soon erected, the institution has by constant experience been found useful, and flourishes to this day, and I do not remember any of my political manœuvres, the success of which at the time gave me more pleasure; or, wherein, after thinking of it, I more easily excused myself for having made some use of cunning." A legacy of debts due to and from Dr. Franklin, accruing prior to his prolonged absence from the country on government affairs, the draft of which appears in his will dated July 17, 1788, and showing signs of his wonted shrewd benevolence, did not turn out so well, for it was not thought safe by the Contributors after due consideration to accept it and thus expose themselves to uncertain loss as well as uncertain profit.

One of the objections entertained by members of the Assembly to appropriating funds for the hospital was that the expense of paying physicians and surgeons would eat up the whole of any fund that could be reasonably expected to be raised. This apprehension was allayed by Drs. Lloyd Zachary, Thomas Bond and Phineas Bond "generously offering to attend the hospital gratis for three years!"

The hospital in its earlier days benefited by various miscellaneous sources of revenue. The Assembly at different times granted to the hospital a proportion of various fines and penalties, and on one occasion a handsome award of unclaimed prize money; it also granted to the hospital the fines imposed upon its own members. The Penn family were generous benefactors.

One of the most interesting episodes in the financial history of the hospital is associated with Benjamin West's painting of "Christ Healing the Sick in the Temple." In 1800 the managers wrote to Mr. West asking him for a contribution. In the following year Mr. West sent a favorable answer, and suggested the subject for the painting. In August, 1810, notice was received that the painting might soon be looked for. The exhibition of the picture in England, however, aroused a determined effort among its many admirers to retain it in that country. As a result it was purchased for £3,000 and retained in England as a commencement of a National Gallery. Mr. West immediately began making a copy, which he resolved should excel the original. This painting did not actually reach Philadelphia until October, 1817. It was placed on exhibition in the building erected for it by the hospital. The money received from the opening of the

¹The History of the Pennsylvania Hospital, 1751-1895. Philadelphia: Times Printing House. 1895.

exhibition to its close in 1843 amounted to something more than \$25,000 and netted the hospital as much as was paid in England for the original. This painting is now in the clinical amphitheatre of the Pine Street Hospital.

This history of the Pennsylvania Hospital suggests to a Bostonian the similar subject of the Massachusetts General Hospital. At the beginning of the present century Massachusetts still had no hospital or insane asylum. In 1810, the year of the completion of Mr. West's first picture, a circular letter was issued; in 1811 a charter was obtained, and on July 4, 1818, the corner-stone of the Massachusetts Hospital was laid. The first patient was admitted September 3, 1821. Chronologically, Boston was a follower, *sed longo intervallo*. In other details there was imitation. We note that a mummy from Thebes was presented to the hospital May 4, 1823, it was placed on exhibition, and \$1,500 were netted to the hospital. Here, also, miscellaneous sources of revenue were very acceptable. April 9, 1824, the thanks of the trustees were given to Gorham Parsons, Esq., "for the present of a sow of uncommonly fine breed," the weight of which was stated in the visiting committee's records at 273 pounds.

At the end of the year 1825 there were 28 males and 18 females in the hospital. Those were the days of small things; but our predecessors both in Philadelphia and here built well, and left us, moreover, good examples. Philadelphia led Boston in her hospital, but Boston led Philadelphia in the history of her hospital, Mr. Bowditch's history of the Massachusetts Hospital being privately printed in 1851, and a second edition, prepared by Dr. Geo. E. Ellis with a continuation, published in 1872. An interval of twenty-three years, and this handsome history of the Pennsylvania Hospital may suggest to the trustees the desirability of a miscellaneous source of income, and a preparation of a third edition.

TEMPERANCE TEACHING IN THE PUBLIC SCHOOLS.

A LAW was enacted in Massachusetts in 1885 containing the following provisions:

ACTS OF 1885, CHAPTER 332.

Physiology and hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money, except special schools maintained solely for instruction in particular branches, such as drawing, mechanics, art, and like studies. All acts or parts of acts relating to the qualifications of teachers in the public schools shall apply to the branch of study prescribed in this act.

Similar statutes were enacted in other States. Various methods were devised for the purpose of training the youthful mind in this branch of knowledge. Numerous text-books at once came into use, in which the abuse of alcohol formed a prominent feature, and old text-books were remodelled to conform to

the provisions of this new law. Many of these books contained radical defects, and some of them were unfavorably criticised in the pages of the JOURNAL. It is needless to say that a marked improvement has followed the first attempt in this direction, and that methods of illustration, and forms of instruction which were first employed are now deemed to be useless. The present executive of the Massachusetts Board of Education has treated the question in an intelligent and progressive manner in the following statement:¹

"It is the misfortune sometimes of a noble movement to be indiscreetly pushed. Such advocacy leads to reaction, and the cause suffers. In this way temperance is sometimes wounded in the house of its friends. The very commonness, too, of its presentation tends to take off the edge of that presentation, to permit the introduction of an element of cant, and to make of that which should be vital and effective something mechanical and inoperative. Thus temperance, either in its narrower sense of abjuring that which intoxicates, or in its broader sense of high self-control and self-respect, loses something of caste where it should be one of the royal themes. It is a common experience for genuine believers in temperance and workers for temperance to have moods in which they prefer not to hear the subject discussed, — at least, if the discussion promises to follow certain stereotyped ways.

"And yet the conviction is strong and deep, and among no class of people is it stronger and deeper than among teachers, that the young should be trained to temperance as well as to the other virtues. How shall it be done? The earlier laws say, "By moral measures." The later laws say, "By a scientific presentation of the effects of alcoholic drinks, stimulants and narcotics." Both of these classes of laws still stand; both methods are, therefore, obligatory, and it is the duty of school boards and of teachers to respect them. But when we inquire as to what precise methods shall be employed for the moral or scientific enforcement of temperance, the laws are silent. It is safe to say that, whatever those methods may be, they should be in harmony with such pedagogical principles as command general acceptance. In teaching spelling, for instance, it is not regarded as sound principle to put bad spelling before children to correct. There is great danger that the wrong thing a child is cautioned against may make the deeper impression upon him, and sway him more than the right thing. Of course, since the child goes frequently astray, it becomes the duty of the teacher to look sharply after his blunders, and in this way attention is necessarily focussed for a time on departures from good standards. But this does not affect the main principle that, in the initiative of all instruction, the sound thing, the wholesome thing, the right thing, should be presented first; that the minds of children should be directed upward and not downward; that love of higher things is a stronger motive than fear of baser things, — or if, unfortunately, not

¹ Fifty-eighth report of the Massachusetts Board of Education, 1893-1894, p. 137.

a stronger motive, a better motive for first presentation; that, in short, the true way to keep bad things out of the mind is to put good things into the mind.

“Applying this principle to instruction in temperance, it seems to be psychologically a bad method to make the woes of intemperance the main reliance in an endeavor to save people from them. The sad fact, indeed, remains that innocent children are frequently exposed to the repulsive pictures of intemperance, and that, in certain cases, effective lessons for good can be drawn from such experiences; but, as a general principle, there is more virtue in setting before children the joy of right living, with the scientific basis therefor, than the sorrow of wrong living. It is difficult to draw a satisfactory line between the two policies, but the principle is sufficiently conveyed if we say that, whatever attention it may be necessary to give the diseased, the criminal and the awful in intemperance, these are pictures upon which the curtain, if raised at all, should be quickly let fall. The main policy should still be the higher one of filling the soul with good ideals, and of inspiring the pupil, through the exercise of his will, to strive for their attainment.

“Instruction in temperance should be scientific, it is true; but science for little children must be exceedingly simple,—very much like the science involved in that nature study which is now growing in favor with so many of our schools.

“It must not be overlooked that lessons have a deeper meaning and weight for children if they are given and enforced by teachers whom the children respect and love; so that we finally get back in temperance instruction, as in every other kind of instruction, to the living teacher as the most potent influence for good.”

This is very well put. There is, however, one point which would bear a little more emphasis: that only “in a narrow and limited sense does the word temperance stand for abjuring that which intoxicates, that in its broader and truer sense the word stands for high self-control and self-respect.” It would be a pity that the youthful mind should not be made to understand that even an advocate of “temperance,” in the narrow sense, who abjures alcoholic stimulants may still be a very intemperate person. Let the young learn that temperance means moderation, and above all self-control. The methods suggested by the Massachusetts Board of Education for teaching this are excellent.

THE VITAL STATISTICS OF ENGLAND FOR 1894.

“THE General Abstract of the Marriages, Births and Deaths in England, for 1894,” has been received. This document consists of a brief summary which is made up and presented to Parliament early in the year, to be followed several months later by the registrar-general’s annual report, which contains full details for each registration district. The annual report contains the corrected figures which are usually a lit-

tle larger than those of the general abstract. The difference, however, is usually so slight as not to change the decimal figure more than one-tenth. We may, therefore, consider these advance figures of the general summary as sufficiently correct for ordinary comparisons.

The following are the numbers of marriages, births and deaths in England, for 1894, together with the ratio per 1,000 of the estimated population. The registrar-general’s estimate of the total population of England and Wales for the middle of 1894 was 30,060,763.

	England	Ratio per 1,000 living.				
	1894	1894	1893	1892	1891	1890
Persons married . . .	452,213	15.0	14.7	15.4	15.6	15.5
Births	889,242	29.6	30.8	30.5	31.4	30.2
Deaths	498,515	16.6	19.2	19.0	20.2	19.5
Excess births over deaths	390,727	13.0	11.6	11.5	11.2	10.7

In London, similar statistics for the year 1894, are as follows:

	Ratio per 1,000 living.	
Persons married	73,804	16.97
Births	130,553	30.02
Deaths	75,262	17.31
Excess of births over deaths	55,291	12.71

The following are the quarterly percentages for 1894, for England:

	Marriages.	Births.	Deaths.
First quarter	21.1	25.7	29.7
Second quarter	23.6	24.9	23.8
Third quarter	26.5	24.2	21.5
Fourth quarter	28.8	25.2	25.0
	100.0	100.0	100.0

The births of males were in the ratio of 1,037 males to each 1,000 females. Of the deaths, 51.3 per cent. were males and 48.7 were females. The great diminution in the death-rate from 19.2 in 1893 to 16.7 in 1894, is quite remarkable considering the comparatively uniform rate of the previous years.

MEDICAL NOTES.

YELLOW FEVER AT SANTOS.—Yellow fever in its severest form has again broken out at Santos, the daily mortality being six.

CHOLERA IN CHINA.—Cholera is reported to be very prevalent in Hong Kong, and in Macao, near Canton. The disease is also said to exist in the northern part of the empire, and to have been brought into Japan by the returning troops.

THE ILLINOIS COLLEGE OF PHARMACY.—The Illinois College of Pharmacy at Chicago has added to its faculty two new professors, Mr. Henry Kraemer, and Mr. Jan B. Nagelvoort.

MEDICINE.—A new monthly medical journal has appeared under this title. It is published by George S. Davis at Detroit, Mich., and takes the place of the *American Lancet*, which lately went out of existence. The first number contains several interesting and well illustrated articles.

DR. RUSH AND GENERAL WASHINGTON. — The article on Dr. Rush and General Washington in the *May Atlantic*, which contains several letters from Dr. Rush to John Adams, is an interesting contribution, and deserves the attention of students of history and of the profession to which Dr. Rush belonged. The writer, Mr. Paul Leicester Ford, states that there exists to-day in Philadelphia an autobiography of Dr. Rush in which frequent comparisons are drawn between himself and Washington to the latter's disadvantage. Unfortunately the publication or sight of it is prohibited, or further light might be thrown on the subject of the paper.

RESULTS OF ANTITOXIN TREATMENT. — Schröder (*Münchener med. Woch.*, April 4, 1895), gives the results of the treatment of diphtheria with antitoxin at the Altona Hospital from September 1, 1894 to March 1, 1895. Sixty-three cases were treated with Behring's serum, in all but seven of which the diphtheria bacillus was found. Of the 63 cases, only eight, or 12.69 per cent., died. In order to show that it was not only in the mild cases that the serum had its effects, he is able to report that 31 of the cases required tracheotomy, and that of these only three died, or 9.67 per cent. This is certainly the most successful series of cases ever reported of operations for stenosis of the larynx. The lowest mortality from diphtheria in the Altona Hospital during the last seven years was 29.23 per cent. in 1891; the highest, 37.27 per cent. in 1888.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, May 8, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 37, scarlet fever 36, measles 114, typhoid fever 15.

A FREE HOSPITAL NOT LIABLE. — The Supreme Court of Connecticut has recently decided in a suit brought against the Waterbury Hospital, for alleged maltreatment, that the hospital was not liable, as no fees were paid to the attending physicians, and no charge was made for treatment.

THE FIRST ANNUAL REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE. — This report, a summary of which was given in the *JOURNAL* of January 24th of the present year, has just been received. The four medical schools mentioned in the report as now conferring degrees in medicine are, the Medical Department of Harvard University, the Boston University School of Medicine, the College of Physicians and Surgeons, and the Tufts College Medical School. Two schools, graduates of which were exempted from examination under the Medical Registration Act, have become extinct, namely, the Berkshire Medical College, which was at one time the medical department of Williams College, and the New England Female Medical College, which was incorporated in 1850, and in 1874 by act of the

Legislature was united with the Boston University School of Medicine. The Worcester Medical College is dormant, no instruction having been given since 1859, but its corporate existence is still maintained. The graduates of this college between 1852 and 1859, the period of its activity, were 72 in number. The Medical Department of Clark University does not confer the degree of M.D., but is intended for the study of the purely scientific branches of medicine.

THE OUTBREAK OF TYPHOID FEVER AT STAMFORD. — In the recent severe outbreak of typhoid fever at Stamford, Conn., all the cases have been traced to a foul well in the stabling shed of H. R. Blackham, a retail milk dealer on Greenwich Avenue, in that part of the city known as Waterside, and it is stated that not a single instance of the disease has occurred in a family which was not supplied with milk by this dealer. Blackham is accused by the citizens of having watered his milk, and it is said to be a fact that he sold his milk at a lower rate than other milkmen; but he claims that he merely washed his pails and cans in the water from the well. At all events, Health Officer Hexamer has made a complaint to the Public Prosecutor against him, and he will have to defend himself in the courts on the charge of violating the city ordinance regarding the selling of unwholesome food. Dr. T. Mitchell Prudden, of New York, who made the analysis of the water of the well for the Stamford authorities, says, in his report on it: "The number of living bacteria of various kinds in one cubic centimetre is 69,660. This number of living germs would be reasonable in sewer water or a cesspool, but indicates in a well which is being used a gross contamination. It may be interesting, as a matter of comparison, to know that the Croton water of New York contains 156 germs to one cubic centimetre. This is a fair average number for good surface water; which, as a rule, is liable to contain more bacteria than that of properly constructed wells." The Common Council has ordered this well and a number of others in the immediate neighborhood closed. It is easy to understand how its water could contain typhoid fever germs, in addition to other bacteria, as it has been found to receive the direct drainage of the privies of several small dwellings which stand on rising ground within twenty-five feet of it. Dr. W. P. Northrup, of New York, who was called in consultation to see the infant of Dr. E. J. Mechs, who was one of the sufferers, states that the number of children under two years of age who had well developed cases of typhoid was remarkable. He had the opportunity of personally examining quite a number of them, and he ascertained that they had all been fed upon the Blackham milk.

NEW YORK.

IN MEMORY OF DR. ALFRED L. LOOMIS. — At the semi-monthly meeting of the New York Academy of Medicine held May 2d, the session was devoted to

special memorial exercises in honor of the late Dr. Alfred L. Loomis, who was President of the Academy at the time its handsome and commodious new building was erected, and to whose persevering and energetic personal efforts the successful accomplishment of the great enterprise was largely due. On this occasion the eulogies were pronounced by Dr. Lewis A. Stimson, Professor of Surgery in the University of the City of New York, by the Rev. Dr. Henry M. McCracken, Chancellor of the University, and by Ex-Mayor Abram S. Hewett.

SUPERINTENDENT OF THE NEW AQUARIUM. — Dr. Tarleton H. Bean, of Washington, who is the author, in collaboration with Dr. Goode, of a work on Deep Sea Piscatology, has been appointed superintendent of the new city aquarium at Castle Garden, at a salary of \$3,000 a year. Dr. Bean, who for twenty-one years has been connected with the Fish Commission and the Smithsonian Institution at Washington, is an expert on aquariums, and recently passed the Civil Service examination requisite for his appointment with a very high percentage.

Miscellany.

STATE ROADS IN MASSACHUSETTS.

In a letter on the subject of State roads in Massachusetts, Col. Albert A. Pope gives a summary of the work done by the Highway Commission under the Act of 1894, authorizing the appropriation of \$300,000 to be expended by the Commission in building State Highways. The question of the improvement of our roads is so important to the welfare, and, so far as they facilitate bicycle and equestrian exercise, to the health of the community, that we give a brief summary of the work already done, in the hope that medical men will lend their influence and assistance in furthering legislation to carry on and complete the work already accomplished.

The \$300,000 has been pretty evenly divided among fourteen counties. Before deciding which of the many petitions should be granted, an official visit was paid to each locality, and full information as to the value of the proposed improvement collected. While this method has distributed the work in small sections of roads, thus increasing the expense per mile, the advantage to the people at large will be greater, for the reason that each portion of the State highway constructed is intended to be an object-lesson to those living near by. County commissioners and other officials will watch the work as it progresses, and follow out the same lines in building county and other roads which are not intended for State highways.

Wherever the traffic was of sufficient proportions to warrant it the roads have been broadened. The advantage to owners derived from the construction of the way is, as a rule, so much greater than the injury to them by widening the road that, in a large majority of cases, the town officials have been able to procure releases without any cost.

Thirty-eight sections have been contracted for, and only eight of them are to have a width of eighteen feet of hardened surface, all others being fifteen feet wide. As the primary object is to get length of way, the Commissioners are considering the advisability of building single-track roads in the thinly-settled districts. These would not be over nine feet wide, with here and there portions of double

width as convenient passing points for carriages. A mile and a half of such roads can be built for less than the cost of a mile of fifteen feet width, and the advantage in getting produce to market is not lessened, provided such construction is confined to localities where the average traffic is from six to eight vehicles an hour.

There is need of legislation to regulate the care of, and responsibility for, sidewalks on State highways. These being of purely local advantage should be under the supervision of the town, the wheelways alone being constructed and kept in order by the State.

Progress has been made in the laboratory work on the road-building stones of the State. Experiments of this kind are carried on at Harvard University in the Lawrence Scientific School, whose dean, Prof. N. S. Shaler, is a member of the Highway Commission. The chief aim of these inquiries has been to determine the qualities which constitute fitness for road making. This will be of value to the Commission in enabling them to utilize the road material near at hand, and thus lessen the cost of construction. As this phase of the work progresses maps are made showing the location of all deposits suitable for road building.

A number of towns have already appropriated money to build their streets in the same careful manner as those constructed by the State, and others have purchased road machinery with the intention of extending the work on roads other than State highways.

Careful consideration has been given to the plan of planting shade trees along the highways. With this end in view, experts have been consulted concerning the best varieties for the purpose, and the wayside trees have been examined, so as to determine the species well adapted to the climate and soil of Massachusetts.

THE CAUSE OF PREMATURE BALDNESS.

LESLIE PHILLIPS, M.D., in the April number of the *Birmingham Medical Review*, after showing the fallacy of the argument that the greater frequency of baldness in men than in women is due to lack of ventilation in the head covering, the pressure of the hard head gear interfering with the circulation, etc., offers a more obvious and to all appearances reasonable explanation. He says:

"This marked difference in the two sexes coincides with very marked differences in the conventional treatment of the hair. The association and relation of these two circumstances obviously agree with and are an example of the well-known pathological proposition that disuse leads to atrophy. In men the hair is habitually cut short from childhood, while in women the converse is almost universally true. In boyhood and manhood by clipping or cutting the hair we remove the gentle traction on the bulb and follicle which the natural weight of the hair exercises, and which constitutes the essential and natural stimulus necessary to secure due innervation and vascular supply to the hair-producing structures. Loss of vigor, and finally more or less pronounced atrophy, is the inexorable result, modified or delayed, it may be, by collateral circumstances, predispositions or conditions. In the light of the same consideration, the rationale of the beneficial influence of regular, gentle, and prolonged dressing and brushing of the hair is to be sought for in the stimulating influence of traction upon the circulation within the hair bulb and follicle."

He further calls attention to the fact that the treatment of loss of hair in women is much more successful than in men, and the prognosis is also much better in women. He refers to the tendency of the "eman-

ipated woman" to cut her hair short in terms of condemnation, and points out that in assuming this mannish convention they are taking a retrograde, and not a forward step, and calls attention to the fact that Jeremiah puts cutting off the hair in the same class as circumcision, which, like other mutilations, has been shown to be of the nature of a representative sacrifice.

"In the case of men and emancipated hair-cropped women, we contravene Nature's law; and Nature's revenge is — slowly, perhaps, but none the less surely — atrophy." If the emancipated women can be made to believe that wearing the hair short brings with it the danger of baldness, she will have to be very thoroughly emancipated, or she will give up this method of emphasizing her masculinity.

THERAPEUTIC NOTE.

THE STERILIZATION OF CATGUT. — Johnston¹ recommends a method for sterilization of catgut devised by Krönig, one of the assistants of Zweifel of Leipzig, and used with success by him in the hospitals with which he is connected at Grand Rapids, Mich. It is intended to do away with the necessity of boiling under pressure which obtains when alcohol is used as a medium, owing to its low boiling point. The method, as described by Johnston, is as follows:

"Krönig therefore uses cumol, which is obtained by the distillation of coal tar, and whose boiling point is about 170° C. In this the gut can be boiled one hour without the least injury, providing it is first thoroughly dried by being subjected to dry heat at 70° C. for about two hours. Care must be taken that the temperature of the incubator or drying oven be *slowly* raised to the desired point, else the gut will be rendered brittle; also, that the temperature be not allowed to exceed 100° C., else the integrity of the gut will be injured. When dry, the gut, which has previously been cut into proper lengths and wound into coils of any desired size, is transferred to a glass jar filled with cumol, which is then placed in a sand bath. Care should be taken that the sand surrounds the jar to about two-thirds of the height of the cumol, in order that the latter may become heated as evenly and rapidly as possible. The jar is then covered with a piece of glass or wire netting to prevent the cumol from accidentally catching fire, and a couple of Bunsen burners are placed under the sand bath. When the boiling point of the cumol is approached one of the burners is removed, the other being sufficient to keep the cumol at or near its boiling point. If it boils no harm is done, as the gut when properly dried bears a temperature of 170° C. in cumol without injury, but the consumption of cumol is then unnecessarily great. At the end of one hour the second burner is removed, and when the cumol has cooled the catgut is removed with sterile forceps and placed in a sterile jar filled with petroleum benzine in order to remove the cumol, which is an oily fluid. The gut can remain in the benzine permanently; or be transferred to sterile Petri dishes at the end of three or four hours, and kept dry; or be preserved in absolute alcohol, as is done in the hospitals with which I am connected. Catgut prepared carefully in this manner retains its original qualities and is absorbed in from seven to fourteen days, according to size."

¹ American Journal of Obstetrics, April, 1895.

METEOROLOGICAL RECORD.

For the week ending April 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date.	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S..21	30.17	50	60	39	53	47	50	W.	S.	5	12	C.	C.	.10
M..22	29.98	52	60	43	38	100	69	S.W.	S.W.	16	5	F.	R.	
T..23	29.86	54	64	44	67	40	54	W.	W.	5	25	F.	C.	.02
W..24	30.03	53	66	40	42	49	46	W.	S.W.	9	15	C.	O.	
T..25	29.97	66	80	52	63	54	58	S.W.	S.W.	7	8	O.	C.	.14
F..26	30.21	54	60	47	49	80	64	E.	N.E.	6	8	C.	C.	
S...27	30.28	44	47	41	79	94	86	N.E.	N.E.	12	8	O.	R.	.35
☾	30.07	63	44			61								

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☾ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 27, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	885	342	12.43	21.01	.99	4.07	2.09	
Chicago	1,600,000								
Philadelphia	1,139,457	463	153	11.44	16.72	.88	5.72	.88	
Brooklyn	1,043,000	467	161	12.98	21.12	.88	7.26	2.42	
St. Louis	540,800								
Baltimore	501,107	223	70	9.45	26.55		4.50		
Washington	500,000								
Cincinnati	285,000	140	34	7.44	12.09	4.65			
Cleveland	325,000	97	24	3.69	20.60	1.03			
Pittsburg	325,000	107	42	7.44	12.09	4.65			
Milwaukee	272,000	88	33	13.68	13.68	7.98	2.28		
Nashville	265,000								
Charleston	87,754	49	6	8.16	21.21	4.08			
Portland	65,165	26	9	11.55	7.70	7.70			
Worcester	40,000								
Fall River	100,410	20	11	15.00	35.00		5.00		
Lowell	92,233	35	12	11.44		2.86	5.72		
Cambridge	90,613	39	21	2.66	12.80	2.56			
Lynn	79,607	28	11	10.71	14.28	7.14	3.57		
Springfield	65,123	27	9	18.50	11.11		7.40		
Lawrence	50,284	22	9	9.10	27.30		4.55	4.55	
New Bedford	49,900	20	9	30.00	15.00	5.00	5.00		
Holyoke	47,741	17	10	5.88	11.76				
Brookton	43,348								
Salem	33,939	15	3	6.66	13.33				
Haverhill	33,156	6	1	16.66		16.66			
Malden	32,925	11	5	9.09					
Chelsea	30,209	11	2	18.18	9.09		9.09		
Fitchburg	29,006	16	6	6.00	12.50				
Newton	29,383	7	1		14.28				
Gloucester	28,837	1							
Taunton	27,293								
Waltham	26,954	3	2						
Quincy	22,058	4	0		25.00				
Pittsfield	19,642								
Everett	18,802	3	0	33.33			33.33		
Northampton	16,585	10	2						
Newburyport	16,331	2	0						
Amesbury	14,073	1	1		14.28				
	10,920	1	0						

Deaths reported 2,975; under five years of age 1,025; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 327, acute lung diseases 569, consumption 351, diphtheria and croup 122, diarrheal diseases 44, measles 38, scarlet fever 36, whooping-cough 27, typhoid fever 23, erysipelas 17, cerebro-spinal meningitis 11, malarial fever 9.

From scarlet fever New York 12, Providence 5, Boston and Cleveland 3 each. Philadelphia and Brooklyn 2 each. Washington, Pittsburg, Nashville, Lynn, Somerville, Lawrence, Brockton, Malden and Chelsea 1 each. From whooping-cough New York 17, Philadelphia 4, Brooklyn 3, Cincinnati, Lynn, and Haverhill 1 each. From typhoid fever Philadelphia 10, New York 3, Boston, Pittsburg and Lawrence 2 each; Washington, Nashville, Charleston and Fall River 1 each. From erysipelas Brooklyn 6, Boston 5, New York 3, Philadelphia 2, Wor-

chester 1. From cerebro-spinal meningitis New York 4, Washington, Worcester, Lynn, Somerville, Lawrence, New Bedford and Woburn 1 each. From malarial fever New York 9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 27, 1895, TO MAY 3, 1895.

Leave of absence for two months to take effect upon the conclusion of his examination to determine his fitness for promotion, is granted **FIRST-LIEUT. HENRY D. SNYDER**, Assistant Surgeon United States Army.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 4, 1895.

E. R. STILT, passed assistant surgeon, detached from U. S. S. "Chicago," and to Nicaragua Canal Board inspection of work on the Isthmus.

H. G. BEYER, surgeon, detached from Naval Academy and to the "Monongahela."

L. W. ATLER, passed assistant surgeon, from the New York Hospital and to the "Richmond."

J. M. EDGAR, passed assistant surgeon, from the "Richmond" and to the school ship "Saratoga."

V. C. B. MEANS, passed assistant surgeon, from the "Saratoga" and to the New York Hospital.

ROBERT BOYD, assistant surgeon, from Philadelphia Hospital and to the "Monongahela."

LEWIS MORRIS, assistant surgeon, ordered to the Philadelphia Naval Hospital.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING APRIL 30, 1895.

C. S. FESSENDEN, deputy surgeon, detailed for duty on Board for examination of officers Revenue Cutter Service, April 17, 1895.

J. B. HAMILTON, surgeon, granted leave of absence for twelve days, April 20, 1895.

G. W. STONER, surgeon, detailed to represent service at meeting American Medical Association, April 25, 1895.

F. W. MEAD, surgeon, detailed as Chairman, Board for physical examination officers Revenue Cutter Service, April 17, 1895.

C. E. BANKS, passed assistant surgeon, when relieved to report at Bureau for duty as Chief of Purveying Division, April 24, 1895. Granted leave of absence for fourteen days, April 29, 1895.

L. L. WILLIAMS, passed assistant surgeon, detailed for duty on Board for examination of officers Revenue Cutter Service, April 17, 1895.

W. C. MCINTOSH, passed assistant surgeon, detailed for duty on Board for examination of officers Revenue Cutter Service, April 17, 1895.

J. J. KINYOUN, passed assistant surgeon, detailed to represent service at meeting American Medical Association, April 25, 1895.

R. M. WOODWARD, passed assistant surgeon, to proceed to Ashtabula, Ohio, as inspector, April 19, 1895.

C. P. WERTENBAKER, passed assistant surgeon, granted leave of absence for ten days, April 16, 1895.

B. W. BROWN, passed assistant surgeon, detailed as Recorder, Board for physical examination officers Revenue Cutter Service, April 17, 1895. Granted leave of absence for twenty days, April 23, 1895.

W. J. S. STEWART, assistant surgeon, to rejoin Station at Washington, D. C., April 20, 1895.

EMIL PROCHAZKA, assistant surgeon, to proceed to Evansville, Ind., for temporary duty, April 29, 1895.

A. R. THOMAS, assistant surgeon, granted leave of absence for thirty days, April 19, 1895.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The last regular meeting of the Society, for the season, will be held at the Medical Library, 19 Boylston Place, on Monday evening, May 13, at 8 o'clock.

Dr. Clarence J. Blake will present a paper entitled, "An Infirmary for Harvard College."

Dr. G. W. Fitz: "A College Infirmary from the Standpoint of Official Medical Visitation."

Mr. C. H. Walker: "Hospital Construction."

The following gentlemen have been asked to discuss the topics of the evening: Dr. H. P. Walcott, Dr. J. L. Hildreth, Dr. Walter Ela, Mr. Edmund M. Wheelwright and Mr. A. G. Everett.

JAMES G. MUMFORD, M.D., *Secretary*.

NORFOLK DISTRICT MEDICAL SOCIETY.—The Annual Meeting will be held at the Old Dorchester Club House, Tuesday, May 14th, at 12 M.

The Board of Censors will meet at the same place, at 12.30 P. M.

The Examination of Candidates will take place one week later, on Tuesday, May 21st, at 7 P. M., at the office of the Secretary, 130 Warren Street, Roxbury. The Written Examination will begin at 7 P. M., the oral at 8 P. M.

Order of Business: (1) Reading of Records, (2) Reports of Committees, (3) Report of Treasurer, (4) Election of Officers, (5) Incidental Business.

The Annual Address will be delivered by C. E. Stedman, M.D.

The Secretary particularly requests that all who expect to attend the Annual Meeting, will notify him, so that he may be able to make suitable provision for the dinner.

JAMES C. D. PIGEON, M.D., *Secretary*.

130 Warren Street, Roxbury.

AMERICAN NEUROLOGICAL ASSOCIATION.—The Association will hold its twenty-first annual meeting in Boston on the 5th, 6th and 7th of June, in the rooms of the Society of Natural History, on the corner of Berkeley and Boylston Streets. The programme of the meeting will be published later.

AMERICAN PEDIATRIC SOCIETY.—The Society will hold its Seventh Annual Meeting at the Virginia Hot Springs, May 27, 28, and 29, 1895. The Society will be the guests of the Virginia Hot Springs Company.

SAMUEL S. ADAMS, M.D., *Secretary*.

APPOINTMENT.

FRANKLIN GREENE BALCH, M.D., has been appointed surgeon to out-patients at the Carney Hospital.

RECENT DEATH.

PATRICK HENRY CAMPBELL, M.D., M.M.S.S., died in Dorchester, May 3, 1895, aged thirty years.

BOOKS AND PAMPHLETS RECEIVED.

The Therapeutical Employment of Ferropyrin. By Dr. W. Cubasch, Stansstad. Reprint. 1895.

A Unique Form of Motor Paralysis Due to Cold. By Ezra Clark Rich, M.D., of Ogden City, Utah. Reprint. 1894.

Progress in the Care and Treatment of the Insane during the Half-Century. By Edward Cowles, M.D. Reprint. 1894.

On Rheumatic and Allied Affections of the Pharynx, Larynx and Nose. By W. Freudenthal, M.D., New York. Reprint. 1895.

Malposition of the Testicle; Phimosis; Acute Insanity; Operation; Cure. By Howard Crutcher, M.D., Chicago, Ill. Reprint. 1895.

The Advertiser's Handy Guide for 1895. Compiled and published by the Lyman D. Morse Advertising Agency, 38 Park Row, New York.

Free Hydrochloric Acid; Is its Absence from the Stomach a Sign of Cancer? By Richard B. Faulkner, M.D., Alleghany, Pa. Reprint. 1895.

Subvulsion; A New Pterygium Operation. Ripening of Immature Cataract by Direct Trituration. By Boerne Bettman, M.D., of Chicago. Reprints. 1894-95.

The Relative Age-Occurrence of Colles' Fracture; A Table of Nine Hundred and Eighty-eight Cases. By Charles A. Powers, M.D., of Denver, Col. Reprint. 1895.

Ainbum. The Treatment of Syphilis with Intravenous Injection of Mercuric Chlorid. By Walter Lytle Pyle, A.M., M.D., of Washington, D. C. Reprints. 1895.

The Practical Examination of Railway Employes as to Color-Blindness, Acuteness of Vision and Hearing. A New Wool-Test for the Detection of Color-Blindness. By William Thomson, M.D., Philadelphia. Reprints. 1882-1894.

Ophthalmia Neonatorum. The Importance of Active Treatment of the Naso-Pharynx in the Treatment of Obstructive Disease of the Lachrymal Passages. A Case of Albuminuric Retinitis. By C. A. Veasey, M.D., Philadelphia, Pa. Reprints. 1895.

Original Articles.

CASES ILLUSTRATING THE PLASTIC SURGERY OF THE NOSE AND PALATE: AN OPERATION FOR CLEFT PALATE.¹

BY H. L. SMITH, M.D.,

Assistant Visiting Surgeon of the Boston City Hospital.

The operations here described were performed during the past year at the Oral Hospital connected with the Boston Dental College. They are seven in number, four having been done for various defects of the nose, and three for cleft palate. The nasal cases will be reported quite briefly, that special attention may be called to the method employed for the restoration of the palate.

PROMINENCE OF NASAL BONES FOLLOWING FRACTURE; SKIN FLAP RAISED TO ROOT OF NOSE; PROJECTING BONE CHISELLED OFF; LOOSE CARTILAGE SUTURED; SEPTUM STRAIGHTENED; IMPERCEPTIBLE SCAR; SUGGESTED METHOD OF REMOVING INTRA-NASAL GROWTHS.

The deformity resulting from fracture of the nose may be one of two kinds. Probably the more common form is associated with the well-known sunken bridge, the depression beginning near the root of the

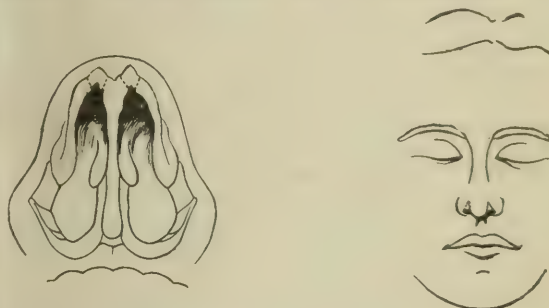


nose, and extending nearly to its tip. With it are associated some of the well-recognized displacements of the bony and cartilaginous septum. Correction of this deformity consists in "setting up" the nasal bones, and in correcting the position of the septum. In the second variety to which the following cases belong, the nasal bones themselves are either not depressed at all, or the depression is upon one side only, or, in addition, during the process of repair, a distinct thickening occurs at the lower end of one or both bones. Generally this apparent projection of the bone is due in large measure to the separation and downward displacement of the lateral cartilages, the lower ends of the bones projecting sharply beneath the skin. The deformity thus produced is often very noticeable, and is exaggerated by all motion of the facial muscles, such as eating or talking. The changes in the septum are similar to those in the first variety.

Two operations, at least, have been used for the relief of this condition. The simplest plan is to cut directly down on the prominent bone, generally by a vertical incision running along the ridge of the nose, then to turn a skin flap to each side, remove the offending tissue and suture the flaps. Roe² has operated by passing a suitably curved knife into the nasal cavity, perforating the mucous membrane, and then

shaving off the required amount of tissue subcutaneously. The only and obvious objection to the first operation is the resulting scar. The second method was not used in the cases reported, because it was thought impracticable to remove in this way the very dense bone which caused the deformity. As the result showed, it would have been very difficult, to say the least, for even with the open incision it was a matter of very great difficulty. Moreover, another advantage offered by the open method was the opportunity which it afforded of correcting the lateral deformity at the same operation.

CASE I. A male nurse, forty years old, received a fracture of the nose when a child. At the present time the lower extremity of the right nasal bone projects strongly against the skin, and is evidently increased in size by the process of repair. All the cartilages of the nose, down to the tip, are abnormally movable, giving very slight support to the organ. The nose, as a whole, is turned toward the right side, and the tip droops. The septal cartilage is dislocated from its ridge into the left nostril, and at the same time its centre bulges in the same direction, so that the left nasal passage is nearly occluded. The operation proposed was explained to the gentleman; and he requested that it be done, although it could not be foreseen just how far the incisions would have to be carried. The plan was to cut across the septum at its middle and to make a second incision in each alar groove, the two skin incisions to be



joined by a third, passing along the mucous membrane just inside the nostril. By this means it was hoped that the skin might be lifted from the entire nose, without extending the lateral cuts beyond the natural crease beside the ala. If this could be done, the resulting scar would be inconspicuous. The plan proved even more feasible than was expected, and the whole nose was thus laid bare. With chisel and cutting-forceps the bone was trimmed down to the level desired. The left lateral cartilage, which was more loosely attached than its fellow, was brought up toward the nasal bone by a suture passed through the fibrous tissue overlying each, and in this manner the lateral deflection of the nose was diminished. Although correction of the septal deflection had not been intended, the incision gave so good access to the nasal cavity that the cartilage was loosened from its new base and pressed toward the median line. No instruments were at hand for carrying out any one of the recognized operations for deviated septum, and permanent relief was not hoped for, yet the nostril was so well opened by the simple procedure, that no further interference has been required; and at the present time, nearly a year later, there appears to be no tendency toward further closure. The skin flap was then replaced, and fine silk sutures applied at the alae and septum. They were removed on the third day, and the line of incision was hardly visible at the end of two weeks. The nose became slightly discolored, and was somewhat swollen for several weeks. The patient had an attack of tonsillitis during the process of repair, but suffered very little discomfort that could be referred to the operation.

CASE II. This case was almost identical with that just reported. The deformity was upon the opposite side, the

¹ Read before the Boston Society for Medical Improvement, March 4, 1895.

² Roe: Medical Record, New York, vol. x1, 1891, p. 57.

septum being deflected into the right nasal cavity, where it was adherent to the right inferior turbinate over a considerable area. It was separated, and replaced in the median line at the time of the operation, and has given no more trouble. Access to the nose was found quite as complete as in the previous case, and the resulting contour of the nasal bridge was perfectly satisfactory. Here, too, the lateral cartilage was drawn up by a suture.

It need hardly be said that the method here described is applicable only in those cases where the nasal bones are prominent rather than depressed, and where it is evident that the contour will be satisfactory if the redundant and projecting tissue is removed. Apparently it could be quite well applied to those cases where the natural shape of the organ, due chiefly to the prominence of the nasal bridge, amounts to a deformity.

The procedure of freeing the alæ in order to obtain a better access to the nasal cavity is an old expedient; but the writer has seen no statement of its use in combination with an incision across the septum, with the complete flaying of the nose, for the purpose of gaining access to the nasal bridge.

The size of the opening into the nostrils which was disclosed in these operations leads to the suggestion that the same incision might be employed for the purpose of gaining access to the nasal space, in the case of large intra-nasal growths. The operations devised for attacking this space from in front, such as Cheever's, Ollier's, Langenbeck's, Dieffenbach's, v. Brun's, etc., require incision through the skin of the nose or cheek, which necessarily leave scars. In most of the operations, and Ollier's notably, the needed room is gained by pressing the cartilaginous and bony septum to one side. In Cheever's operation, as I understand it, this is not necessary, and the latter seems to have the advantage of giving greater entrance space than any other. After lifting up the skin flap in the way here suggested, it is an easy matter to cut through the lateral cartilages, or separate them in the median line, and then it remains only to press to one side the flexible septum in order to gain a passage into the nasal space as large as that given by most of the operations named. If necessary temporary resection of the nasal bones could be employed without lengthening the skin incision.

"PUG NOSE"; INCISION THROUGH SEPTUM; SKIN RAISED FROM TIP OF NOSE; WEDGE OF CARTILAGE REMOVED.

A prominent nasal tip is sometimes repugnant enough to its owner to call for surgical relief. The protuberance has been removed by various methods, and is commonly believed to be made up of fat tissue. In the following case there was no increase of tissue, but an abnormal shape of the cartilage.

CASE III. The patient, a lad of sixteen, had a prominent tip to the nose, the organ projecting forward rather than upward, and the tip feeling rather dense. An incision was made through the middle of the septum and continued through the mucous membrane out to the ala, on each side, but without involving the skin of the ala. This incision was found sufficient to allow the skin to be turned up over the tip of the nose. The prominence was now found to be due entirely to a crumpling of the cartilages, which had been curved upon themselves in some such way as is natural in the cartilages of the ear. There was no extra amount of fatty tissue. The two upward-projecting pieces of cartilage were removed by including them in a wedge-shaped piece which was excised, the edges being

then sutured with fine silk. In this way the somewhat broad tip of the nose was narrowed, and its prominence distinctly diminished. On returning the skin to its place it was found too large for the shrunken organ, and a portion of the septum was removed. A moderate amount of swelling supervened, and it was several weeks before the permanent shape was attained. It was then found that still more tissue might have been sacrificed, although the result is now quite satisfactory to the patient.

FORMATION OF A SEPTUM NASI FROM THE UPPER LIP.

CASE IV. The patient was a girl of thirteen, who at the age of eighteen months had had an ulceration of the septum lasting nearly a year, and resulting in the destruction of the septum and a portion of the tip of the nose, the nostrils thus being thrown into a single cavity for a distance of about two centimetres. The operation was undertaken at the earnest request of a lady who was desirous of adopting the child, in case the deformity could be lessened. I remembered to have seen Prof. C. B. Porter make a nasal bridge for a man, and recalled his remark that the mucous membrane would gradually take on the character of the skin, and the hair of the lip cease to grow. Such an operation was suggested for this case, and was requested. Owing to the undermining of the upper lip it was feared that the blood-supply would not prove sufficient, and in fact for some days there was a doubt whether the flap would survive. No sloughing occurred, however, although on account of this fear it was impossible to cut up as far on the lip as was desired, or to push the new flap deep into the nose. As a consequence several operations have been necessary. The new septum is rapidly losing its reddish color, and is fairly satisfactory. The scar in the lip has a tendency to keloid formation, which thus accentuates the cicatrix, and the latter is not absolutely in the median line, although when the incisions were made great care was taken to have them central. While the friends express themselves as satisfied with the change, I am not entirely pleased with the result, and in another case would prefer before resorting to the knife to try the effect of an artificial contrivance, which could be fastened to some support passed into the nostril.

CLEFT PALATE.

In discussing this subject I shall omit all controversial matters, such as the comparative value of the operation and the appliance, at what age we should interfere, etc., and deal briefly with the following points:

(a) What function impaired by this deformity are we attempting to restore, and what is the cause of its impairment or loss?

(b) What is the surgical problem presented in attempting to restore such function?

(c) How, if at all, do the operations now in use fail to solve this problem?

(a) To the first of these questions there can be but one answer—the restoration of normal voice. In the infant, to be sure, the question of ability to swallow may for a time be uppermost, but that problem, if it is capable of solution, is solved by the nimble tongue, long before operation is thought of. We are led at once to the second part of the inquiry, namely, in what way does the cleft palate prevent natural speech. I do not know that this problem has been worked out with the care it deserves. Without being dogmatic, perhaps the following will be accepted as reasonably accurate: For vocal resonance there should be a roomy oral vault, without obstruction anywhere. For the production of all the open vowels and of all the consonants save the nasals, there must be perfect closure of the post-nasal space. In effect-

ing this closure the velum palati does not simply swing backward and upward, as if hinged at the posterior edge of the palate bones. The process is a modified sphincter action, the chief muscles taking part being on each side the levator palati and the superior constrictor of the pharynx. When the vault of the pharynx is shut off, the velum is so raised that it extends for a little space directly backward on a level with the palate bones, and then curves gradually downward and backward, its posterior surface striking the posterior wall of the pharynx, at some distance from the free edge. In this act the anterior fold of the edge of the velum, made of the palato glossus muscles, does not come in contact with the pharyngeal wall at all, this being left for the part represented by the palatopharyngeus, the uvula projecting between these folds in much the same way as the tonsil projects between the two faucial pillars.

It must be remembered that at the same time that the velum is being lifted upward and backward the pharyngeal space is narrowed, laterally, by this action of the superior constrictor, which muscle also, at least in some cases that I have observed,³ raises the whole pharyngeal wall directly upward, even at the posterior surface, where it is least movable on account of the closeness of the vertebral bodies. Another rather curious feature of this closure is the behavior of the uvula. When the contact of the velum with the posterior wall is light, it stands pointing downward and forward at an angle of about 45°; but when the closure is very firm, instead of being carried bodily back against the wall of the pharynx, as might seem its natural action, the whole uvula disappears from view, being literally telescoped into itself, by the contraction of the zygous uvulæ. Precisely what effect such a movement has we can only conjecture, but it may be conceived that the velum is thus thickened in the median line, at a point where, on account of the presence of the vertebræ, the sphincter action is at a certain disadvantage, and the perfect closure of this space is thus assured.

(b) What, then, is the problem? Obviously it is to restore the continuity of the sphincter, and to replace at the posterior edge of the palate bones a muscular velum voluminous enough to bridge the chasm and form a flexible veil to be lifted by its own muscles up against the posterior pharyngeal wall in the required vaulted shape. Any operation which falls short of this cannot, if our reasoning be true, prove satisfactory. The chief difficulty of the problem lies in the fact that there is a loss of tissue. It would be a small thing to bring together the edges of a sphincter which had been merely separated; but with the loss of even a small portion of the normal velum, the still further decrease resulting from freshening the edges, and the contraction which occurs during the healing process must evidently leave a valve considerably less voluminous and less supple than normal.

(c) The facts just stated explain fully why there has been such a large proportion of failures, so far as restoration of function is concerned, after surgical

operations. Primarily the surgeon has directed his attention toward getting union of the edges, and to accomplish this he soon found it necessary to devise methods of relieving tension. Simple lateral incisions were tried, but were not enough. Dieffenbach,⁴ who devised this lateral incision, afterward proposed chiselling through the palatal process and displaced it inward on each side, an operation which Fergusson⁵ revived many years after and is generally known by the latter's name. The latter gentleman also made incisions through the velum and performed tenotomies of the levators to relieve tension. Langenbeck⁶ in 1861 made public his use of the muco-periosteal flap, and his work has served as the basis for all operations since. Drs. John C. Warren⁷ and Mason Warren⁸ developed the operation in this country in about the same lines as the German workers, though independently. The latter seems to have been the first one to close the cleft with flaps of mucous membrane. Billroth chiselled off and displaced inward the internal pterygoid process, recognizing, more clearly than any one before, the sphincter-like action of the velum, and the necessity for relieving the tenseness which is sure to follow the ordinary operation. Passavant⁹ tried to displace the velum backward, by a lateral incision, but apparently with but partial success, although the idea seems to be more promising than any other for the relief of the nasal speech. Probably it failed in not relieving the tenseness of the velum, so that, although the latter reached farther back toward the posterior wall than before, it could not be arched and approximated closely enough to close the posterior passage.

Other operators have attempted to increase the length of the velum either by plastic operations in the region of the uvula, or by attaching to it behind a flap of mucous membrane dissected from the posterior pharyngeal wall or from other parts in the vicinity. These very ingenious procedures failed of their object from the fact that the new tissue was devoid of muscle, and therefore acted merely as a foreign body, in one case tacked on to the velum, and serving rather as a hindrance to its action. Passavant even sutured the posterior edge of the velum at its centre to the pharyngeal wall, leaving a space on each side. He hoped thus to prevent nasal speech and at the same time to permit the passage of air through the nasal passages. The result was only moderately satisfactory.

None of these many attempts to secure a good voice have proved constantly successful, because none of them secures the formation of a voluminous flexible velum composed of muscular tissue. For the ten years following Langenbeck's work the operation was done very frequently, but during the 70's it fell into well nigh complete disuse, partly owing to the unsatisfactory results of the operation and partly due to the improvements made in the artificial appliances. In the early 80's, largely through the advocacy of J. Wolff, the operation was taken up again, and since then there has been a more or less vigorous competi-

³ This was especially well seen in the case of a woman of about fifty years who had a cleft running forward to the incisor teeth, but which involved the right nostril only. The posterior wall of the pharynx could easily be studied through the cleft, and during all attempts to shut the nasal passage off from the mouth the mucous membrane in the centre of the pharynx was seen to be thrown into folds as it was raised, the amount of this elevation being at times fully a centimetre. No doubt this represents an unnatural degree of motion, due to the changed conditions, although a smaller movement is sometimes present in normal throats.

⁴ Dieffenbach: *Die operative Chirurgie*, Leipzig, 1845, s. 445.

⁵ Fergusson: *Medico-Chirurgical Transactions*, London, 1843, vol. xxviii.

⁶ Langenbeck: *Archiv. f. klin. Chir.*, ii, 1861, s. 205; also same, v, 1863, s. 1.

⁷ J. C. Warren: *American Journal Medical Science*, vol. xi, p. 1, 1828.

⁸ J. Mason Warren: *New England Quarterly Journal Medicine and Surgery*, No. 4, p. 338, 1843; also *American Journal Medical Science*, vol. xxv, p. 95, 1853.

⁹ Passavant: *Archiv. f. klin. Chir.*, 1864, vi, s. 333.

tion between the operators and the makers of the appliances. Wolff's¹⁰ first successes were reached by a combination of operation and artificial velum. His patients were made to use at once an apparatus which could be worn back of the repaired velum, and served to lengthen it and thus insure contact with the posterior wall. With confidence in his ability to make clear sounds thus established, the patient who would otherwise soon become discouraged would continue his efforts and after a time would be able to dispense with the artificial aid. Later Wolff discarded the appliance in most cases having developed his method of instruction so that it became unnecessary.

This fact, that the successes of the last named surgeon, who probably has a better record than any other operator in this line of work, were accomplished by means of such particular attention to methods of training the speech, seems to strike at the root of the whole matter. The operation alone is but one factor in the result. Quite as much depends on the intelligence, patience and willingness of the individual, and the knowledge, on the part of the teacher, of the instruction required. The work done by Herr Gutzmann, the deaf and dumb teacher in Germany, in the instruction of these afflicted with the cleft palate, bears out the above statement. Much can be done, even with no operation, to make an utterly unintelligible speech fairly clear. An operation which succeeds in closing the cleft, but leaves a short, tense, thick velum, which is almost immovable, is of no use whatever, and no one will honestly deny the superiority of the artificial velum to such a condition. On the other hand, I believe there is no one who would not express a preference for the operation if it could accomplish the same ends. There can be no doubt that the whole velum changes its shape in the production of each sound, its surface being thrown into varying curves, as finely drawn as those of the sensitive and expressive face by the muscles and nothing can take the place, in the production of pleasing sounds, of this active and delicate organ of speech.¹¹ Some hint of this constant use of the velum in the production of sounds can be obtained by examining the throat during the pronounciation of some of the open vowels. Although there are few that permit the palate to be seen, since they require the closure of the mouth for their correct production, yet it can easily be proven that the velum is extremely mobile, changing its position and shape with every change in tone, and even with the character of the inspiration and expiration, and that the other muscles of the throat and base of the tongue, especially the superior constrictor, take part in the process. To reproduce this power then in the case of a cleft, no appliance could accomplish as much as a muscular velum, provided only the latter reaches far enough back and is sufficiently under control.

The operation performed by the writer in the cases reported has for its main object the formation of such a velum as is described above. Assuming that the separation is of moderate width, and extends about half way through the bony palate, the operation is done as follows: From the anterior end of the cleft an incision is made running outward and a little backward toward the alveolus, about one-third the distance to the teeth, when the direction of the incision is

changed so that it is carried in a straight line nearly to the posterior extremity of the alveolar process. The point at which this incision ends depends somewhat upon the case, care being taken that there is left sufficient tissue for the blood-supply of the flap. A corresponding incision having been made upon the opposite side, the two flaps thus outlined are dissected up from the bone, the periosteum being included, and are freed completely from the posterior edge of the palate bones behind. This last act is very important, as only thus can the velum be really carried backward and so lengthened. An incision is now made on each side, beginning at the point, near the last molar, where the preceding incisions terminated, and running along in a curve, close to the roots of the teeth as far forward as is necessary or as is deemed safe, sufficient space being left in front for the nourishment of the flaps. This cut will usually terminate near the lateral incisors. There are thus formed two triangular flaps, composed of mucous membrane and periosteum, which are carried into the median line and sutured together. The freshened edges of the velum are now sutured, and the posterior edges of the anterior flaps are sewn to the middle of the newly-formed velum. If deemed best tension can still further be guarded against by extra sutures placed in the velum, at some distance from the edge. In case there seems danger that the palate may be carried too far forward during the process of repair, through contraction of the flaps, it has seemed to the writer quite feasible to pass a suture through the periosteum at the posterior edge of the palate bones, and thus anchor the velum at the desired point. In three cases that have been done by the above method there has been no difficulty whatever in obtaining union throughout by first intention, this satisfactory result being due in large measure, apparently, to the entire lack of tension.

The three cases are, in brief, as follows:

CASE V. E. C., a boy of twelve years, who had a congenital cleft involving the soft palate and about half of the hard palate, was operated upon about four years ago, by the Langenbeck method. The velum is united, but there remains a cleft in the hard palate, about two centimetres long and one centimetre wide. The soft palate is thick, hard and very tense, and can be moved but little during efforts at correct speech, so that the voice is thick and nasal, although many of the defects are clearly due to faulty habits of articulation, and not at all to the condition of the palate. In considering the possibility of remedying the condition the question was asked: What would be done for this condition if it were elsewhere in the body. Obviously the greatest chance for relief lay in making lateral incisions, and bringing in flaps from each side. This was done in the manner described above and as soon as the sutures were in place it could be seen that much had been gained, as the velum instead of being tense was now perfectly lax, and was lying, of its own weight, back against the posterior pharyngeal wall. There has been some forward contraction during the process of healing, but the condition is far better than before, and with the aid of the measures that are now being employed to correct the defective habits of speech it is hoped that he may be given a good enunciation. Among other measures massage of the soft palate is being used to give it flexibility.

The result in this case leads the writer to think that in those cases where union has occurred after suture, but speech has remained unsatisfactory on account of the tenseness and shortness of the velum, much relief might be gained by a second operation of the kind just described. It is in this class of cases that the dentists

¹⁰ J. Wolff: *Archiv. f. Klin. Chir.*, 1886, xxxiii, s. 159.

¹¹ J. Wolff: *Op. cit.*, s. 170.

have felt obliged, at times, to undo the work of the surgeon, by deliberately cutting open the palate again, in order that an appliance may be fitted. The depressing effects of such a procedure must be very great; and if such palates could be lengthened and rendered more flexible, this experience might be avoided and possibly the speech be rendered satisfactory.

CASE VI. The patient was a girl of six, whose cleft included the soft palate and about one-third of the hard palate. The success of the lateral flap in the first case led to its use here also. The result was entirely satisfactory, the velum being carried well back into the pharynx, and the resulting slit in the palate being closed thoroughly by the flaps. About a week after the operation the suture nearest the bone was found to have cut out on one side. The patient was at once etherized and a second suture put in, a little deeper in the flaps. The patient was allowed to go to her home in the country at the expiration of three weeks, still wearing the sutures, and they were not removed until her return, ten weeks after the operation.

The retention of sutures for so long a time would have been looked upon as impossible in the early days of the operation; and one is led to wonder that union was ever obtained, when the first suture was removed on the third or even on the second day, none being left longer than a week. In the first of these three cases the sutures, which were, in all cases, of copper wire, silvered, were not removed until eight weeks after the operation, and in the third case the time was about five weeks. In no case was there the least disturbance that could be attributed to their presence. Probably the time allowed to elapse in these cases is unnecessarily long, and may result in more thickening than is needed, and in the future I shall remove them in from two to three weeks, in case union is assured.

CASE VII. F. R., a boy, sixteen years old, had a cleft running from the uvula half-way through the bony palate. Some years ago he applied at a hospital to have the operation done, but was dissuaded, on the ground that the results were not satisfactory. The operation was identical with the last mentioned, and without incident. He remained in bed but a day or two, and soon left for his home in a suburb, coming into the city once or twice weekly, to report progress. His speech improved from the beginning, but more rapidly after the removal of the sutures, which sometimes slipped around and impeded the action of the tongue.

All the operations were performed in the semi-upright position, and with ether narcosis. No great amount of hemorrhage was met with when the incisions were made, slight pressure easily controlling it. An ordinary mouth-gag was used, the tongue-depressor being sometimes necessary. The wire sutures were pulled through the flaps by means of loops of silk thread attached to long-handled curved needles. Hot salt-solution was used as a mouth-wash, and the patients were encouraged to drink milk and to take as much as possible of other liquid and semi-liquid foods.

The bone left bare by the turning of the flaps became covered with swollen tissue and granulations within a few days, and gave no trouble whatever. A considerable fold of tissue is left in the middle of the roof of the mouth, and just how far this will be flattened down time alone can tell. I do not think it will be of any disadvantage, unless possibly in fitting an artificial denture.

Much might be written about the exercises, vocal and other, which should be employed after the operation. All those acts which require the closing off of

the nasal space from the mouth are the most important. Among these are the blowing out of a candle by a strong puff of the breath; the blowing of a lead pencil or similar object forcibly from the lips, etc. In order to follow the improvement made by these patients, and with the idea that the defects in speech may be made known to the patient himself, and thus corrected more intelligently, I have taken phonographic records of the speech of each one before the operation, and at different times after. The value of this procedure will be determined only after a wider experience.

DISCUSSION.

DR. H. A. BAKER: It is not my purpose to come here to criticise a surgical operation on the palate, as perhaps most practitioners would who make appliances for the same effect. Of course, any one would say if an operation is a success in improving speech there would be no argument on the side of appliance; of course, it would be preferable to any appliance that could be inserted for that purpose. I know that this operation was done many years ago by eminent surgeons, and, of course, the cases that I have seen have been cases that have not been a success, because if they had been they would not have come to me; but I do not propose to discuss the merits or demerits of an operation, because many of you here are eminent surgeons, and operations may have come up that I am not familiar with. I saw three patients Dr. Smith operated on, and in one of them it seemed that there was a chance of a great deal of improvement. I do not know but that everything was done that could be done in that case. It was a child six years old. The child had habits to overcome aside from the deformity, and most of those cases do have habits in their speech, that is, hitching in speech. The idea is, that in imitating speech they imitate as well as they can, and in doing so they do not use their muscles correctly, because they have not the organs to use correctly; and in putting in an appliance or performing an operation, they have a great deal to learn and overcome to correct that speech. Whether that can be done is a question. As I said before, many cases have come to me for correction that have been operated on. Some of them have been a surgical success, that is, there would be an entire closure of the palate. In those cases we have to cut them open, and put in a certain appliance. Of course, if a surgeon operates and has not made a success of it, the patient is worse off than if no operation had been done. They must go through almost as severe an operation to undo the former operation as to have had it done in the first place.

As far as appliances being a success, there is no further question about that. That has been demonstrated time and time again; but, of course, an appliance is an objection. They have always got to wear an appliance if they once have one; and at the same time I find they are pretty willing to if they get any benefit from it.

SOME OF THE SIMPLER TESTS FOR DETECTING ERRORS OF REFRACTION AND INSUFFICIENCIES OF THE OCULAR MUSCLES.¹

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THE importance of correcting ocular errors for the relief of headache and various other functional neuroses has been emphasized by many writers. In the last ten years numerous articles have been published, the titles of a few of which illustrate the direction in which the subject has been investigated.²

These articles treat of the relation of ocular defects

¹ Read before the Warren Club, Boston, February 5, 1895.

² See list at end of the article.

to headache, and the numerous cases reported prove conclusively that in many instances headache, vertigo, neuralgia and other nervous symptoms are due to some defect of the eyes.

As regards the percentage of headaches due to this cause, it is difficult to make even an approximate estimate; some of the writers referred to consider that eye strain produces more headaches than all other causes combined, and even the most conservative agree that it produces more than any other one cause.

In view of all that has been said and written on this subject, it might be expected that one of the first steps taken by a physician when meeting with these symptoms would be to examine the eyes, to determine whether there were any error of refraction or lack of balance of the ocular muscles. That such a course is the exception, and that an examination of the ocular condition, if undertaken at all, is often the last resort, may be due to the following reasons:

(1) There may be nothing to direct the physician's attention to the eyes. In many of these cases the sight is normal, or nearly so; the patient sees clearly, the eyes themselves may occasion him no discomfort; and he usually attributes his symptoms to some other cause, as to indigestion or overwork, for example.

The following case is an illustration. Dr. R. B., a dentist, thirty-eight years old, consulted me November 1, 1894, with this history: He has practised dentistry fifteen years, and has always been able to work and use his eyes with perfect comfort. On Sundays and holidays, however, when he does no work, he almost invariably suffers with headache, which becomes more severe as the day advances, and is often accompanied by nausea and vomiting. Otherwise, he has always been in good health. Recently he was examined by his brother, a physician, who found nothing to account for these attacks. The eyes were tested, and hypermetropia of 1.25 D. was discovered, for which correcting glasses were prescribed, to be worn constantly. Two months later he returned and reported that since wearing the glasses he had been entirely free from the headache and nausea with which he formerly suffered nearly every week.

(2) Should the physician suspect the existence of some ocular defect, in most cases he possesses neither the apparatus, nor sufficient familiarity with the methods employed, for making a positive diagnosis. The exhaustive articles on refraction in the text-books are more or less confusing, and to carry out their suggestions would necessitate procuring an equipment wholly incommensurate with the needs of the general practitioner.

Dr. Valk, one of the writers referred to at the outset, has appreciated the need of a ready test, adapted to the use of physicians in examining the eyes for purposes of diagnosis. He describes at length a method which, he claims, will meet every requirement. "Retinoscopy," he says, "is the name of this simple test." Referring to this, Dr. Swan Burnett, of Washington, remarks: "It (retinoscopy) has been called a simple test, and so it is; but, simple as it is, it cannot be mastered without painstaking care as to the smaller details, and considerable experience is necessary before it can be executed with the rapidity and certainty of which it is capable . . . and which are among its recommendations to the practitioner."

A few quotations from a recent article³ by Dr.

Edward Jackson, of Philadelphia, which furnishes an excellent description of retinoscopy, give an idea of some of the difficulties encountered in applying this test. "Retinoscopy . . . is a method of determining the refraction of the eye by observing the direction in which the light appears to move across the pupil, when the mirror by which light is thrown upon the eye in the dark room is rotated." After considering its use in myopia, hypermetropia and emmetropia, he describes its application in regular astigmatism: "The principles involved and the methods to be employed are essentially the same as in myopia or hypermetropia; but the refraction has to be determined in the principal meridians, instead of in any meridian indifferently, as it can be where all meridians are alike. . . . The direction of either of these principal meridians is revealed by the area of light in the pupil assuming the form of a more or less distinct band of light, extending across the pupil in the direction of this meridian, when its point of reversal is approached. When the band-like appearance is most noticeable, it is easy to cause its apparent movement from side to side; but it is more difficult to distinguish the movement in the direction of the length of the band. Still, this latter movement is the one especially to be watched and its reversal point to be determined."

The chief objections to retinoscopy as a test to be used by physicians generally for detecting ocular errors are—

(1) Its successful employment requires considerable experience.

(2) In the majority of cases the amount of error is small; and it is in these cases that retinoscopy is least reliable, even in the hands of an expert.

As retinoscopy presents these difficulties, and inasmuch as no simpler method is suggested in the article referred to, I will attempt to describe briefly some tests, which, without previous experience on the part of the physician, may be applied in practice for determining the existence of such ocular errors as may give rise to the nervous symptoms before mentioned.

The errors of refraction are, (a) astigmatism, (b) hypermetropia, (c) myopia.

The muscular insufficiencies are, (d) exophoria,⁴ (e) esophoria, (f) hyperphoria.

The necessary apparatus⁵ consists of test letters and an "astigmatic chart," two convex trial lenses (.50 D. and .75 D.), a candle, and a glass rod about the size of a pencil.

The test letters are placed twenty feet from the patient, and on a level with his eyes. The eyes should be examined *separately*, one being covered while the other is tested. If the card is in a good light and the eye is normal, the patient will see each letter distinctly. Ability to do this, however, does not exclude hypermetropia.

Test for Hypermetropia.—With the test card arranged as before, the eye to be examined is directed at the letters, and the trial lens .50 D. is held before it. If the patient sees the letters as distinctly with the lens as without it, there is hypermetropia of at

³ This classification of muscular insufficiencies is of comparatively recent date. The terms are defined by their originator, Dr. G. T. Stevens, as follows: "Esophoria, a tending of the visual lines inward; Exophoria, a tending of the visual lines outward; Hyperphoria, a tendency of the right or left visual line above its fellow." *Funct. Nerv. Dis.*, p. 192, New York, 1887, G. T. Stevens, M.D., Ph.D.

⁵ This apparatus may be obtained from any optician. At my suggestion, Messrs Miller and Welch, 38 West Street, have prepared some pocket cases containing the trial lenses and a suitable glass rod.

³ De Schweinitz: *Diseases of the Eye*, Philadelphia, 1893.

least .50 D. The .75 D. lens is then substituted for the .50 D. If the letters are still seen distinctly, the hypermetropia is at least .75 D.

These tests simply demonstrate the existence of hypermetropia. There may be latent hypermetropia which is not shown by these tests; but if the patient can read the letters through either trial lens, he is hypermetropic to that extent, at least.

Test for Astigmatism.—The astigmatic chart is substituted for the test letters and the eyes are examined separately, as before. The patient is directed to observe carefully the radiating lines on the chart. If the eye is normal, the lines all appear equally clear and distinct, and of a uniform shade. But if some appear black and distinct, while others are more or less blurred and indistinct, the eye is astigmatic. The other eye is then tested in the same manner.



Fig.1.

Fig.2.

Fig.3.

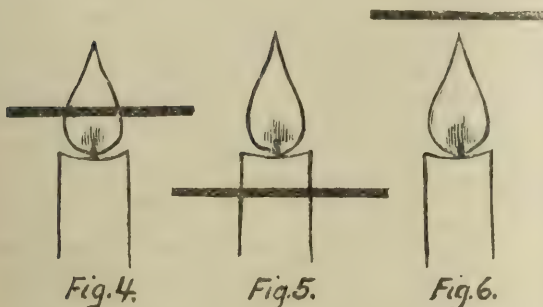


Fig.4.

Fig.5.

Fig.6.

It may happen that none of the lines are seen distinctly at the given distance, twenty feet. In this case the card is gradually brought nearer to the patient until some of the lines are seen distinctly. If now some of the lines appear to be more distinct than others, the eye is astigmatic; but in this case there is either some additional error, or possibly some disease of the eye.

(Tests for myopia have been omitted for the following reasons: In this country simple myopia is much less prevalent than hypermetropia and astigmatism; patients who are myopic are usually aware that their eyesight is defective; and finally, myopia is far less productive of nervous symptoms than are hypermetropia and astigmatism.)

Tests for Muscular Insufficiencies (Maddox).—In these tests better results will be obtained if the room is partially darkened.

To test first the balance of the lateral muscles. A lighted candle is placed twenty feet from the patient, and on a level with his eyes. The patient's left eye being covered, he looks at the candle with his right eye. The glass rod is now held horizontally before this eye, whereupon a vertical line of light is seen in place of the candle flame. While the rod is held in this position before the right eye, the left eye is uncovered. The left eye now sees the candle flame, the right eye sees the line of light. If the line of light passes directly through the flame (Fig. 1), the lateral muscles balance. If the line is to the right of the flame, there is esophoria (Fig. 2). If the line is to the left of the flame, there is exophoria (Fig. 3).

To test for vertical deviation. The left eye is covered, and the rod is held vertically before the right eye. A horizontal line of light is now seen in place of the candle flame. The left eye is now uncovered and sees the flame, while the right eye sees the line of light. If there is no vertical deviation, the line of light will pass directly across the flame (Fig. 4). If the line is below the flame, there is right hyperphoria (Fig. 5). If the line is above the flame, there is left hyperphoria (Fig. 6).

In these tests of the muscular equilibrium, the degree of error is measured by the distance between the line of light and the candle flame. In any case it should be borne in mind, as Dr. DeSchweinitz remarks, that "an absolute balance of the external eye muscles is quite as rare as emmetropia, and hence small errors of the lateral muscles are often unimportant."

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Clinical Department.

A CASE OF LARYNGEAL DIPHTHERIA TREATED BY ANTITOXIN.¹

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THE following case is of interest for three reasons, namely: the extent to which disease had progressed before the antitoxin treatment was begun, the large amount of antitoxin which was required before the symptoms began to subside, and the severity of the after-effects. To these may be added the fourth, the unfavorable nature of the patient's surroundings.

On March 13th I was requested by Dr. F. R. Tower to operate upon a case of laryngeal stenosis occurring in his practice as dispensary physician. The child had been first seen by Dr. Tower on March 7th, the parents informing him that he had had a cough for two or three days. There was no sore throat, and the child was thought to be suffering from a tracheitis or bronchitis of the larger bronchi. About March 11th, a membranous deposit had formed upon the tonsils, and a diagnosis of membranous croup was made. On March 12th, the child was restless and the respiration somewhat obstructed, retraction of the suprasternal notch being marked. On March 13th the nurse found the child sitting up in bed, with marked cyanosis, and obstruction to respiration. At 11.30 A. M., I found a boy three years old, well developed and nourished, in a critical condition from obstruction of the respiration. Intubation was performed with marked relief of dyspnea. The tonsils were found to be covered with discrete patches of a not very thick white membrane. On the right side of the neck were enlarged and softened glands, evidently tubercular, a sinus discharging a small amount of pus, and several scars.

At 3.50 P. M. 15 c. c. of Gibier's antitoxin (marked 1-80,000) was injected under the skin of the thigh. The temperature at that time was 102.4°, and the pulse 130. At 4 A. M. of March 14th, 10 c. c. of antitoxin were given. At 10 A. M. a culture was taken from the pharynx, which showed the presence of the bacilli of diphtheria. There was now but little obstruction to the respiration, but as the child had been able to take but little nourishment and stimulant

during the night, rectal alimentation was begun. As the temperature at 4 P. M. was still high (102°) and there was no apparent change in the general or local condition, 25 c. c. of antitoxin were administered. During the night the temperature fell to 99.2°, but rose rapidly during the following morning till 10 A. M., when it was 103.4°. The child's general condition, however, was good. Considerable milk and whiskey was taken by mouth during the early morning; and on the 15th the child slept nearly all day, breathing quietly. The tube was coughed up at 3.45 P. M., and it was not necessary to replace it. During the night, however, the respiration gradually became obstructed, and the next morning, the 16th, it became necessary to replace the tube, as the child was becoming exhausted by its efforts to breathe. The tonsils and palate were swollen and red, but the membrane had nearly disappeared, only a few small shreds still remaining adherent. The severe dyspnea, however, showed that either fresh membrane had formed in the trachea, or that it had not become detached there, as it had in the pharynx. At 3.45 P. M., 25 c. c. of antitoxin were given. The child was able to take milk and whiskey fairly well in spite of the presence of the tube, so that it was possible to discontinue the nutrient enemata.

On March 17th the child had a good day, but as the temperature still remained high (101.5°), it was thought best to give another dose of antitoxin (25 c. c.). At 6 P. M. the tube was coughed up, and the child was thereafter able to do without it.

During the 18th and morning of the 19th the temperature gradually fell; but on the forenoon of the 19th an eruption resembling measles appeared on the face, neck and arms, with intense itching. The child refused to taste nourishment, and was very restless. The itching was relieved by a wash of carbolic acid (1-100).

On the 20th there was noted swelling and tenderness of the cervical lymphatic glands, and the skin about the sinus in the neck was red and swollen. The rash disappeared, except where the child scratched himself, bringing out urticaria-like wheals.

On March 21st the rash appeared in blotches, most marked on the face and legs. The temperature remained above 102°, and no nourishment was taken by the mouth.

On March 22d, the appetite returned in some degree; the rash was still present on this and the following day.

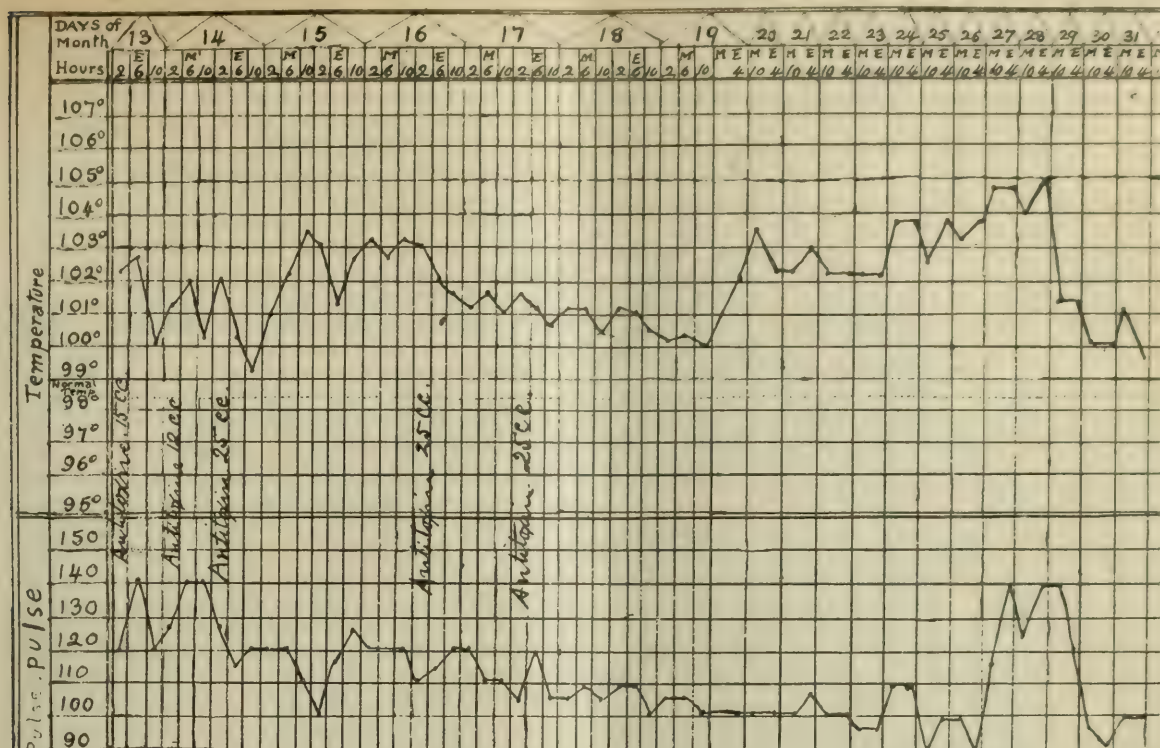
On March 24th the rash had nearly disappeared, but the child's temperature was still higher (over 103°); very little nourishment was taken, and the nutrient enemata were not retained.

On the 26th, the other conditions remaining about the same, the child was noticed to be passing very little urine. Examination of a specimen by Dr. Greene showed it to be free from albumin. Sweet spirits of nitre were given one-half drachm every four hours.

On March 27th the morning and evening temperatures were 104.8°, but the child took a little more milk.

On the 27th the evening temperature reached 105°, and the patient was covered all over with a rash, confluent over the body, and looking like scarlet fever. On the arms and face, however, the eruption was macular. Very little milk was taken, and the child was very weak, restless and uncomfortable.

¹ Read before the Clinical Section of the Suffolk District Medical Society, April 17, 1895.



On the following day the temperature had fallen to 101.2°. On the 30th and 31st the temperature continued to fall, and the child became fairly convalescent, taking plenty of milk and improving in every respect. A culture taken on the 26th showed that bacilli of diphtheria were still present in the throat.

This case, which cannot be considered to have been a hopeful one for the antitoxin treatment, which was begun on the eighth day of the disease, shows in the first place the necessity of continuing the administration of antitoxin until definite improvement is shown. After the child had received fifty grammes of the remedy and shown some temporary improvement, it became necessary to reinsert the tube and continue the administration of antitoxin. The appearance of the child at the time of this relapse was so bad as to seem to me almost hopeless.

The severity of the after-effects also deserves notice. In the reported cases where a rash has followed the antitoxin treatment three forms have been noted: (1) an urticarial form, which may be recurrent, and which was so in this case; (2) an erythematous rash resembling measles; (3) a confluent erythema, resembling scarlet fever. I have been able to find no reported instances in which all three forms occurred in the same case. In this case, however, all these forms certainly occurred at different periods. The child was so sick during these secondary symptoms, that if it had not been for the fact that no deaths had been reported from this cause, I should have almost despaired of his recovery.

The distinct period of incubation from five to seventeen days, which has always been noted between the administration of the serum and the appearance of these secondary symptoms, has led to the deduction as stated by Dr. Cyrus Edson,³ "that the eruption is

not due primarily and directly to anything contained in the serum, but to the action of the serum on the system of the patient, or perhaps to the development in the blood of the patient of some pathogenic substance through this action." Whether normal horse-serum, or serum from certain particular horses will produce these symptoms remains to be determined.

The recovery of this child, aside from the purely medical side of the treatment, is certainly due in a large measure to the untiring and enthusiastic devotion of the district nurse, Miss King, who was indefatigable in her attention to the case, and whose careful records form a larger part of the material for this report. We may form an estimate of the work required when we consider the length of time during which the child had to be supported by three-hourly nutrient enematas. The Instructive District Nursing Association also furnished a night nurse during the period in which the intubation tube was required; as they have done for me in previous cases where it was necessary to operate for laryngeal obstruction in district work. The faithful work done by the nurses of this association, and their readiness, in cases requiring special care, to undertake special work in addition to their already heavy duties, cannot be too highly praised.

THE late David S. Ingalls, of Springville, New York, left an estate valued at over \$600,000, most of which was bequeathed to charitable institutions. The will was hotly contested by two surviving sisters and a niece. One of the sisters was alleged to be of unsound mind. The contest has been "on" since early in 1893. The hospitals and other charitable legatees will receive about two-thirds of the estate, the contesting relations and counsel will get one-third, nearly. — *Journal of the American Medical Association.*

³ New York Medical Record, April 6, 1895.

REPORT OF FOUR CASES OF PUERPERAL ECLAMPSIA OCCURRING IN THE BOSTON CITY HOSPITAL.¹

BY S. E. COURTNEY, M.D.

Of the four cases reported in this paper, two occurred during my service at the Boston City Hospital, and two during the term of the succeeding house-officer. I am indebted to Dr. C. M. Green, in whose service these cases occurred, for permission to report them. All four of the patients were brought to the hospital in a comatose or semi-comatose condition, therefore the previous history in some instances is not as accurate as I wish it were.

Before reporting the cases, I deem it necessary to say only a few words upon puerperal eclampsia. Any one who has kept up with the medical journals of the last few years knows how extensively and comprehensively this subject has been discussed. Therefore I shall not enter upon the causes and treatment of eclampsia, but simply refer to the theories and to some of its signs.

The phrase, "puerperal eclampsia" is understood by all of us to mean a disease characterized by convulsions which may or may not be followed by complete insensibility. As a rule, these convulsions come on suddenly and unexpectedly, and may recur at regular intervals. There are various theories advanced as to the cause of puerperal convulsions at any stage of gestation; such as acute Bright's disease, chronic Bright's disease, disturbance of the vaso-motor system, and more recently, toxins produced by special microbes acting upon the nervous system already prepared by the gravid state.

We know there are many instances in which eclampsia has occurred when there was no trace of albumin in the urine, either before or after convulsions; and in many cases it has been found *after*, but not before convulsions. Such cases are usually classed under nervous symptoms. In the chronic Bright's disease existing before pregnancy, it is not necessary to give an unfavorable prognosis, as many or, in fact, most all of these patients pass through the confinement without convulsions.

Almost all authorities consider albuminuria a grave condition and significant of danger, especially should this condition be accompanied by edema, nausea, vomiting, headache or nervous symptoms, and a knowledge of these signs is absolutely necessary in the care of patients during the pregnant state.

The chief interest in the cases I report, lies in the fact that upon the two who died, we were able to have an autopsy, and in the case of one of the two patients who recovered, a pathological examination of the placenta. In one of the cases the urine was examined for urea each day. This examination proved a most interesting record of the return of the urine to its normal state.

CASE I. M., primipara, single, about twenty-two years of age, was sent to the hospital October 31, 1893, with the following history:

"Three days ago patient began to complain of general pains, severe headache, followed by nausea and vomiting; but she kept up and about the house. The night before entrance, patient went to bed early, complaining of feeling sick. At 3 A. M., friends heard groans in patient's room. The door was broken

open, and she was found on the floor beside the bed in a fit, frothing at the mouth, and rolling her eyes. Medical aid was summoned, diagnosis made of epilepsy, for which some pills were ordered."

Six hours later patient was sent to the hospital. She had several convulsions at her room, and three on the way to the hospital. When the patient entered the ward she was in a comatose condition, breathing stertorously; the pulse rapid and weak; râles could be heard all over the chest. Some edema of limbs. Examination showed patient to be about seven months pregnant. Two ounces of thick, smoky urine were drawn, which contained albumin .25 per cent., urea 1.21 per cent.; the sediment contained many fatty, granular and hyaline casts, some abnormal blood.

Dr. Green was informed of the patient's condition, and in less than an hour after entering the hospital, she was delivered by internal podalic version of a living child, which died a few hours later. The bowels moved freely during the operation. Patient was put in a hot-air bath; one-eighth of a grain of pilocarpine was given by subcutaneous injection and repeated in three hours; two drops of croton oil was given on the tongue. In a very short time the skin was acting freely. Patient rallied sufficiently to take brandy and milk by the mouth. Cream of tartar, water and acetate of potash were given *ad libitum*. Two hours after delivery the hot-air bath was discontinued, patient being conscious. Patient had six convulsions after entering the hospital; four before delivery, and two after delivery, ether being administered each time. Twelve hours after delivery the patient had a severe convulsion, out of which she never rallied.

The autopsy by Dr. Councilman showed fatty degeneration of the kidneys and liver, and edema of the lungs.

CASE II. R., married, twenty-two years of age, primipara entered the hospital at 7.40 P. M., December 31, 1893. Friends said patient had ten convulsions before she came to the hospital. Patient in a semi-comatose condition. Examination showed she was about seven and one-half months pregnant. There was some edema of the feet and face. Urine was scanty, smoky, and contained one-fourth per cent. of albumin. She was at once put in hot packs. Thirty grains each of chloral and bromide were given by the mouth, one-eighth of a grain of pilocarpine was given subcutaneously. An enema of suds and glycerine was given. At 9.15, labor pains having set in, Dr. Green completed dilatation, and delivered the patient by internal podalic version, of a still-born child. Patient was put in hot packs, given one-eighth of a grain of pilocarpine subcutaneously, and thirty grains each of chloral and bromide per rectum. Under the above treatment the skin and bowels acted freely. Patient had three convulsions before delivery and six after delivery, the last one at five in the morning. I remained with her all night, repeating the hot packs and administering ether when there were signs of convulsions. Patient was discharged well January 8th.

Examination of placenta by Dr. Councilman: The placenta is small; the surface covered with whitish, elevated nodules; many of these composed of necrotic tissue with a cavity containing more or less gelatinous-looking bloody fluid. Other areas present the appearance of hemorrhagic infarction.

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, February 27, 1896.

Diagnosis: Anemic and hemorrhagic infarction of the placenta.

It is interesting to notice in this case, the amount of urea which was estimated each day.

At entrance the urine was :

1. Smoky, specific gravity	1.030,	albumin $\frac{1}{2}$,	urea	1.39
2.	"	1.030 $\frac{1}{2}$,	"	$\frac{1}{2}$, " 1.71
3.	"	1.025,	"	trace, " 2.02
4.	"	1.023,	"	trace, " 1.51
5.	"	1.023,	"	trace, " 2.30
6.	"	1.028,	"	trace, " 2.50
Day of discharge				" 2.80

CASE III. C., seventh pregnancy, thirty-eight years of age, married, eight months pregnant, entered the hospital July 31, 1894. The following history was obtained :

Fifteen days ago noticed feet, hands and face were swelling. The day before entrance she began to vomit, and had headache with pain in epigastrium. She said she vomited, off and on, for two hours. At 5 A. M. on the morning of entrance the first convulsion occurred. From that time until the time of entrance to hospital (11.30), she had had eleven convulsions. While being carried from the ambulance to the ward two others occurred.

The house-officer made a hurried examination, and at once put patient into hot packs, administering chloral and bromide, thirty grains each, per rectum. She was also given one-sixth of a grain of pilocarpine subcutaneously, a drop of croton oil on the tongue. Ether was administered during each convulsion, or at the signs of an approach of a convulsion. Patient not wholly unconscious at any time. After six convulsions she was found to be in labor, with the os fully dilated. The house-officer delivered the patient by internal podalic version of a dead child. The woman was replaced in the hot packs, and one-eighth of a grain of pilocarpine given subcutaneously. The bowels moved freely before the operation. Cream of tartar water and acetate of potash were given *ad libitum*. There was no convulsion after delivery, though it was found necessary to administer ether for the patient's restlessness.

Discharged well on December 25th. The urine on entrance showed one per cent. albumin, .76 urea, hyaline and granular casts, but no fat or blood.

CASE IV. She entered hospital December 9, 1893, in a comatose condition; and no previous history could be obtained from friends. Examination showed edema of feet and some edema of face. The urine was small in amount and smoky; albumin, two and one-half per cent., urea 1.45; specific gravity 1.033; hyaline, granular and fatty casts, with abnormal blood. She had one convulsion after entering the hospital.

Dr. Green at once delivered the patient by manual dilatation and internal podalic version. She bled very freely from a marginal placenta previa. The child was dead. The woman was at once placed in hot packs. Stimulants were administered subcutaneously; two drops of croton oil placed upon the tongue, chloral and bromide administered per rectum; but in spite of all efforts the patient died seven hours later.

Autopsy showed severe laceration of the cervix with hemorrhage into broad ligament, splenic tumor, edema of lungs, double pleural effusion, pericardial effusion, edema of glottis, and fatty degeneration of liver and kidneys.

Bacteriological examination showed in the spleen, kidneys and lungs colonies of pneumococci.

Microscopic examination of a section of frozen kidney showed very little fat in the epithelium. Hyaline thrombi in the vessels of the glomeruli.

A CASE OF ECLAMPSIA; DEATH.¹

BY C. H. HARE, M.D.

BELIEVING that bad results are fully as instructive to study as are successes, this case is presented for your judgment. With the fatal result to look back upon I can only wish that I had induced labor. Your severest criticism and instruction are invited.

Mrs. A., forty-three years old, came from a neurotic family. She had been, together with two sisters, a nervous sufferer all her life. Her own statement was that she was never well, and was rather worse after marriage. Twenty months after her first child, she was operated upon for lacerated cervix, and after that time wore a support for retroversion almost continuously. In February, 1893, she was curetted for an hyperplastic endometritis. She was married when twenty-one years old. There were no abortions.

The first child was born four years after marriage, and a second three years later. During the latter part of both these pregnancies there was marked swelling of all the extremities and of the face. Both pregnancies went to full term. Convulsions occurred in both soon after labor pains began, and both were terminated with forceps under chloroform anesthesia. No satisfactory opinion of the number of convulsions could be obtained but they were stated as "many." The patient was unconscious for one or two days after each delivery, and not expected to live at either time. The history of the first was rather more severe than that of the second, both before and during labor. The first child was a boy weighing seven and one-half pounds; the second a girl, weight not known. Both children lived.

The menstrual periods had never been regular, being inclined to be a week or two late, and the amount of flow was rather less than in the average woman. Menstruation continued up to the last pregnancy without change. Coitus had not occurred for five or six months until unfortunately it did occur on June 25th or 26th, about five or six days after cessation of the last flow. Pregnancy was recognized by the usual symptoms in the latter part of August, and the undesired condition was thereafter an added nervous burden.

I first saw her, in my turn amongst the series of her medical attendants, on November 16th. She had been in her room for two months, and in bed constantly for one month. There had been very troublesome vomiting. For two or three weeks liquids by the stomach had been retained about half the time, and no solids taken. Rectal alimentation had been given daily. She had lost considerable flesh. The bowels had not moved for weeks, except after enema. Vaginal examination showed a red and easily bleeding area about the os uteri. The urine was abundant, and showed nothing abnormal chemically or microscopically. There was no edema. She was ordered

¹ Read before the Section for Obstetrics and Diseases of Women of the Suffolk District Medical Society, February 27, 1895.

liquid food by mouth every three hours. Three drops each of dilute hydrochloric acid and tincture of nux vomica four times daily, after taking nourishment; podophyllin, one twentieth of a grain, four or five times daily. The cervix uteri was painted with tincture of iodine, but this was not repeated, as she complained of tasting it; but fluid extract of hydrastis was substituted, and applied three times a week up to ten or twelve times. She never vomited again, though nausea was troublesome and a sour stomach very annoying up to the time of her death. Enemata to move the bowels were used twice.

In a week or ten days the stomach bore carefully selected solid foods. She sat up, and soon began exercising a little in a large, airy, sunny room. I do not assume that this selection of drugs caused the improvement, but attribute it to chance and it was my good fortune to take charge of the case just at the time change and improvement began. Edema appeared in the early part of January in the feet and ankles, and later in the hands and face in the morning. The urine was examined every week; the quantity was large, being about four pints daily until about the middle of January, when the amount dropped to about two and a half pints, and albumin appeared. She was then given tincture of chloride of iron and infusion of digitalis; and the daily amount remained above three pints. The albumin gradually increased until it was one-fourth per cent. two days before death. A very few hyaline and granular casts were found in the urine about two weeks before her death, but their number did not seem to increase. Her danger was explained to the husband, and a consultation advised; but it was not desired, as she had been much better than in preceding pregnancies.

I was called early on February 4th, as she had been having pain sufficient to prevent sleep. Uterine contractions could be distinctly felt at short intervals, but only lasting a few seconds. The pain decreased in frequency during the day, ceased at night, and she had a good night's sleep. She was then seen daily; but her condition gave no increased anxiety until the morning of her death. Fetal movements were vigorous up to that morning. About two A. M. during her last night, there was an attack of pain in the abdomen, which she attributed to something eaten; and a physician a few doors from her was called and gave morphia subcutaneously with entire relief. I saw her soon after nine A. M. on the following day (February 9th). Her voice was thick and her mind confused. I went to a telephone about seven or eight minutes away, and Dr. C. M. Green kindly agreed to see her in about two hours. On my return to her she was unconscious. A messenger tried in vain by telephone to get any member of the Lying-in staff, but no one could be gotten. Before I had finished scrubbing my hands the first convulsion came. Chloroform was immediately given. I dilated, did version, and extracted a dead child after about half an hour of the hardest work I ever did. A second convulsion occurred just before delivery, and the woman died about ten minutes later. Large doses of tincture of digitalis, strychnia and brandy hypodermically, and heat externally, all failed to give the slightest benefit.

TWENTY-FIVE per cent. of the Johns Hopkins Medical School students are now women.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.,

INOCULABILITY OF CANCER.

GRATIA and Lienaux¹ have attempted to produce carcinoma experimentally in dogs by inoculating the animals sometimes with small pieces of carcinomatous tissue, sometimes with the expressed fluid or scrapings. The result was wholly negative, whether connective-tissue, serous cavities, mammary-glands, lymph-glands, testes or veins. The experimenters concluded that the parasitic character of cancer is not shown conclusively; that direct or indirect contagion is also not shown, except perhaps where especial predisposition exists, for example, a person already affected with cancer; and that the etiology or pathogenesis is not known.

AN ADDITION TO PRESENT METHODS OF CLOSING LARGE CONGENITAL FISSURES OF THE HARD PALATE.

Milton² reports a case of severe double hare-lip and cleft palate, in which he supports the theory of insufficient approximation as the chief factor in the production of the deformity by the following points: (1) the separation between the two halves of the bifid uvula largely exceeded the width of any possible undivided organ; (2) the upper teeth overlapped the under teeth laterally to the extent of three lines on either side; (3) the upper canines coincided when the jaws were closed with the first lower premolars; (4) the expansion of the alæ nasi was one and three-quarters times as great as in the normal child of the same stature; and (5) the alveolar process of the intermaxillary bone projected four lines beyond that of the lower jaw and lay two lines higher than those of the superior maxilla. Convinced that the deformity was due to insufficient approximation, the author grasped the two superior maxillæ with a strong pair of forceps shaped somewhat like lion forceps, and with very considerable pressure, exerted with great care, at once brought together the two maxillæ along the greater portion of the fissure, the only obstacle being the interposed septum nasi. The snout was then forced down to take up its position between the two maxillæ. The sides were held in their approximated position by a wire passed in the groove between the teeth and the gums and across from behind the last premolar on one side to the last on the other, and then tightened by twisting in front. The patient had no reaction after this operation, and wore the wire comfortably for thirty-eight days. The bones retained their new position after its removal, and a plastic operation of the soft parts easily completed the restoration.

The author feels justified only in expressing the following opinions on the strength of this one case:

(1) That in some cases of fissure of the hard palate, especially, perhaps, in those in which the fissure is complete, the non-approximation of the two maxillæ may be an important factor in the production of the gap.

(2) That in such cases the approximation of the

¹ Bull. de l'Acad. roy. de Med. Belgique, 1894, No. 8.

² Lancet, July 14, 1894; American Journal of Medical Sciences, December 1894, p. 718.

separated portions by forcible pressure may be possible. Such approximation is very simple in performance, is not likely to be harmful in its results, and may greatly facilitate the subsequent operation for complete union of the soft parts.

(3) It remains to be seen whether the forcible manipulation of the jaw is disadvantageous to its future development; and it may be that in some cases the approximation may entail so much deformity in the jaws as to greatly discount its advantages.

LARYNGECTOMY BY A NEW METHOD.

Swain³ referring to recently recorded cases in which, after removal of the larynx, the open end of the trachea was stitched to the skin, and the communication between the air passage and the mouth thus shut off, states that the results of such procedure have been better than those of the older method of laryngectomy. The danger to life from inspiration-pneumonia is much reduced by the shutting off of the mouth. The patients can swallow with the greatest ease. In three at least of the cases a voice useful, and fully as satisfactory as any produced by an artificial larynx, was obtained, and the patients were able to speak without incurring the trouble and risk of the constant presence of a foreign body in the neck. A recent case is reported in this paper, in which Carmatt, after total removal of the larynx for epithelioma, closed the large wound by continuous suture, except at one part of the middle line of the neck, to which the trachea, which two weeks before the operation had been opened for the relief of extreme dyspnea, was carefully stitched. The patient, a man aged forty-two, made a good recovery; and, when the last observation was made by the author, he was perfectly well and the wound was quite healed. Although words were not then clearly spoken, the author was able to understand short sentences, and single words very satisfactorily with his back turned, and at a distance of several feet from the patient. No clear explanation is given of the manner in which the capacity for speech has been preserved in this and other cases in which the communication between the lungs and the mouth was completely closed by this new method of laryngectomy.

TREATMENT OF PULMONARY STAB-WOUND BY SUTURE.

Feliciani⁴ reports a case where a wound of the lung was successfully sutured. The operation was performed on account of hemorrhage. The patient, a laborer, forty-three years old, was stabbed in the back with a knife. There were four penetrating wounds on the right side. The seventh rib was fractured. There was pneumothorax, with marked hemorrhage into the pleural cavity. The seventh rib was resected, and a wound of the lung three centimetres deep exposed. This was closed by three silk sutures which checked at once the profuse bleeding. The pleura was then washed out, and the wound in its parietal surface closed by suture, as was also the external wound in the skin. The patient left the operation-table in a pulseless condition, but was discharged well at the end of four weeks. The pulmonary suture apparently was effectual in controlling the hemorrhage and in shortening the period of treatment.

TUBERCULOSIS OF THE BREAST.

Charles A. Powers,⁵ reports two examples of this affection, and speaks of the pathology, symptoms and course, diagnosis, treatment and prognosis of this rare affection. He summarizes as follows: The relative frequency of tuberculosis of the breast cannot be approximately estimated from present data. It may in general be considered of infrequent occurrence. Diagnosis must rest upon microscopic examination. Adequate treatment calls for the removal of the gland and the axillary contents. The prognosis, as regards local recurrence, is good. Where possible, local operative treatment should be supplemented by placing the patients under climatic and other conditions suited to the prevention and cure of tuberculosis in general.

THE THOROUGH EXTIRPATION OF MAMMARY CANCER.

Halstead⁶ is an advocate of a very thorough removal of parts adjacent to a cancerous breast when it is amputated. He lays down the following rule: The pectoralis major muscle, entire, or all except its clavicular portion, should be excised in every case of cancer of the breast, because the operator is enabled thereby to remove in one piece all the suspected tissues. The suspected tissues should be removed in one piece: first, lest the wound become infected by the division of tissues invaded by the disease or of lymphatic vessels containing cancer cells; and, secondly, because shreds or pieces of cancerous tissue might readily be overlooked in a piecemeal extirpation. Halstead claims excellent results. Seventy-six operations (complete and incomplete) for breast cancer have been performed in the Johns Hopkins Hospital, and not one death resulted from the operation. Twenty-six of the operations were incomplete. Of the fifty which were complete, local recurrence occurred only in three, or in six per cent, the lowest known record. The disability produced by the operation was, as a rule, slight.

PYLOROPLASTY.

R. Shalders Miller⁷ reports three pyloroplasties performed in England with a successful result. He states that the first was that of Mr. F. Page and Dr. Limont, done early in 1892, and the second that of Mr. Pearce Gould in December, 1892; and it is satisfactory to note that all three patients have not only survived the operation but have been completely relieved of their previous disability and suffering.

In the third instance the abdominal section was considerably longer than was needed for pyloroplasty, which, as the subjects for it must usually be thin, might be done with an incision of three inches and a half. It seemed needful to explore the abdomen extensively, as no disease about the pylorus could be found before making the visceral incision. The case appears to have been of a spasmodic nature, but the pyloric sphincter was certainly sharper and more prominent internally than normal, and its closure on the finger was notably sudden. Probably the same thing occurred when food approached it. The outer row of sutures in the gastro-duodenal wound were not according to Lembert, but were passed through the peritoneum and muscle about a quarter (or rather

³ New York Medical Journal, October 13, 1894; British Medical Journal, December 8, 1894, p. 90.

⁴ Riforma med., 1894, x, 9.

⁵ Annals of Surgery, August, 1894, p. 159.

⁶ Johns Hopkins Hospital Reports, vol. iv, No. 6, 1894; British Medical Journal, December 29, 1894.

⁷ Lancet, December 1, 1894, p. 1270.

less) of an inch from the cut edge, and were brought out on the one side and commenced on the other side of the cut just under the edge of the peritoneal coat. This was done so as not to interrupt the continuity of the longitudinal muscular fibres, which are pretty thick and close together at the pylorus; it was hoped thereby to secure the best possible peristalsis at the critical spot. Possibly the spastic condition found in this instance may explain some cases of actual hypertrophy of fibroid stricture, the constant irritability of the muscle leading to the hyperplasia as well as hypertrophy, especially if any inflammatory process supervened. In this patient the disease had not lasted long enough to cause more than slight overgrowth of the circular fibres of the pylorus.

THE OPERATIVE TREATMENT OF DIAPHRAGMATIC HERNIÆ.

A Neumann, Berlin,⁸ describes a fatal case of this variety of hernia. The patient was twenty-nine years old. The hernia was reduced on the ninth day by abdominal operation. In discussing the operative treatment of this rare lesion Neuber recommends that large hernia should be approached through the pleural rather than the abdominal cavity. He claims that no extra injury is done by this method, since the lung is already compressed, and that the diaphragmatic defect is more accessible in a majority of cases.

The writer divides these cases into three classes: (1) Those large herniæ with a large diaphragmatic defect, which allow entrance of abdominal viscera into the pleural cavity, with injury to the patient, and which are only discovered by chance. Here no operation is indicated. (2) Where the abdominal viscera encroach so much on the pleural space that both their functions are interfered with as well as those of the thoracic organs. (3) A small defect in which the hernia is strangulated or incarcerated.

INTESTINAL SUTURE.

Ullmann⁹ has adopted, in place of the Murphy button (which he considers sacrifices security for rapidity in operating), the Maunsell method for intestinal suture. He has concluded after experimental work on cadavers and living animals, that this method is rapid and efficient. The objections advanced against the method, namely, that there is only a single row of sutures, and that the mucous membrane is involved, are not actual objections. If the operator feels that the single row of sutures is insecure it can be easily and rapidly reinforced by a few serous sutures. That the mucous membrane is included in the suture has been proved unessential. Ullmann has modified the technique somewhat, in that previous to the invagination of the distal into the proximal end of the resected intestine four sutures are introduced, one at the mesenteric attachment, the other three ninety degrees apart. The ends of these are tied so that the knots are inside the intestines, and they hold the ends loosely together. After the longitudinal incision is made in the proximal end, a pair of forceps introduced through it seizes these sutures, and as they are withdrawn drags after them the sutures and intestinal edges which the sutures transfix. These sutures, Ullmann claims, are an assistance in forming the temporary intussusception which permits the suture to be placed. They can be after-

wards used for permanent sutures. He reports one case where a resection operation in a woman was quite successful and satisfactory.

COMPLETE CLOSURE OF ISOLATED PORTIONS OF THE INTESTINE.

P. Reichel¹⁰ objects to Obalinski's recommendation to close completely portions of intestine isolated by intestinal resection or anastomotic operations.¹¹ The article is an interesting one, but too long to report more than its essential points. The results of animal experiments are unsatisfactory, namely, death from peritonitis; or, if this danger is survived, death later from the distention of the occluded portion, and ulceration of the mucous membrane. Only a few animals ultimately survived. The danger is from retained secretions in the occluded portion of the intestine. Reichel discusses the seven cases of this operation in the human subject on record, and states that such complete isolation in the large intestine is safer than in the small since its function is absorption rather than secretion of intestinal fluids. In the small intestine, especially in its upper part, the secretions are abundant, and would soon dangerously distend an isolated loop of gut. The writer recommends that both ends of an isolated portion of small intestine should be sewn in the abdominal wound so as to allow an opportunity for fluid to escape, according to the, Hocheuegg and Frank method. If these fluids are small in amount, the fistulæ cause no especial inconvenience.

(To be continued.)

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

JAMES M. JACKSON, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 27, 1895,
DR. GEO. H. WASHBURN in the chair.
DR. C. G. CUMSTON reported

A CASE OF OSTEOMALACIA: OPERATION, RECOVERY.

DR. S. E. COURTNEY presented a report of
FOUR CASES OF ECLAMPSIA OCCURRING AT BOSTON
CITY HOSPITAL.¹

DR. C. H. HARE also reported

A CASE OF ECLAMPSIA AND DEATH.²

DR. A. D. SINCLAIR: I have very little to say on this subject. We have no more formidable state of things to meet than a case of eclampsia in a pregnant woman. It was my misfortune to meet with more of them at one time than seem to occur nowadays, I think attributable to the care taken by the rising generation of physicians, who know better about these things, seeing to the general condition of the patient, especially her kidneys. At one time in this city it seemed to me that puerperal convulsions were more common than now, perhaps seemingly so; at any rate I know they were more fatal than now, because the means for treat-

¹ See page 486 of the Journal.

² See page 487 of the Journal.

⁸ Deutsche med. Woch., 1894, xx, 33.

⁹ Centbl. f. Clin., 1895, Bd. xxii, 33.

¹⁰ Centbl. f. Chir., 1895, Bd. xxii, 37.

¹¹ Ibid., 1894, Bd. xxi, 37.

ment were limited, and consisted largely in bleeding and opiates — not bad treatment by any means, certainly not very successful, although persisted in I think to-day by a great many who believe in bleeding as being one of the most powerful agents in reducing arterial pressure in many cases dependent on uremic trouble. We did not know much about the pathology of these cases. I do not know as we know much now; at any rate, we knew less then. Resort to delivery in any case unless the mouth of the womb was open and the head or some portion protruding was not bad, because it was contrary to all teachings — was meddling midwifery. There was a certain autocracy that prevailed over the young men, especially by the older, and nothing was done that would not be approved in higher quarters. We do not hear much of that to-day.

I was house-officer in the Lying-in Hospital at Edinburgh in 1857-58; and there was brought in a woman in convulsions in the eighth month of her pregnancy. She was given chloroform, but she died undelivered. There was no thought of delivering that woman, although after her death it was with difficulty that the child could be kept in the womb; and I thought, why should not that woman be delivered, at least, the womb be emptied and give the woman a chance to recover. It was thought that it was meddling midwifery. But the thought came to me that, if a similar case presented itself to me, I should empty the womb. A case did occur. I delivered by manual dilatation, and continued to do so when a case of the kind came up, I think saving my patient in one or two cases, and in one or two losing the child. I did this privately ten or twelve years, until twenty-five years ago I delivered a woman who had been in convulsions for several hours, with little or no secretion from the kidneys, in one and a quarter hours by manual dilatation without a convulsion during the manipulation; under ether, the woman was delivered without leaving a single trace of tear, the child born alive and still living, and the woman had several children afterwards. That case was detailed before the Boston Society for Medical Improvement, January 18, 1870. The Medical Improvement Society was perhaps the most conservative body of medical men in this land, and I cannot say that my plan of delivery was received with the utmost warmth or welcome. But I did not care very much about that. I felt that it was a plan that was useful, and a thing come to stay. It has saved some lives in this community.

In regard to bringing about labor in one or two cases of convulsions in early pregnancy, say the fifth month, I had such a case where blindness came on, and evidently a bad state of things was threatening; there I delivered at the fifth month with perfect recovery. I think that we are very apt to delay in those cases, rather than to go to work at once; and I have seen cases where that thing was impressed upon me very strongly. I was called to Dedham a good many years ago to the case of a young woman in the eighth month of her first pregnancy, in convulsions. I said to the physician in charge that I did not think any temporizing would be of service, and I would advise immediate delivery. Said he, "If the woman should die, we should be accused of killing her." Twenty-four hours later I was again sent for and delivered her. She had had twenty-seven fits meanwhile; and she died nine hours later, as also the child.

I will say this to the younger men here, that manual

dilatation is a very simple thing. It is too simple; and I believe that Dr. Lusk, when asked why he did not put it in his book, said he did not dare to, it was so easy and men would be doing it recklessly. It must be done with deliberation and care. I have seen very good men in Boston tear the uterus. It can be done with a great deal of safety. It is called forced delivery, and so it is in a way — but not a bit more force than natural pains would give, however.

DR. CALL: I do not know that I can say anything new. My experience at the New England Hospital at the maternity department has given me some cases. We do not have as many cases now as when the hospital was in the city. I remember when I was a student there, it was not very infrequent to have a woman brought in comatose, having had convulsions outside. Now that the hospital is quite a distance from the centre of the city, we seldom get those cases, and for three years there has been no case. I think the treatment is almost exactly like that detailed by the gentlemen to-night, — hot packs, bromide and chloral per rectum, and ether during the symptoms of convulsion. I think that we have not lost a case there with convulsions now for six years, but, as I did not look up the records, I cannot tell how many cases we have had in that time. A point that I would like to ask about, is the length of time after delivery that we must fear convulsions provided we get a patient who has albuminuria safely delivered without an attack. My attention was drawn to that by a private case, because I have heard it said by physicians of experience that if twenty-four hours elapse after delivery without convulsions, you may feel that the patient is safe from convulsions. I was called to see this patient about three weeks before the normal time of her delivery, and found her with extensive edema of the face and extremities; and as she was a woman among the working classes who could not command skilled nursing, I advised removal to the hospital, but they were not willing to act at once, and within forty-eight hours I was called, and found she had been delivered with one pain. She appeared to be doing very well. I congratulated myself that she had gotten through. For twenty-four hours she did very well, but about the end of that time she complained of pain in the back of the neck and shoulders. She thought she took cold from lying on the floor after labor, and had no symptoms such as we usually look for in cases with convulsions; but twenty-four hours later, forty-eight hours after delivery, she was found unconscious; for twenty-four hours had convulsions at intervals; and for several days was partially comatose, although she eventually recovered and had a child afterwards without any trouble.

DR. SINCLAIR: In answer to the question about the lateness at which convulsions may come on, I have only a single case. A woman was confined, and I was called to her I think two or three days afterward, when she went into convulsions; and the convulsions kept recurring; and, finally, I kept the woman under ether continuously, did not let her wake up for something like nine hours. I gave her also a large dose of calomel and jalap, had an excellent evacuation of the bowels; she recovered after a long time, to have, I believe, some pelvic peritonitis which kept her in bed for weeks.

DR. CUSHING: I would like to ask the reader in regard to the use of morphine. I do not think I

heard it mentioned whether it is entirely out of fashion in the hospitals here. It is quite largely used in different parts of the country. By those who use it it is thought to be very efficacious, used in conjunction with chloral. At the time when I was in Bellevue Hospital it was found out quite accidentally that morphine used hypodermically was a very satisfactory treatment of uremic coma—the last thing one would expect. It was found out by one of the house staff, who gave it for some reason; and it set the patient in a very profuse perspiration, and quieted spasmodic symptoms. After that it was used a great deal. I have known that it is used by a good many and with a good deal of success, not, however, to the exclusion of chloral or ether.

DR. CUMSTON: Dr. Sinclair, in speaking of the dilatation of the cervix, I believe referred to manual dilatation. In speaking of the instrumental dilatation there has been recently invented by Tarnier a very good instrument, which he has been using for the last three years at the Maternity in Paris, and which I think now is quite largely used in France and has been used in New York. It is described in many of the new French treatises on obstetrics. It consists of three blades about as long as forceps; and the end of the blade that is introduced into the uterus is bent at right-angles. You push it beyond the internal os, and you introduce each blade separately; they all join together like forceps and over the ends which are outside you pass a very large strong piece of elastic band. Little by little the elastic contracts and dilates the cervix without laceration. You can obtain full dilatation in about an hour or an hour and a half. It is a very safe method.

DR. HOGNER: One speaker asked how long after delivery convulsions may come on. We must remember that eclampsia or cramps depend on many different causes. One of these is infection by the tetanus bacillus, and such an infection can be established in every suppurating wound. We must also remember the possibility of such an infection during convalescence.

DR. TWOMBLY: The cases to-night have been instructive. There are never too many cases of this kind reported. I remember when I was in Karl Braun's clinic I waited nearly a year before I was summoned to one and then did not see the convulsion at all. In my own practice since then, I have met with it several times. Each case must be considered by itself. The consensus of opinion in these days is for immediate delivery. The risk to the woman by letting her have convulsion after convulsion is very great, and we do not diminish the chances of risk to the child. In fact, the child is of secondary importance to us; the mother's life is of the first and greatest. At nearly full term I think we all would consider immediate delivery the best method of procedure. Where the child is just at the viable stage it is a serious question whether to wait and hope that the best will come without immediate delivery; or to proceed with forced delivery with the chances of losing the child. Even in that case I believe it is better to deliver immediately rather than to run the risk of losing the mother. We cannot tell how many convulsions or how few will terminate her life.

There are many different symptoms of eclampsia, and the principal ones we know very well. In a case of mine there were a few I would like to mention, as

perhaps not always seen. A young woman of twenty-six in her second pregnancy two months before delivery had what was supposed to be a partial paralytic stroke. The sister described her to me as a woman in perfect health who fell suddenly on the floor but had no fit. After recovering consciousness she spoke thickly, with the tongue protruding to the right and that side of the face partially paralyzed. She could mumble words, but could not formulate ideas. This passed off in two or three days. Two days before full term I was sent for in great haste, as she had been vomiting all night and had intense headache. I found every symptom of eclampsia present except the convulsion, and that we could expect at any minute. There was one noticeable thing beside intense blinding light before the eyes; it was twitching of the abdomen from the navel crosswise nearly twenty times a minute; the navel would go to the left with a twitch, and this continued until the convulsion occurred and then stopped. I immediately sent for an assistant, and without waiting any time at all performed internal podalic version and delivered the child, and she made a complete recovery. I think Dr. Hare will agree with me that it is the best plan in these cases not to delay, but immediately proceed, even if we have ignorant people call down unkind things upon our head. The question came up at the time I delivered this woman whether it would not have been better to put on forceps and deliver the child rather than to perform internal version. I remember Dr. Worcester had a case in which he put on forceps and delivered the woman all right, and the woman died in a few hours, and no apparent reason could be found. It seems to me the head being high up the risk of lacerating the soft parts and further complicating the case would be a sufficient cause for not using the high forceps. I have no doubt it is done successfully in some cases, but version is preferable I think.

DR. WHITE: My experience in puerperal eclampsia has not been great. I have seen in the past two or three years three or four cases. One was an Italian, a primipara. I was called to see her three or four days before delivery. There was considerable edema about the feet and ankles. I found a slight trace of albumin in the urine, and treated her in the usual way with milk diet, bromides, etc., and in a few days I was called to deliver her. I staid some three or four hours, and labor seemed to be going on in a normal way, and when the head was engaged a convulsion came on. I gave ether, and delivered rapidly with forceps. She came out of the ether very well, had convulsions continuously for three days, and finally recovered after quite a long illness; but the child died on the third day in convulsions. Whether the tetanus bacillus was there I do not know. Another case I saw in consultation in Winthrop. She had had a number of convulsions, feet considerably swollen, labia very much swollen. She had been in labor some hours. I could find no signs of life of the child. I applied forceps, and to my surprise delivered the head without the rest of the fetus. After working for some hours I got the arm down. The contractions were firm, and I could not turn the child. I delivered the arm. After working some time I got the other arm and delivered that, and finally I got a traction hook, put it into the anus of the fetus and delivered the remaining portion, and then had to scrape the placenta off with my hands. Soon after coming out of the ether the woman had a

convulsion; and three or four convulsions followed in rapid succession; and the patient died. Another case, a primipara, had considerable edema about the face and feet; labor went on normally; convulsions rather severe; administered ether; delivered; and she recovered and the child lived.

DR. J. B. BLAKE: I etherized a patient in the practice of an older physician, about a year ago. The case presented two points of interest: (1) no premonitory symptoms except extreme pain referred to the epigastrium; (2) marked difficulty in dilating the cervix. The woman was a healthy primipara, seven months pregnant. Morphia, subcutaneously, did not affect the pain. Under ether it was found impossible to dilate the cervix by the fingers, and a uterine dilator was resorted to. The internal os was like India-rubber, and the fetus was delivered in much the same way described by Dr. White—first a leg, then an arm, etc. Finally, after seven hours' work, the entire fetus and placenta were removed. The woman did not fully recover consciousness, in spite of free stimulation, had two or more post-partum convulsions, and died in about twenty-four hours.

DR. CUMSTON: There is one symptom which is a prodrome of albuminuria, namely, what the French call the "doigt mort," numbness of the index finger when the patient wakes up, which may remain an hour or two.

DR. SINCLAIR: I think pain in the epigastrium is a remarkable symptom and it has occurred in many instances.

AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD.,
MAY 7-10, 1895.

GENERAL SESSION.—FIRST DAY.

The Forty-Sixth Annual Meeting of the American Medical Association held at Baltimore, Md., was called to order at 10 A. M. on Tuesday, May 7, 1895, by the President of the Association, DONALD MACLEAN, M.D., of Michigan.

The meeting was opened with a brief but impressive prayer by the Rt. Rev. William Paret, D.D., Bishop of Maryland.

ADDRESS OF WELCOME.

Owing to the absence of Governor Frank Brown, of Maryland, the opening address was delivered by F. C. LATROBE, Mayor of Baltimore, who thanked the members for the compliment they had paid Baltimore in selecting that city for the place of their present meeting, and called attention to the fact that although physicians and lawyers are often slandered and called necessary evils, yet among the men who have won honor and national fame there is no class more numerous than from medicine and law.

The address was closed by extending a hearty and sincere invitation to the members to visit the City Hall of Baltimore.

As chairman of the Reception Committee, DR. SAMUEL C. CHEW welcomed the members present, and stated that great changes had taken place in the Association and in medical science since their last meeting held at Baltimore twenty-eight years ago. At that time Baltimore was a city of two hundred and fifty thousand inhabitants, while to-day it contains over

half a million. A far more important change than increase in population is found in the fact that this city has become one of the chief centres of medical education, and attracts about one thousand students here every year. Since our last meeting in this city one of the greatest advances made in medicine is the elevation of the standard of medical education which has been effected in late years, and which is being raised higher and higher. Many are now entering our ranks equipped by a science which not long ago was in a great degree unknown, making them better qualified for our profession.

DR. WILLIAM OSLER, Vice-Chairman, in making announcements from the Committee of Arrangements, called attention to the objectionable advertisements inserted in the Guide-book presented to each member at the registration office, stating that had this book been first submitted to the majority of the committee a most vigorous protest would have been made against said advertisements.

PRESIDENT'S ADDRESS.

At the opening of his address DONALD MACLEAN, M.D., of Michigan, stated that it was his earnest wish that the present meeting might be greater and productive of more good than any of its predecessors.

Regarding the present tendency of many of our medical colleges to raise the standard of medical education, he spoke as follows:

I should be untrue to my oft-reiterated convictions if I hesitated to mention here one cause of complaint still justly chargeable to a considerable number of our American medical colleges. It is summed up briefly but truthfully as follows: Some of these institutions claim to supply to their alumni complete courses and means of instruction. The fact is, that one-half of them are shamefully deficient in clinical resources and facilities, while the other half are no less devoid of the men and the means necessary to do anything approaching to justice in teaching fundamental branches, without which a reliable and intelligent knowledge of surgery and the practice of medicine is an impossibility.

In the rapid evolution and growth noted in medical education it has seemed to those most closely concerned that the time has arrived when a united and determined effort might be made to establish a well-defined plan which would secure uniform co-operation in remodelling the whole system of medical graduation, thus securing for the various designations of "doctor," "surgeon," "physician," etc., an intelligible and definite signification. This, in my opinion, is "a consummation devoutly to be wished."

Upon the importance of a National Bureau of Health, he said that such a bureau superintended by a competent medical authority, who shall be a member of the Cabinet, could not fail to secure for the nation benefits beyond the language of dollars and cents to express. A united and dignified effort on the part of this Association and its allies ought to secure this enactment. The vast importance of such an act is obvious to the members of this Association; and our imperative duty, as it seems to me, is to impress the active and public-spirited statesmen who guide and control the affairs of the nation with the essential truth and value of our views. The very respectable problems of foreign policy which have in recent times engaged the attention and elicited the energies of our

law-makers seem to sink into insignificance in comparison with the great and benign proposition here presented.

It is my deliberate opinion that the establishment of a bureau of health, as an integral part of the nation's executive, will prove an effective instrument in promoting public welfare. It will be the means of unifying efforts in the suppression of dangerous diseases. It will afford opportunity for restraining the effete despotisms of the old world from adulterating our population with the vicious and degenerate. It will be the means whereby this enlightened and progressive republic may exemplify to the world the true mission of medical science. It will offer another agency for disseminating the truths of scientific discovery; another means of discriminating between that which is transitory and accidental in medical achievement and that which is permanent and immutable, and will furnish another promise that medicine in the future shall in no wise be unworthy of her past traditions.

The party, professional or political, which shall succeed in consummating this wise measure will assuredly earn for itself the gratitude and applause of an appreciative nation.

On motion of DR. GIHON, of Washington, the portion of the address referring to the establishment of a National Health Bureau was referred to the proper authorities at Washington.

OBJECTIONABLE ADVERTISEMENTS.

A communication from the judicial committee regarding the advertisements appearing in the *Medical Association Journal* caused a lively but confused discussion.

DR. KOHN moved that a committee be appointed to confer with the trustees upon this subject. This motion was objected to as reflecting upon the trustees.

DR. INGALLS, of Chicago, one of the trustees, moved that a committee be appointed to meet the trustees and take part in the preparation of the report to be presented by the trustees; but, on motion of DR. COCHRANE, of Alabama, Dr. Ingalls's motion was laid on the table by a vote of 138 to 108.

PAY OF NAVAL MEDICAL OFFICERS.

DR. MILLARD, of St. Paul, moved that a memorial be presented to the President and Members of the Fifty-fourth Congress requesting the enactment of such legislation as shall confer upon the officers of the navy medical corps the same status, pay and emoluments as are now accorded to the medical officers of the army. This resolution was unanimously carried.

PRESCRIBING PROPRIETARY MEDICINES.

A motion of DR. O'CONNOR, of Detroit, for the appointment of a committee of three authorized to find out how many members of the Association prescribed proprietary medicines, provoked considerable wrangling.

DR. FERGUSON, of Troy, N. Y., said the question of proprietary and secret medicines should be kept clearly divided; and on his motion, that of Dr. O'Connor was laid upon the table.

GENERAL SESSION. — SECOND DAY.

After the reading of the minutes, DR. A. L. GIHON read a report as chairman of the Committee on the

RUSH MONUMENT FUND,

and deplored the fact that it reflected disgrace upon the Association that sufficient funds had not been subscribed years ago.

He was willing to still take the lead in this matter; but if they wished him to do so, they must subscribe sufficient funds at once. He had thought it necessary to raise at least \$25,000; but after Dr. Wyeth, of New York, exhibited a photograph of the Sims Monument, erected in that city at a cost of \$10,000 for the statue and \$3,000 for the pedestal, Dr. Gihon asked for the raising of that sum, and he would see if they could not get a monument similar to that to Dr. Sims. He then appealed to the members present, and asked for one hundred men to subscribe one hundred dollars each or guarantee the collection of that sum. In response to this appeal over \$2,000 were subscribed in a very few minutes, and, on motion, a resolution was adopted appointing each delegate a collector for the fund in his particular section.

After the reading of the Secretary's Report, a communication from Hot Springs, Ark., was read inviting the Association to hold its next meeting at that place. The communication was referred to the committee. This was followed by the reading of the Treasurer's Report, which was adopted as read.

A resolution that a Section on Orthopedics is inexpedient at the present time, was read and adopted.

A communication from State Section on Medicine, asking the Association to appoint a committee to go to Washington for the purpose of having a National Bureau formed and that the sum of \$1,000 be appropriated to defray expenses, was read. On motion, this was accepted, and the portion referring to the appropriation was referred to the trustees.

A resolution was read protesting against the registration of any member of the Cleveland Medical Society at this meeting owing to that society admitting to membership and retaining others who were known as quacks or assistants to such, and by so doing tending to degrade the entire medical profession. This resolution was referred to the proper committee with a request for a prompt report.

A resolution by DR. WILSON was read and unanimously adopted requesting the medical colleges of the entire country to make a four-year course compulsory for the obtaining of the degree of M.D.

The Address on Medicine was read by WILLIAM E. QUINE, of Illinois. Its title was

MALARIAL DISORDERS IN LARGE CITIES, WITH ESPECIAL REFERENCE TO CHICAGO.

In this paper he called attention to the habit of some physicians designating by the term malaria many ailments of which they were unable to make any satisfactory diagnosis, as the easiest way out of the difficulty. Also, where a patient was suffering with malaria, the questions were asked as to whether there was any building going on in their neighborhood or turning over of soil; and, if so, the conclusion was jumped at that this was the source of their disease. Cases where no building was going on, nor soil disturbed were asked if they had been out of the city anywhere, and, if so, even though it was as long ago as two years, then, of course, that was the source of their infection. In case neither of the foregoing sources could be elicited, then the soil in their neigh-

borhood was giving off this poisonous effluvium. Thus malaria was theoretically existing in Chicago during the winter months, when the soil was frozen to a considerable depth, and upon top of this a considerable layer of frozen snow, the temperature below zero for months, and all building operations and excavations necessarily suspended; and during this time they had outbreaks of malaria. Did these same physicians claim that the soil, under these conditions, was able to give off this poison?

As to making the diagnosis, he used to think it a comparatively easy matter, but now he does not think it can be done upon the basis of external phenomena alone. That malaria exists in all large cities he had no doubt; but in cities he thought a reliable diagnosis could only be made by aid of the microscope.

The source of the disease was not always easy to determine; but that it could be conveyed through the medium of drinking water where the source of this water-supply was across marshy districts, he did not doubt. This had been demonstrated in the water-supply of Brooklyn, and in all probability the same applied to Chicago.

As to the type of the disease, many patients were cinchonized for a time and then died with their blood teeming with the germs, which demonstrated to his satisfaction that many varieties of germs had been classified under one head.

As to how long the infection lasted, we do not know. In some the germs will linger indefinitely, while in others they can be found in abundance one day, and within a few days they will disappear entirely.

The length of the incubation period is absolutely unknown at the present time.

GENERAL SESSION. — THIRD DAY.

The resolution of the preceding day referring to the Cleveland Medical Society was referred to the Ohio State Society, the registration of said members suspended, and the money received from any member of the Cleveland Society who had already registered was ordered refunded.

Charges against a St. Louis physician were not allowed to come before the Association.

The report of the Board of Trustees was now read, showing the Association to be on a sound financial standing. It called for more frequent illustrations in the *Association Journal*.

Regarding the objectionable advertisements inserted in the *Journal*, no advertisement of a secret remedy had been published during the last year unless a formula of the same was sent to the *Journal*. The trustees now instructed the *Journal* to admit no advertisements of secret remedies unless the formula of the same was inserted as part of the advertisement. This report was accepted with great applause.

DR. COHEN, of Philadelphia, congratulated the trustees upon their decision, and claimed that now every American medical journal would necessarily be obliged to clear its pages of such advertisements, and the profession as a whole was to be congratulated.

ADDRESS ON SURGERY.

This address was read by C. A. WHEATON, M.D., of Minnesota.

The tendency of the present day is to relegate all surgical operations to the specialist. To be a specialist, however, a physician must have had a long suc-

cessful career as a general practitioner, such as would raise him above the mediocre; for a surgeon who is not such a physician, is like a bird with one wing. With this prerequisite medical knowledge a patient is spared days and weeks of post-operative sufferings which otherwise would ensue.

Dr. Wheaton deplored the tendency to use the female pelvis as a field of adventure for the rising young surgeon, and believed soon the removal of a cystic ovary, or a Fallopian tube because it contained pus, would be an operation of the past, and that plastic methods would take its place.

At present the pelvis of man appears to be his source of danger; the operation of castration is strongly advocated for the relief or cure of enlarged prostate. Why the removal of the testicles should effect a cure in this disease we do not know; that it does cure we have ample proof. However, from time immemorial man has been unwilling to part with this part of anatomy; and for this reason, if for no other, the operation will never become popular. Cold abscesses causing no discomfort should not be opened.

A resolution was offered, increasing the annual dues one dollar, for the purpose of establishing a building fund to erect a permanent home for the Association and a home for old or disabled physicians. The resolution empowered the President to appoint a committee consisting of one prominent member from each State represented in the Association, whose duty it should be to solicit subscriptions for this fund and act as an advisory board to the trustees regarding the investment of the same. One-third of the committee were to be appointed to serve one, two and three years respectively, and their successors appointed for the term of three years. This committee was to report at each annual meeting the amount collected. After considerable discussion, on motion, the resolution was referred to the Business Committee.

A motion to amend the By-laws and Code of Ethics, so far as to allow the patenting of surgical instruments, provoked a very heated discussion, in which ex-President Davis of Chicago took a decided stand against tampering with the Constitution, and claimed no surgeon was faithful to the profession who would not freely give to it any discovery which he might make, and moved that the resolution be postponed indefinitely. As a substitute for Dr. Davis's motion, a resolution was offered and unanimously accepted, that any resolution having for its object the altering or amendment of the Constitution or By-laws, in any shape or manner, should not be acted upon at the meeting at which it was presented, but must be laid over until the next annual meeting. That this resolution acted as a boomerang will be seen further on.

THE REPORT OF THE COMMITTEE ON ESTABLISHING A NATIONAL DEPARTMENT OF PUBLIC HEALTH

was read. The lack of time and want of funds had retarded the work of the committee. During December, some of the members living in Washington appealed to members of Congress, who promised consideration of the subject when the proper time should arrive; but all agreed that nothing could be done during the continuance of the Fifty-third Congress. Much vigorous work will be required, and it will be absolutely necessary for the Association to place at the disposal of the committee an adequate amount of money to defray current expenses.

A motion was made to accept this report and continue the committee with an appropriation of necessary funds; but a point of order raised by Dr. Scott that a resolution had just been passed laying such matters over until the next meeting, was ruled by the President as correct. On appeal taken from the ruling of the President, the President was sustained.

A resolution offered that the Nominating Committee should make its report on Thursday morning of each meeting; after the reading and adoption of the minutes, raised a point of order that the resolution should be referred to the Business Committee. The President's ruling that it was not necessary to refer it to that committee, resulted in an appeal, when the President was again sustained.

On motion, the Nominating Committee was directed to report immediately; but the secretary of that committee being absent no report could be obtained. The chairman of the Nominating Committee announced that Atlanta, Ga., was selected as the next place of meeting.

GENERAL SESSION. — FOURTH DAY.

DR. H. D. HOLTON, of Vermont, read

THE ADDRESS ON STATE MEDICINE.

This paper commenced with a review of the various attempts on the part of the ancients to establish hygienic measures.

It also called attention to Dr. Rush's efforts in this direction, and deplored the lack of patriotism in the erection of a monument to his memory; but Dr. Holton hoped the subscription started the previous day would result in an immediate consummation of its object.

State Health Boards. — While every State in the Union, with the exception of three, had established State Boards, which had accomplished more or less good, he thought they should be composed entirely of men who understand the subject from the scientific point of view, and should not be used for political purposes as unfortunately was now the case in many instances.

State Appropriations for Military Purposes compared with those for the Protection of the Public Health. — Money was almost lavishly appropriated by State Legislatures for the support of our military organizations. Compare this with the niggardly appropriations for the protection of the public health. New York State alone appropriated in a single year nearly \$800,000 more for the militia than for its health board.

Deaths caused by War contrasted with those by Disease. — During our last war the deaths in battle amounted to about 93,000 while for the same length of time we have had 108,000 deaths caused by preventable diseases.

National Health Board. — That a National Board should be formed admits of no discussion, but the slow, red-tape manner in which it is necessary to bring about any innovation in national affairs makes constant agitation of this subject necessary. During the Fifty-third Congress, the Health Bill, known as Senate Bill, No. 840, met an untimely death in the hands of the Committee on Epidemic Diseases. Before the new bill is introduced in the Fifty-fourth Congress it should be amended so as to appoint medical officers of the Marine-Hospital, Navy and Army Services as an advisory board to the Health Board.

However, before anything can be accomplished it will be necessary through the press to educate the people upon this subject. Unless the bill has behind it responsible parties to watch its progress, it is sure to be smothered in the committee.

National Quarantine. — Owing to the various laws in different States regarding quarantine measures, we shall never have an efficient quarantine until a national one is established. Of what avail is a rigid enforcement of appropriate laws at some points, when disease can enter our country unhindered at others?

Vaccination. — In nearly all foreign countries the production and distribution of vaccine virus is under the control of the government. Here it is almost wholly in commercial hands, who have more interest in the largest returns from the smallest possible outlay. Its distribution is through the middleman and druggist; and frequently this virus has been lying in the drawer for weeks and even months before being sold. Under these circumstances, is it any wonder that it proves inert? And when it is inert, after repeated trials the patient is told that he is not susceptible to the disease. If fresh lymph is used, it is a rare case that will show insusceptibility.

Contaminated Vaccine. — This is a far more serious matter than inert virus. Frequently, through the carelessness or gross ignorance of those employed in its manufacture it is exposed to and becomes contaminated by microbes, its use subjecting the victim to all the dangers of septicemia. An earnest appeal should be made for a National Board to have exclusive control of its manufacture and sale.

Alcohol was claimed to be the cause of more disease than it helped to cure, and was as much the cause of insanity, pauperism and crime as all the other causes combined.

Antitoxin should also be manufactured exclusively by the National Board. It should be absolutely fresh, and great care taken in its use.

Tuberculin. — While Koch's lymph does not cure tuberculosis, it has proved of inestimable value in establishing the diagnosis of tuberculosis in cattle.

Tuberculosis. — He thought cattle, fowl and pigs were disseminators of tuberculosis. The cattle of the West showed two per cent. afflicted with the disease; Baltimore, three and one-half per cent.; New York, two per cent.; while in Massachusetts it was seven per cent.

Infectiousness of Milk. — Milk is infected whether there are tubercles of the udder or not; and the presence or absence of udder tubercles has no effect upon the spreading of the disease through the milk. Also the muscles where no tubercles could be found it was demonstrated that the juice of these muscles could and did produce the disease. This brings up the question as to whether the bacillus is the cause or only the product of the disease.

Proprietary Medicines. — Many of these articles are of an extremely dangerous and, in some instances, fatal character, masked behind a trade-mark. If the government at Washington compelled the printing of the formula of said articles upon their containers, it would do more towards eradicating this evil than the strongest possible words of condemnation.

On motion of DR. HAMILTON, hereafter the Treasurer was to precede the Association a few days at its place of meeting, to make necessary arrangements for facilitating business.

The Report of Committee on Benevolence brought out the remarkable fact that the greatest support towards this object came from the bachelor members of the profession. The report was accepted and the Committee continued.

DR. WOOLSEY, of California, calling attention to the spreading of diseases through the medium of our money circulation, offered a resolution calling upon the government to retire paper money and recoin the gold and silver at stated periods. How this was going to stop the spreading of disease through the money medium was not made very clear. The resolution was referred to the Committee on State Medicine.

The Report of the Committee on Nominations was as follows:

President, B. B. Cole, of California. 1st Vice-President, J. J. Chisholm, Maryland. 2d Vice-President, C. Le Grand, Alabama. 3d Vice-President, Augustus B. Clarke, Mass. 4th Vice-President, J. B. Satterwaite, Kentucky. Treasurer, H. P. Newman, Illinois. Secretary, Frank Woodbury, Pennsylvania. Librarian, G. E. Wise, Illinois. Trustees: Alonzo Garcelon, Maine; I. N. Love, Missouri; J. E. Reeves, Pennsylvania. Judicial Committee: N. S. Davis, Illinois; H. D. Dideme, New York; Jno. Morris, Maryland; W. E. B. Davis, Alabama; Geo. W. Browner, Missouri; D. W. Smouse, Iowa; M. B. Ward, Kansas; W. W. Welch, Pennsylvania. Readers of Addresses at next Annual Meeting: Surgery, Dr. Senn, Chicago, Ill.; Medicine, Dr. Osler, Baltimore, Md.; State Medicine, Dr. Robé, Baltimore, Md.

The place of the next annual meeting is to be Atlanta, Ga., on the first Tuesday in May, 1896.

Upon motion the report of the Nominating Committee was accepted with the exception of the portions relating to the next place of meeting and the election of the Secretary.

A motion was made by DR. FERGUSON that the portion of the Nominating Committee's report referring to the Secretary be not agreed to, and the name of the present Permanent Secretary, W. B. Atkinson, substituted. This motion caused considerable personal discussion; but it was finally carried, and the present officer was continued in office.

A motion to substitute Washington as the place of the next meeting was lost, and Atlanta, Ga., finally adopted as the place.

A resolution was offered, inviting the members of the New York Academy of Medicine, New York State Medical Society, and New York County Society to send delegates to the next meeting of the Association; that the members of said bodies be admitted to membership in the Association upon application and upon presentation of proper credentials; and that all former sections in the By-laws, Constitution or Code of Ethics conflicting with this resolution be repealed. Here, again, the boomerang of the previous day returned; and although the Association wished to do so, no action could be taken on this resolution until next year.

DRS. GIBON and FERGUSON being appointed as a committee, escorted the President-elect to the chair. He made a short address thanking the members for the honor conferred, at the same time warning them he should rule with a just but very *firm* hand.

A resolution by DR. OSLER was adopted urging the members to support the *Index Medicus* until such time as it should be self-supporting.

A resolution from the Association of Acting Assistant Surgeons, requesting Congress to place the surgeons who had served during the late war upon the same plane as the commissioned officers of the same grade, was unanimously adopted.

Regarding delegates to foreign countries, a resolution was adopted making any one who wished to visit a foreign meeting, a delegate from this Association, and upon application his credentials would be furnished by the President.

Among other resolutions adopted were the following: recommending all medical schools to adopt the metric system; that the American Medical Association adhere rigidly to the unmodified Code of Ethics; that the programme of the Association be published in the *Journal* at least three weeks prior to the meeting (referred to the Business Committee); appropriating funds necessary for printing and circulating circulars relative to the Rush Monument Fund (referred to the trustees, with power to act).

(To be continued.)

Recent Literature.

The Jewish Method of Slaughter Compared with Other Methods, from the Humanitarian, Hygienic and Economic Points of View. By J. A. DEMBO, M.D., Physician to the Alexander Hospital, St. Petersburg, etc. Translated. Pp. 111. London: Kegan Paul, Trench, Trübner & Co. 1894.

Bau, Einrichtung und Betrieb, von Öffentlichen Schlachthöfen. Von DR. MED. OSCAR SCHWARZ, Sanitäts-Thierarzt, etc. Illustrated. Pp. 238. Berlin: Julius Springer. 1894.

Dr. Dembo's book is the outcome of a study of the methods employed for slaughtering animals in the larger slaughtering establishments of the principal European cities, and especially at St. Petersburg. The *shecheta*, or Jewish method, consists in slaughtering by rapid division of the carotids and other blood-vessels of the head, unconsciousness supervening very quickly in consequence of the sudden loss of blood. Other methods named by the author, with which he contrasts the Jewish method, are stunning, shooting, and the neck-stab. Dr. Dembo claims that unconsciousness supervenes, when the *shecheta* is practised, in three or four seconds, and that the cut is painless. He also claims that the epileptiform convulsions which follow this method render the meat less alkaline and hence diminish its properties as a nutrient medium for bacteria.

The work of Dr. Schwarz is an excellent treatise upon the construction, management and business of public slaughtering establishments. After a brief historical summary, the author presents the existing Russian laws relating to public slaughter-houses, and the arguments for and against their establishment. Descriptions are given of establishments suitable for cities of 10,000 and 30,000 inhabitants. One chapter is devoted to the accessories of a well-equipped slaughter-house—such as the different modern appliances for refrigeration by means of various mechanical processes.

The methods of disposing of the sewage of slaughter-houses are also treated in detail. The supervision of such establishments, the disposal of the meat of diseased animals, and other minor topics receive due attention.

This work deserves a good English translation, and would prove very useful to the health authorities of our large cities.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, MAY 16, 1895.

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THE BRITISH ROYAL COMMISSION ON TUBERCULOSIS.

THE course pursued by the British Parliament in regard to the important question of Tuberculosis in Cattle is in strong contrast to that which has been adopted by the Legislature of several New England States, including Massachusetts. For while the latter contented themselves with settling the economic questions which had to do with reimbursing the owners of slaughtered cattle, the British Commission instituted an investigation, the object of which was to "inquire and report what is the effect, if any, of food derived from tuberculous animals upon human health, and, if prejudicial, what are the circumstances and conditions with regard to tuberculosis in the animal, which produce that effect upon man."

The British Commission (appointed in November, 1894) consisted of Sir George Buchanan, Professor Browne, Dr. J. F. Payne, and Prof. Burdon Sanderson. The report which was presented on the 22d of April, 1895, received the assent of all the members.

Many distinguished pathologists and physicians were examined; and the Commission, concluding that they had not sufficient evidence, entrusted further inquiries to Professor McFadyean, Dr. Sydney Martin and Dr. Sims Woodhead upon the following points:

(1) As to the means of recognizing tuberculosis in animals during life.

(2) As to the influence upon lower animals of food of tuberculous origin.

(3) As to the effects of cooking-processes upon food from tuberculous animals.

And the report is chiefly founded upon the results of these investigations.

In settling the question as to the effect of feeding animals with food of tuberculous origin, the investigation showed, first, that uncooked food derived from

tuberculous animals, whether consumed by rabbits, guinea-pigs, cats or pigs, produces tuberculosis in a considerable proportion in each; secondly, that tuberculous matter added, if only on one occasion, to the ordinary food of any one of these animals, causes a still larger proportion to become tuberculous.

As regards man, the Commission believes that "any person who takes tuberculous matter into the body as food, incurs some risk of acquiring tuberculous disease."

The Commission takes the view that no distinction can be drawn in nature between tuberculous diseases originating in food infection, and those originating in other ways. They point, however, to the probability that the greatest effect of food infection is to be found in the tuberculous intestinal lesions of children.

With reference to the recognition or diagnosis of tuberculosis in cattle during life the Commissioners speak quite cautiously. Inquiries upon this point were limited by the fact that systematic meat inspection is not carried out in England with such thoroughness as prevails in most Continental slaughter-houses. The results of Professor McFadyean's inquiry show that tuberculous disease may exist in cattle that appear to all clinical tests to be in perfectly good health.

The Commissioners are not inclined to believe that a completely trustworthy test of tuberculosis has yet been proved to exist in the reaction of tuberculin. Professor McFadyean records, as the outcome of his experiments, that he received wrong indications from tuberculin as to the presence or absence of tubercle in cattle in the case of 24 animals out of 75; nevertheless, he sums up his report by the statement, "I have no hesitation in saying that, taking full account of its imperfections, tuberculin is the most valuable means of diagnosis in tuberculosis that we possess." The Commission adds that since these experiments were made the methods of using tuberculin have been improved and its use is now regarded as more trustworthy.

Dr. Martin's experiments form the basis of a very important portion of the report. He states that tuberculosis is chiefly a disease of organs which are, for the most part, removed in the process of "dressing" the carcass. As a result of his examinations and experiments showing the comparative rarity of tubercle in the meat substance, the Commissioners state their belief, that the power of infection of meat from such carcasses is mainly due, not to tuberculous matter left in the meat *in situ*, but to matter carried from tuberculous organs in the process of dressing by the butchers' knives or cloths, and thus smeared freely over the carcass.

The danger of such a proceeding must increase *pari passu* with the amount and distribution of the tuberculosis in the animal.

The Commissioners conclude, with Dr. Martin, that if sufficient discrimination and care were exercised in taking meat from tuberculous cattle a great deal of

meat from them might, without danger, be consumed by the community: and they point to the practice of public abattoirs on the Continent as being founded on the same belief.

Dr. Martin would advocate, as a principle, that the operations of slaughter and dressing should be done under skilled supervision, with the object of removing and destroying every part of a carcass that contains any tubercle whatever, and also of destroying the whole carcass in cases where the animal is found to have advanced or general tuberculosis. He sees no objection to the sale of meat substance from carcasses which have shown only localized tuberculosis, and from which every particle of tubercle has been skillfully removed; provided always that, in every subsequent process of preparing the meat for sale, due care is taken to guard the saleable portions from contamination by tuberculous matter.

With reference to the danger from milk of tuberculous cows, the experiments of Dr. Martin present striking evidence that the milk of a tuberculous cow is only infective when it comes from a tuberculous udder. They show that the milk from such source is extremely virulent, and that milk, butter, skimmed milk and buttermilk from a cow with a tuberculous udder are actively infectious. The Commission concludes that "the withdrawal from the dairies of every cow that has any disease whatever of the udder, would form some approach to security against the serious danger incurred by man from the use of tuberculous milk, but it would not be an adequate security. The presence in any dairy of a tuberculous cow is a decided source of danger to the public. He suggests the employment of experts to determine the existence or non-existence of cows with tuberculous udders, in dairies, and says, if the expert finds tubercle bacilli in the milk, the cow has dangerous tuberculosis of the udder."

In order to destroy the infectiveness of tuberculous milk the Commission warmly advocates boiling, and evidently regards with suspicion any advice to the public to attempt to sterilize milk by heating it to a temperature short of the boiling-point. (The tourist who drinks milk as a beverage invariably finds it served raw in England, while upon the Continent it is always served boiled.)

The following recapitulation sums up the conclusions of the Commission:

"We have obtained ample evidence that food derived from tuberculous animals can produce tuberculosis in healthy animals. The proportion of animals contracting tuberculosis after experimental use of such food is different in one and another class of animals; both carnivora and herbivora are susceptible, and the proportion is high in pigs. In the absence of direct experiments upon human subjects we infer that man also can acquire tuberculosis by feeding upon materials derived from tuberculous food animals. The actual amount of tuberculous disease among certain classes of food animals is so large as to afford to man frequent occasions for contracting tuberculous disease through his food. As to the proportion of tuberculosis acquired by man through his food or through other means we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food. The circumstances and conditions with regard to the tuberculosis in the food animals which lead to the

production of tuberculosis in man are, ultimately, the presence of active tuberculous matter in the food taken from the animal and consumed by man in a raw or insufficiently cooked state.

Tuberculous disease is observed most frequently in cattle and swine. It is found far more frequently in cattle (full grown) than in calves, and with much greater frequency in cows kept in town cow-houses than in cattle bred for the express purpose of slaughter. Tuberculous matter is but seldom found in the meat substance of the carcass; it is principally found in the organs, membranes and glands. There is reason to believe that tuberculous matter, when present in meat sold to the public, is more commonly due to the contamination of the surface of the meat with material derived from other diseased parts than to disease of the meat itself. The same matter is found in the milk of cows when the udder has become invaded by tuberculous disease, and seldom or never when the udder is not diseased. Tuberculous matter in milk is exceptionally active in its operation upon animals fed either with the milk or with dairy produce derived from it. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter. The recognition of tuberculous disease during the life of an animal is not wholly unattended with difficulty. Happily, however, it can in most cases be detected with certainty in the udders of milch cows. Provided that every part which is the seat of tuberculous matter be avoided and destroyed, and provided care be taken to save from contamination by such matter the actual meat substance of a tuberculous animal, a great deal of meat from animals affected by tuberculosis may be eaten without risk to the consumer. Ordinary processes of cooking applied to meat which has got contaminated on its surface are probably sufficient to destroy the harmful quality. They would not avail to render wholesome any piece of meat that contained tuberculous matter in its deeper parts. In regard to milk we are aware of the preference by English people for drinking cow's milk raw—a practice attended by danger on account of possible contamination by pathogenic organisms. The boiling of milk, even for a moment, would probably be sufficient to remove the very dangerous quality of tuberculous milk. We note that Your Majesty's gracious commands do not extend to inquiry or report on administrative procedures available for reducing the amount of tuberculous material in the food supplied by animals to man, and we have regarded such questions as being beyond our province."

The foregoing conclusions are worthy of the careful consideration of all American legislators, who are vitally concerned in this important question.

THE NAVY MEDICAL SERVICE.

THE trial of Medical Inspector Kershner of the navy, by court-martial on a charge of having given publicity to matters concerning the service, and then of having denied that he had done so, emphasizes the unsatisfactory position of the navy medical officers, discussed at greater length in our editorial of February 7, 1895.

It is well known that the medical officers of the navy are placed upon an inferior footing to line officers of the same grade. The difficulty of getting self-respecting medical men to serve in the navy is, no doubt, due to this fact, and the feeling engendered by this state of things cannot but produce unfortunate results, as it probably did in this case of Dr. Kershner, who refused when ordered by his captain and later by his admiral (Meade) to render service on board a merchant vessel in the Barbadoes. He complained to the department at Washington of having been ordered to render service outside his sphere of duty, and was upheld in his refusal.

MEDICAL NOTES.

THE AMERICAN MEDICAL ASSOCIATION.—The forty-sixth annual meeting was held in Baltimore, May 7, 8, 9 and 10, 1895. The General Session of the Association was opened by the Hon. F. C. Latrobe, Mayor of Baltimore, in an address of welcome in behalf of the city. His promise that the members would be pleased with the hospitalities, public and private, of which they would be the recipients during their stay, was more than verified by the experience of the visiting physicians at the hands of their entertainers. Dr. Samuel C. Chew, chairman of the Reception Committee gave the address of welcome on behalf of the medical profession of Baltimore, in which he spoke of Baltimore as a centre of medical education, and of the progress of medical science since the Association last met in that city in 1866.

The report of the Judicial Council, finding that objectionable advertisements had been printed in the *Journal* was presented, and the attention of the trustees and the editor was called to the fact. Motions that the trustees report on Wednesday, and that their report be referred to a committee which should report on the following day, and that a committee be appointed to confer with the trustees, were laid on the table.

It was voted, on motion of Dr. Millard, of St. Paul, that it was the sense of the Association that the officers of the medical corps of the navy should have the same rank, pay and emoluments as those of the army. It was moved and carried that this resolution be printed, and also that a copy of the same be sent to the President of the United States, the Secretary of the Navy, and to every member of the Fifty-fourth Congress.

Tuesday evening, May 7th, receptions were tendered to the members and their wives by Dr. Julian J. Chisholm, Dr. Howard A. Kelly, and Dr. Robert W. Johnson. Dr. George H. Rohé, the superintendent of the Maryland Hospital for the Insane at Catonsville, also entertained a number of the visiting physicians at the hospital at Catonsville.

Wednesday evening a reception was held by Dr. and Mrs. Henry M. Hurd at the Johns Hopkins Hospital.

Thursday the report of the trustees on the advertisements in the *Journal* stated that none of its contemporaries present advertising pages that are as free from objectionable material. The editor with the termination of present contracts is to be instructed "to accept no advertisements of medicinal preparations the proprietors of which do not give a formula containing the official or chemic name and quantity of each composing ingredient to be inserted as a part of the advertisement."

Thursday afternoon over four hundred of the members accepted the invitation of the trustees of the Sheppard Asylum to visit and inspect the buildings of that institution. In the evening a reception was tendered the members of the Association at the Music Hall.

Dr. W. S. Westmoreland, of Atlanta, was chosen chairman of committee of arrangements for the meeting of 1896, Dr. J. McFadden Gaston, Jr., was named for assistant secretary.

Atlanta, Ga., was chosen as the place of meeting for 1896.

TUBERCLE BACILLI IN THE NOSE.—Dr. Strauss has reported in *Archiv de Médecine Experimentale*, that he has verified the occurrence of these bacilli in the nasal cavities of persons, themselves in good health, who have been frequenting localities where phthisical patients were habitually present.

PRACTICIAN OR PRACTITIONER.—The *Medical News* in an interesting editorial on "Questions of Nomenclature," characterizes the term practitioner in the following language: "Medical language has a somewhat fatalistic tendency to philologic barbarism that healthy modern minds should withstand. No science is so given to absurdities of nomenclature. Even a much-used synonym of physicians is philologically more than outlandish. The French have a word *praticien* for one who practices, for example, the law, and we have the same word in medical English, unused but properly formed—*practician*. With megalomane wit we devise and use the linguistic outrage, *practitioner*. With just as much reason should we say *academicianer* or *dentistianer*. A practicer is, of course, one who practises; a practitioner, therefore, must be one who practitions!"

MOUNTAIN AIR FOR CITIES.—Dr. S. E. Hampton writes to the *Journal of the American Medical Association* the details of a plan elaborated by him by which "mountain air" can be obtained by suction pumps acting through large steel-plate pipes, carried to a height of 600 feet into the air and supported by guys. An ideal mountain resort could thus be furnished in the middle of a city, by merely having a glass-covered room supplied with air obtained in this way. This audacious plan for bringing climate to patients instead of sending patients to climate, Dr. Hampton thinks would be of trifling cost compared with the benefits to be derived. Perhaps when the patients thus treated had acquired strength enough to begin horse exercise they could be provided with respirators, attached to long rubber tubes, and allowed to ride about a large arena, thus securing a powerful adjuvant in their "climatic" treatment!

A FATAL CASE OF POISONING BY LYSOL.—A case is reported in the Vienna daily papers in which a mother gave a twenty-four-hour-old baby a teaspoonful of lysol solution, instead of rhubarb, with fatal result. The *Wiener klinische Wochenschrift* calls attention to this fact in connection with the endorsement given by the Austrian public health authorities of lysol as a disinfectant combining the qualities of great effectiveness, and at the same time harmlessness as compared with carbolic-acid and corrosive-sublimate solutions, and therefore peculiarly adapted to midwifery practice. This is the first case which has been re-

ported of poisoning by lysol, while in the early years of the employment of carbolic solutions, the daily papers kept a permanent heading for cases of carbolic-acid poisoning. It cannot be denied that the introduction of lysol solutions have resulted in a marked improvement.

A SLIGHT MISTAKE.—The following instance where a bad cold caused a startling conversation is reported in the *Sanitarian*: "A modest young newspaper man was invited to a party at a residence where the home had recently been blessed with an addition to the family. Accompanied by his best girl he met his hostess at the door, and after the customary salutations asked after the baby. The lady was suffering from a severe cold, which made her slightly deaf, and she mistakenly supposed that the young man was inquiring about her cold. She replied that though she usually had one every winter, this was the worst she ever had; it kept her awake at night a good deal at first and confined her to her bed. Then noticing that the scribe was becoming pale and nervous, she said that she could see by his looks that he was going to have one just like her's, and asked him if he wished to lie down. The paper came out as usual the next week, but the editor has given up inquiring about babies."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, May 15, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 55, scarlet fever 30, measles 132, typhoid fever 14.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—At the annual meeting on May 14th, the following officers were elected for the ensuing year: President, Dr. D. D. Gilbert, Dorchester. Vice-President, Dr. W. S. Everett, Hyde Park. Secretary and Librarian, Dr. James C. D. Pigeon, Roxbury. Treasurer, Dr. Edw. G. Morse, Roxbury. Commissioner of Trials, Dr. George K. Sabine, Brookline. Nominating Councillor, Dr. T. Garceau, Roxbury. Censors: Dr. C. F. Withington, Roxbury, supervisor; Dr. B. S. Blanchard, Brookline; Dr. E. F. Dunbar, Roxbury; Drs. D. G. Eldridge and Dr. E. B. Lane, Dorchester; and twenty-nine councillors.

TYPHOID FEVER AND MILK.—An epidemic of typhoid fever is reported at New Milford, Conn. There have been already 23 cases, and the disease is ascertained to have its source in milk obtained from a certain farm. The disease in the case of the Yale junior, B. A. White, who died at the Yale infirmary on May 6th, is said to have been contracted from this source. A farm laborer who had come from another town, and was either suffering from a mild form of typhoid, or was in its early stages, was employed to do the milking on the farm in question, which furnished the milk-supply of a private school, and of all the families in which the disease has so far appeared.

A rather forcible argument for the sanitary inspection of dairy farms!

NEW YORK.

COMMENCEMENT AT THE UNIVERSITY OF THE CITY OF NEW YORK.—The annual Commencement exercises of the Medical Department of the University of the City of New York were held at Carnegie Music Hall on the evening of May 7th. There were 101 graduates. In presenting them with their diplomas the chancellor of the University, the Rev. Dr. Henry McCracken, said: "Young gentlemen, the diplomas I shall now give you bear the signature of the Governing Faculty, with the exception of our oldest and most esteemed professor, Dr. A. L. Loomis, who, while he is absent from us in the living character, is, I am sure, among us in spirit. We shall remember him reverently, as the last of a long line of illustrious men dating from the time of Valentine Mott." The usual prizes and honors having been announced, including the appointment to Bellevue Hospital, the valedictory was delivered by Henry Lincoln Borland, of the graduating class; after which General Horace made the address to the class.

DEATH OF DR. BYRON.—Dr. John M. Byron, chief of the bacteriological department of the Loomis Laboratory and lecturer on that branch in the University Medical College, died of tuberculosis on May 7th, in the thirty-fourth year of his age. He believed that he contracted the disease by the inhalation of tubercle bacilli in some material with which he was experimenting and which he had allowed to become dry. Dr. Byron was born in Peru in 1861, and was graduated at the University of Naples. He also studied medicine for some time in Paris. He came to New York in 1888 and began to teach bacteriology. He soon became known as an expert in that department of medicine, and during the cholera excitement in 1892 he was selected by Health Officer Jenkins to be the bacteriologist at the Quarantine Station, and to have charge of Hoffman and Swinburne Islands. For some time he had been a member of the bacteriological bureau of the New York Board of Health, and a short time before his death he was appointed by the present Health Officer, Dr. Doty, bacteriologist to the Quarantine Department.

Miscellany.

A NEW RHINOPLASTIC OPERATION.

In the *Medical Press and Circular* for April 10th is reported the case of an ex-soldier upon whom Mr. Astley Bloxam performed rhinoplasty by grafting a finger over the space left by the loss of a nose. A flap had been previously turned down over the forehead according to the Indian method, but the partially adherent flap hung down in ungraceful folds, and incompletely covered the defect. An attempt to graft on a newly amputated finger proved unsuccessful.

The patient offering to sacrifice one of his own fingers, Mr. Bloxam trimmed and prepared the finger, and placed it in a wedge-like opening which he made in the forehead flap. It was retained for over a month in this position by means of a plaster-of-Paris bandage, and union was obtained. The finger was then amputated, and then gradually trimmed into shape, when it was found to be somewhat too low to look well. The surgeon then shifted it bodily upward half an inch or so, and after further trimming succeeded in furnishing his patient with a fairly respectable nose, with a bony bridge, in which respect it is probably unique.

The grit and endurance of the patient are fully as much to be commended as the skill and persistence of the surgeon in this case; and it is to be hoped that after the nose has had time to settle into shape, a full report with photographs will be published.

A SYPHILITIC LESION OBSERVED IN A PRE-COLUMBIAN SKULL.

DR. ALBERT S. ASHMEAD writes to the *New York Medical Journal* as follows:

"In the Baudelier collection, Metropolitan Museum, New York, there is a skull of a mummy, just being classified, from Pacha Camac, on the Peruvian coast, near Lima. It was found twelve feet underground, and no other part of the skeleton was in a condition to be shipped. It is, without doubt, according to Mr. Saville, the director, and Professor Putnam, who examined the specimen with me, pre-Columbian. In this burial place nothing modern, nothing post-Columbian has ever been found.

"In the right supratemporal region of the skull, on the parietofrontal suture, there is a mark of disease, almost eating through the bone; there is no doubt that the scalp had been removed, and what followed we may guess—it was found that the skull itself was affected, and the case was left alone. Evidently the man lived long enough to almost allow time to obliterate the mark of the surgeon's instrument. On the inside of the skull no mark of disease, except the extreme thinness of the tissue, strikes the observer. To my mind, this is an instance of syphilis in a pre-Columbian skull. The location of this lesion and the appearance of the diseased bone throughout are peculiarly syphilitic. I have seen such instances many times in Japan, on the living body, and once in a post-mortem examination in a *yoshiwara* (licensed prostitute)."

Correspondence.

DEFLECTION OF BULLETS BY TISSUES.

DENVER, COL., May 6, 1895.

MR. EDITOR:—The discussion of the paper of Dr. Julian A. Mead in your issue of April 25th, calls for comment in certain particulars.

It should be more widely known by physicians that deflection of the ball does depend very largely upon its velocity. To illustrate this, let us take the following extreme examples; pretending these by stating that we shall attempt to prove that the bullet from any large-calibred sporting rifle would scarcely be deflected by any tissues in the human body:

I have known a ball from a .40 cal. Sharp's rifle, weighing 360 grs., with a powder charge of 90 grs., to pass entirely through a buck deer lengthwise, breaking five ribs, the head of the femur and the adjoining pelvic bones, and afterwards cutting a channel nearly two feet long in the hard clay of the cañon in which the deer stood at the time of shooting, and to pass onward with a scream which could be heard for some seconds, showing that its velocity was still considerable. In another instance, a ball of .44 cal., weighing about 400 grs., with 77 grs. of powder, passed lengthwise through a full-grown grizzly bear, leaving a wound nearly five feet in length. In still another instance, a .40 cal. ball, weighing about 260 grs., and fired with 82 grs. of powder, cut a straight furrow through the buttress of dense bone upon the skull of a grizzly which constitutes the chief skeletal mark characteristic of *Ursus horribilis*. This bear was at a distance of 250 yards, and the ball impinged at an angle of about 10 degrees. It was not sufficiently deflected to prevent the second wound, which it made after emerging from the skull and entering the tip of the nose, from being in an absolutely straight line, so far as I could determine, with the wound in the skull. Of more than one hundred black-tail deer killed by a friend of mine with whom I have done much shooting, with a 44-77 Sharp's mentioned, the ball was found in the body but once. After quoting such examples as these, it is needless to state that no tissues in the human body could ordinarily appreciably deflect such missiles as those spoken of; so that, to my mind, at least, that subject needs no further discussion.

In the cases quoted, heavy missiles, with plenty of good powder, were used, in thoroughly well-made weapons, with great length of barrel as compared with the ordinary revolver, thus securing the full effect of the burning powder. On the other hand, if the cheap, pot-metal type of revolver is used, with a small bullet and a little poor powder, the ball is practically a spent one when it emerges from the muzzle. If the powder is improperly made, much carbon may remain after its deflagration, instead of being burned to make gas and thus assist in the work to be done; if the powder be too coarse-grained, it may be blown out of the barrel like shot, even to such an extent that it may stick in a board many feet away, in one instance, which I saw, with coarse blasting powder, at a distance of more than 20 feet. These grains not only fail to assist in making gas, but must detract from the force moving the bullet, because they require a part of the force for their own movement. Further, the gas developed may leak out and thus be inefficient if the weapon lack in accuracy of finish. Where so many variable factors enter, it is easy to see that the effect may be almost anything.

I have known one pistol-ball to strike the collar-bone and drop to the ground, and another one to strike the thear eminence of a boy's hand and drop in similar manner, leaving merely a hole in the skin. Both shots were at very short range. These examples will show that a bullet may be stopped by the tissues without doing them any very serious damage.

Now we come to those curious and interesting cases, of which many examples are on record, and of which I have seen quite a number, in which the ball has sufficient momentum to enter the body, but not enough to cause it to continue in a straight path. Most of us have repeatedly seen the pistol-ball deflected up the forearm by the flexor tendons—in my experience the most common example of deflection met with. The skin of the chest and neck has many times carried the ball round the body at least half-way, after it has been deflected from a rib or other firm tissue—even the larynx in one case. In one of my cases, which I have quoted elsewhere, the ball was at the spinous process under the skin at about the first lumbar vertebra, having entered near the sternum.¹ I have known the scalp to carry a ball quarter or half-way around the head in two or three instances. Similar examples are so common as to render further quotation superfluous. The

¹ Gunshot wounds in their Medico-Legal Relations, International Medico-Legal Congress, 1893.

ones given will serve to establish, I think, that no tissues will turn some bullets, while any tissues will turn others.

After these considerations, it would be absurd to suppose that the sternum could not deflect a revolver-bullet, and equally so to expect it to materially deflect a ball from a sporting rifle. And when we take into account other features than those studied—the firmness of the tissues and the momentum of the ball—our position will be still stronger.

A bolt-shaped bullet of very hard metal is less likely to be deflected from its course than a spherical ball of soft metal, of equal weight. The latter form of bullet has been the one which has given rise to the most curious instances of deflection on record, for the reason that all favoring features were present. These were (1) low velocity, for such bullets were formerly fired by a small charge of powder, thus giving, whatever the size of the ball, a relatively small momentum; (2) spherical shape, thus offering the greatest possible surface to the tissues of the body penetrated, and doing away with the penetrative effect of a pointed ball; and (3) soft metal in the composition of the missile, favoring deformation. If the deformation be very great, however, the ball tends to stop from the enormously greater resistance with which it meets.

With reference to the brand, there can be no possible doubt that the reason why it appears above the bullet-hole is that the weapon is "kicked" higher up at the time of the emergence of the powder and the gases than at the time the bullet comes from the muzzle, for the brand is at a higher and higher point as the weapon is withdrawn from the target, because the angle between the line of the bullet and that of the gases remaining the same, a greater and greater arc is necessary to subtend the constant angle. It is not at all necessary to open the question of whether the bullet is "kicked" upward, so long as the gases emerge after it.

The position assumed by Drs. Draper and Mead regarding the shape of the wound in the skin is equally as impregnable as in the matters considered. In a murder-case now pending, I was able, at the autopsy, to indicate the general course of the bullet, by the appearance of the wound of entrance which was distinctly elliptical. The ball had entered the chest at an angle of about 50 or 60 degrees, and left, upon the side of the lesser angle, distinct evidence of its course, in the shape of a wide, blackened, rather inverted border, not present in equal degree on the remaining edges of the wound. I have noted the same conditions repeatedly before, and notably in animals shot at a very acute angle. I saw one wound more than twice as long as broad made at an angle of probably not over five to eight degrees, which facts, taken together, certainly settle the question in my own mind. Very truly yours,

J. N. HALL, M.D.

DIPHTHERIA ANTITOXIN AND "THE METROPOLITAN DISTRICT."

BOSTON, May 9, 1895.

MR. EDITOR:—I notice in your review of the work of the Boston Board of Health for the year 1894, (JOURNAL, May 2d, p. 445), a statement that the city board has under consideration a proposition for extending the distribution of antitoxin "at cost price to the well-to-do and the health authorities of the smaller communities forming a part of what is known as the Metropolitan District."

I would, therefore, respectfully inquire why the city of Boston should be taxed to supply a district outside its own limits, especially when (as you have stated in the previous issue of April 25th), the State Board of Health has already, for several weeks, been engaged in the distribution of the same useful product in an entirely satisfactory manner. Since this life-saving work appears to be a part of the legitimate function of the general board, we sincerely hope that it may be permitted to continue such a distribution.

Yours respectfully,

WEST-END.

METEOROLOGICAL RECORD.

For the week ending May 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...28	30.39	42	45	40	90	88	89	N.E.	E.	12	8	O.	O.	.01
M...29	30.37	44	51	37	90	77	83	E.	S.	5	8	O.	O.	
T...30	30.20	58	70	46	89	86	88	S.	N.	5	14	R.	O.	.11
W...1	30.45	44	48	40	37	72	54	N.E.	S.	25	6	C.	C.	
Th...2	30.33	50	64	36	60	53	56	S.E.	S.W.	5	12	C.	C.	
F...3	30.17	63	79	47	73	80	77	S.W.	S.W.	8	12	C.	C.	
S...4	30.12	70	83	56	78	88	83	S.W.	N.E.	9	15	O.	K.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rains; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 4, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,956,000	890	357	13.64	20.50	1.43	5.28	1.65	
Chicago	1,600,000								
Philadelphia	1,139,457	471	129	9.45	15.75	.42	5.25	.21	
Brooklyn	1,043,000	400	132	12.75	21.00	1.50	6.50	1.25	
St. Louis	540,800								
Boston	501,107	124	68	10.34	19.27	1.41	4.23	1.41	
Baltimore	500,000								
Washington	285,000	212	37	8.90	12.76				
Cincinnati	325,000	112	29	4.86	20.25	.81	.81	1.62	
Cleveland	325,000	98		10.20	7.14			3.06	
Pittsburg	272,000								
Milwaukee	265,000								
Nashville	87,754	31	10		22.61				
Charleston	65,165	23	6	17.40	17.40	17.40			
Portland	40,000								
Worcester	100,410	25	10		8.00				
Fall River	92,233	30	12	16.66	26.66	13.33		3.33	
Lowell	90,613	21	11	9.52					
Cambridge	79,607	24	9	12.48	24.66		4.76		
Lynn	65,123	18	5	5.55	22.22		8.32		
Springfield	50,84	19	6	5.26	10.52			5.55	
Lawrence	49,900	26	12	19.25	7.70		3.85		
New Bedford	47,741	22	9		13.65				
Holyoke	43,348								
Brookton	33,939	14	5	14.28	14.28	7.14		7.14	
Salem	33,155	9	3	33.33	11.11	22.22	11.11		
Haverhill	32,925	8	4	25.00					
Malden	30,209	9	4						
Chelsea	29,806	16	6	18.75	12.50				
Fitchburg	29,383	4	0	25.00				25.00	
Newton	28,837	9	3	11.11	22.22				
Gloicester	27,293								
Taunton	26,954	6	1						
Waltham	22,058	7	3		14.28				
Quincy	19,642	6	0		16.66				
Pittsfield	18,802	4	0						
Everett	16,585	2	1		50.00				
Northampton	16,331	4	0		25.00				
Newburyport	14,073	6	1	16.66	16.66				
Amesbury	10,920	2	1						

Deaths reported 2,746; under five years of age 902; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 317, acute lung diseases 499, consumption 315, diphtheria and croup 119, diarrheal diseases 39, measles 32, scarlet fever 38, whooping-cough 19, typhoid fever 37, erysipelas 10, cerebro-spinal meningitis 12, malarial fever 9, small-pox 2.

From typhoid fever Philadelphia 10, New York 6, Cleveland 7, Boston 4, Cincinnati 3, Providence, Lawrence, Newton and Newburyport 1 each. From measles New York 22, Brooklyn 5, Cincinnati 2, Philadelphia, Boston and Providence 1 each. From whooping-cough New York 9, Cincinnati and Haverhill 2 each. Philadelphia, Brooklyn, Providence, Lowell, Cambridge and Lawrence 1 each. From cerebro-spinal meningitis New York 5, Chelsea 3, Lawrence 2, Somerville and North Adams 1 each. From malarial fever Brooklyn 6, New York 2,

Newburyport 1. From small-pox Philadelphia and Cincinnati 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending April 27th, the death-rate was 18.9. Deaths reported 3,829; acute diseases of the respiratory organs (London) 341, whooping-cough 111, measles 85, diphtheria 50, diarrhea 39, fever 24, scarlet fever 18.

The death-rates ranged from 10.4 in Croydon to 29.3 in Bolton, Birmingham 17.1, Bradford 16.8, Cardiff 12.7, Gateshead 18.5, Huddersfield 13.6, Leicester 17.2, Liverpool 23.7, London 17.9, Manchester 27.6, Newcastle-on-Tyne 19.9, Nottingham 16.3, Portsmouth 15.5, Sheffield 17.0, Sunderland 19.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 4, 1895, TO MAY 10, 1895.

CAPT. RICHARD W. JOHNSON, assistant surgeon, is relieved from duty at Washington Barracks, D. C., and ordered to Fort Huachuca, Arizona, for duty, relieving MAJOR TIMOTHY E. WILCOX, surgeon.

MAJOR WILCOX on being thus relieved is ordered to Fort Schuyler, New York, for duty.

The leave of absence on account of sickness granted MAJOR CLARENCE EWEN, assistant surgeon, is extended three months on account of sickness.

CAPTAIN LOUIS W. CRAMPTON, assistant surgeon, will report in person to the president of the examining board, appointed to meet at Denver, Col., on May 14, 1895, for examination for promotion.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 11, 1895.

S. S. WHITE, passed assistant surgeon, ordered to the U. S. S. "Bancroft," June 8, 1895.

J. W. Baker, passed assistant surgeon, from the "Enterprise" and Recorder Naval Medical Examining Board.

M. W. BARNUM, assistant surgeon, resigned from the Navy, May 7, 1895.

ROBERT BOYD, assistant surgeon, resigned from the Navy, May 8, 1895.

M. C. DREIMAN, surgeon, ordered for examination preliminary to promotion.

H. D. WILSON, assistant surgeon, detached from "Vermont" and to the "Monongahela."

H. D. BEYER, surgeon, ordered to the U. S. S. "Monongahela."

MASSACHUSETTS MEDICAL SOCIETY.

ONE HUNDRED AND FOURTEENTH ANNIVERSARY.

The annual meeting will be held at 9 o'clock A. M., Wednesday, June 12, 1895, in the building of the Massachusetts Charitable Mechanic Association, on Huntington Avenue, Boston.

Meetings of Sections will be held in the same building, on the preceding day, Tuesday, June 11th.

TUESDAY, JUNE 11th.

At 10 A. M., the Fellows of the Society are invited to visit the Massachusetts General Hospital, on Blossom Street; the Boston City Hospital, on Harrison Avenue; the Children's Hospital, on Huntington Avenue, and the Carney Hospital, South Boston.

The Shattuck Lecture, *Cotillion Hall*, 1 P. M.—Dr. Robert T. Edes, of Jamaica Plain. "The New England Invalid."

Section in *Medicine*, *Banquet Hall*, 2.30 P. M.—Dr. F. W. Chapin, of Springfield, Chairman; Dr. G. G. Sears, of Boston, Secretary.

"Modern Views of the Nature and Treatment of Exophthalmic Goitre." By Dr. J. J. Putnam, of Boston. Discussion by Dr. G. B. Shattuck, of Boston. "Home Treatment of Phthisis." By Dr. V. Y. Bowditch, of Boston. Discussion by Dr. F. I. Knight, of Boston. "The Diagnosis of Malaria by Means of Examination of the Blood and the Presence of Laveran's Bacillus." By Dr. Philip Kilroy, of Springfield. Discussion by Drs. F. C. Shattuck, W. I. Councilman, of Boston.

Section in *Surgery*, *Cotillion Hall*.—Dr. J. B. Brewster, of Plymouth, Chairman; Dr. C. L. Scudder, of Boston, Secretary. "Recent Progress in Genito-Urinary Surgery. Treatment of Enlarged Prostate." By Drs. A. T. Cabot and W. S. Watson, of Boston. Discussion by Drs. L. Bolton Bangs, of New York City; Abner Post, Paul Thorndike, G. W. Allen, of Boston, and others.

WEDNESDAY, JUNE 12th.

Annual Meeting, *Cotillion Hall*, 9 A. M.—Business of the Annual Meeting. "The Etiology of Diphtheria and the Use of

Antitoxin." By Dr. H. C. Ernst, of Boston. "The Pathology of Diphtheria." By Dr. W. T. Councilman, of Boston. "The Prophylactic Use of Antitoxin." By Dr. F. G. Morrill, of Boston. "The Preparation of Diphtheria Antitoxin." By Dr. J. L. Goodale, of Cambridge. "The Clinical Use of Antitoxin." By Dr. W. H. Park, of New York City. Discussion by Drs. C. F. Withington, of Roxbury; G. G. Sears, of Boston. The Annual Discourse, 12 M.—By Dr. Alfred Worcester, of Waltham.

The Annual Dinner, 1 P. M.—At the close of the discourse, the annual dinner will be served.

BUREAU OF INFORMATION.

In order to increase the social element of the annual meeting, a Bureau of Information will be established, where members will be given information of any kind which may add to their comfort and pleasure while in Boston.

Due notice of the location, and detailed plans of this bureau, will be furnished later.

EXHIBIT.

On Tuesday and Wednesday, from 9 A. M. to 5 P. M., there will be an Exhibit, including the usual features.

COUNCILLORS' MEETINGS.

The Annual Meeting, at 7 o'clock P. M., Tuesday, June 11, 1895; Stated Meetings on Wednesday, October 2, 1895, and on Wednesday, February 5, 1896, at the Medical Library, No. 19 Boylston Place, Boston.

F. W. Goss, M.D., *Recording Secretary*.
217 Warren Street, Roxbury.

SOCIETY NOTICES.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.—The Forty-fifth Annual Meeting will be held at Chambersburg, Pa., May 21-24, 1895. WM. B. ATKINSON, M.D., *Secretary*.
1400 Pine Street, Philadelphia.

NEW HAMPSHIRE MEDICAL SOCIETY.—The One Hundred and Fourth Anniversary Meeting will be held Monday and Tuesday, June 3 and 4, 1895, at Concord, G. A. R. Hall, 15 Warren Street. The Anniversary Dinner will be served at the New Eagle Hotel, Tuesday, June 4th, at 1 P. M. Tickets will be on sale at the hall by Dr. C. W. Lovejoy, of the Committee of Arrangements. The Anniversary Chairman, Dr. Robert Burns, of Plymouth, will preside.

GRANVILLE P. CONN, M.D., *Secretary*.

IN MEMORIAM.

W. H. FLAGG, M.D., AND S. W. BOWLES, M.D.

At the Annual Meeting of the Hampden District Medical Society held April 16, 1895, the following resolutions were unanimously adopted:

Whereas, Drs. W. H. Flagg and S. W. Bowles, both worthy and active members of this Society, have been removed by death,—

Resolved, that we highly appreciate the valuable services which they rendered to this Society and the medical profession, and that we hereby express our sympathy for their relatives and families in their severe bereavement.

Resolved, that these resolutions be entered upon the records of the Society and that a copy be sent to their families and to the *Springfield Republican* and the *Boston Medical and Surgical Journal* for publication.

MARSHALL CALKINS,
RALPH H. SEELYE,
PHEBE A. SPRAGUE, } *Committee*.

RECENT DEATH.

EX-SURGEON-GENERAL CHARLES SUTHERLAND died at Washington, on the 11th of May. Dr. Sutherland was born in the city of Philadelphia, May 29, 1829. He entered the army as an assistant surgeon in November, 1852, and served for several years on the plains. He rendered distinguished service during the war, as surgeon with the rank of major. He was medical director of the hospitals at Annapolis in 1864; and from 1864 to the end of the war was purchasing medical purveyor at Washington. In 1876 he attained the colonel's rank, and served at different times as medical director of the military divisions of the Pacific and Atlantic. On December 30, 1890, he was appointed surgeon-general, with the rank of brigadier-general, and served in that capacity until he was retired.

BOOKS AND PAMPHLETS RECEIVED

Vaginal Hysterectomy as Done in France. By Edgar Garceau, M.D., Boston, Mass. Reprint. 1895.

Original Articles.

REMARKS ON THE PSYCHICAL TREATMENT OF NEURASTHENIA.¹

BY JAMES J. PUTNAM, M.D., BOSTON.

THERE is hardly a subject in practical medicine which is of wider interest than the study of the nature and treatment of the degenerative neuroses and psychoses which the latitude of the present discussion will allow us to designate as neurasthenia.

For many of these cases to be sure, a simple and wholesome life of active usefulness combined with the steadying influence of encouragement and good advice, and the various means which we possess for improving nutrition and strengthening the circulation—prominent among which is the external use of water—suffices to secure a reasonable degree of health. Of all these methods, valuable as they are, I do not mean to speak. In other cases—and their number is great—the sympathy, the ingenuity, the intelligence and skill of the physician is drawn upon to its full capacity without being able to bring relief to his patient, and then perhaps—to crown his disappointment or increase his puzzle—the patient goes to an irregular practitioner or becomes a disciple of the Christian Science or Mind Cure, and gets better, for a time at least.

In selecting the *psychical treatment* for this discussion, I do not in the least mean to claim for it a place of undue prominence.

The best physician will always be he whose resources are the most extensive and the best mastered. But of these two conditions the latter is the more important, and I think neither the profession at large nor the neurologists have yet learned to master this branch of therapeutics to the extent that it deserves.

Every intelligent physician who deals with cases of this class can show a good list of successful results, the fruit of conscientious and skilful work on his part; but the methods are not yet so systematized but that we can all profitably compare notes and enrich our own resources by a study of the results obtained by those who have been working in special lines.

There are still too many of these cases that we fail to reach, and one still hears too much said about the impossibility of benefiting certain patients without appeals to their superstitiousness, such as a self-respecting physician should be unable and unwilling to make.

In a sense, I grudge the irregulars every case that they win from us, be they few or many, because I believe that with a deeper knowledge of human nature, a better understanding of psychology, a wider range of methods and greater skill in applying them, we could cure more of these patients ourselves.

Many patients are neurasthenic because there is no interest which sufficiently absorbs their energy. It is noticeable that fanatics and enthusiasts, even if naturally feeble or occasionally prostrated by sickness, are rarely permanent invalids. The strong attraction of their one interest focuses their powers, and steadies the ill-balanced forces of the mind. The brain is a machine for grinding out work, and if it can be made to do this effectively, even if the work is of a simple order, so that it be engrossing, the patient is sure to be the gainer. Certainly all of us have had some pa-

tients for whom enforced or chosen labor has been a great blessing, though from time to time it may have seemed to aggravate their sufferings.

Whatever other means of treatment have been chosen, this then, should be the general aim, to teach the brain to maintain a steady outflow of effective work, within the limits of the patient's powers. If I do not dwell on this species of mental influence at such length as its importance would warrant, it is partly because the principle is familiar, and partly because each patient's conditions vary so much that it would be difficult to lay down practical rules. It is, however, important to remember that the great usefulness of systematic gymnastics for neurasthenics is largely to be explained in this way. Children who have a tendency to neurasthenia can profitably carry this form of training to a high point, and for them, also, the training of the kindergarten and the technical instruction in the schools of higher grade may be made of great service, by developing the sense of power in the direction of constructiveness and the overcoming of obstacles.

Every one is familiar with the remarkable benefit occasionally obtained by the use of the so-called Dyer's method in the treatment of asthenopia. The action of the very gradual increase in the use of the eyes must surely be mainly a matter rather of psychical than muscular training. On somewhat similar principles perhaps, the persistent and careful use of gymnastics, directed by a skilled teacher, can often be made of material service in the treatment of neurasthenic patients.

What is meant by mental treatment, and what sorts of symptoms among the many that are met with in neurasthenia may be considered as possibly amenable to it?

A few years ago these two questions would have been answered in a far narrower spirit than now, and it is not probable that our conceptions are even yet as wide as they will eventually become. Inasmuch as the cortex of the brain is a great projection plane, in Meynert's sense, on which all the processes which occur in the body are represented, so that they may and must form part of the raw material of emotions, ideas, and memories, it is theoretically conceivable that all these processes are in some measure liable to be reacted upon by the operations of the mind. But, without taking advantage of so wide a generalization as this, every one will admit that the investigation into hysteria, and the kindred phenomena of experimental hypnotism, and the study of the clinical rôle played by disorders of the mind in the production of such affections as anemia and jaundice, and a host of others, have greatly enlarged our conception of the influence which this unseen agency may exert.

Hysterical edema, hysterical atrophy, hysterical anemia, and the like, are now considered as symptoms of a disturbed action of what may fairly be called the mind; it is probable that more of the symptoms of neurasthenia are of that origin than would generally be admitted, though the ultimate chemical causes of the neural weakness which underlies the disease very likely affect the whole nervous system and not the brain alone. At all events, many of the worst symptoms of neurasthenia, such as the morbid ideas, the causeless exhaustion, the sense of inefficiency and loss of control and of identity, the tendency to depression bordering on melancholia, the asthenopia and kindred

¹ Read before the Boston Society for Medical Improvement, March 4, 1895.

localized weaknesses, the persistent "associative" pains, are in great part, though perhaps not often wholly, of psychical origin. It is such groups of symptoms as these that I shall have in mind in the following remarks.

The consciousness of any individual at a given moment forms but a small fragment of what may be termed his mind. It consists of the small nucleus of bodily sensations and recurrent ideas, the constant persistence of which is necessary to give the sense of personal identity, and of a certain number of other ideas and feelings which cohere less strongly but form a subconscious background for his thought. Outside of the personal consciousness of the moment there are countless clusters of mental processes which are registering or regulating the movements going on in the vast workshop of the body, and waiting their turn to subserve the interests of the next moment's consciousness. Perhaps, indeed, it may be said that in health, and in proportion to the perfection with which the mind is organized, the consciousness of the moment gains a fulness and background of great value even from mental processes which lie for the most part outside of it. The mind as a whole might be compared to a deep and swiftly flowing river, and the personal or habitual consciousness to an eddy beneath the bank, which forever seeks to change its shape and draw in water from without, yet never wholly loses its identity.

In health there is a certain degree of co-ordination and mutual support between all the vast activities of the mind, binding them to the consciousness on the one hand and to the vital functions of the body on the other; and though these various activities are grouped in clusters which are more or less independent, just as in one stream there may be many eddies, yet no antagonism or interference takes place between them. The healthy man feels himself a consistent character, and can predict what he will do, not only as regards those new exigencies which require logical thought, but also as regards those which depend upon the promptings of all the deeper-lying and subconscious processes with which his mind is stocked. His reactions to the various problems which present themselves are as prompt as the conditions of the case permit, and the attention of his consciousness is at liberty to devote itself, unembarrassed, to the interest of each new question as it arises.

In neurasthenia, and still more in hysteria, this harmony of action, tending to the furtherance of single interests of the individual, one after another, is more or less deeply impaired. The patient's consciousness is no longer permitted to focus itself exclusively upon the main object of his attention, but unrelated ideas and emotions intrude themselves, to the detriment of his flow of thought, just as floating opacities in the vitreous humor of the eye drift over and obscure the field of vision.

I will not pursue this theoretical survey further. I only desire to call attention to the fact that these intrusive ideas and sensations lie partly or wholly outside of the patient's ordinary sphere of consciousness and will. Even when they recur so often as to form almost constant elements of his personal consciousness, the fact that they originated in deeper lying strata of the mind or have become secondarily rooted there makes it almost impossible for him *without special training* to make them objective, or to help himself

much in ousting them through any logical process of thought. The patient is a puzzle to himself and his struggles often seem to carry him deeper into the mire. It is the physician's function to aid him in ridding himself of these disturbing elements of both his conscious and unconscious mental life, partly by surrounding him with influences which will address themselves directly to the subconscious strata of the mind where these morbid processes are going on; partly by teaching him to use his will, indirectly, in displacing them.

It is this notion of the possibility of an outsider's assuming to exert an influence over regions and processes of the patient's mind which he himself is wholly unable to reach and explore, that seems to many persons so foreign, so obscure, and so unreasonable, and yet it is a notion of fundamental importance for securing to the physician the necessary confidence for dealing with neurasthenic patients.

It is also very desirable that the physician should form an accurate physiological conception of the processes by which thoughts are made useful as therapeutic agents, so far as this is possible. A thought is the outcome of a physiological stimulus and becomes a stimulus in its turn, for good or evil.

If it is conceivable that by words or by other forms of adequate stimulus (for a word may be an adequate stimulus just as well as a blow) we can arouse, *within* the realm of consciousness, thoughts and sentiments—or, in physiological language, nerve currents—favorable to the physical and mental health, it is equally conceivable that, by similar stimuli, we should be able to arouse similar images or currents in the regions of the mind lying *outside* the ordinary realm of consciousness. In certain forms of hysteria, indeed, we sometimes have to deal with two definite personalities for each single patient; and even in the case of neurasthenia this is practically true, for the "moods" of the neurasthenic patient are such as to change his characteristics to a high degree. Though ordinarily critical, distrustful, and suspicious to a degree that he cannot control, yet there are times when these characteristics are laid almost wholly aside.

It is under the latter circumstances, that the most effective work is to be done in the way of introducing ideas or sentiments of hopefulness and self-confidence, or of familiarizing the patient with the image of himself freed from harassing thoughts and feelings, and with his nutritive processes in better train. It is, too, in the hope of eventually influencing these deeper strata of the mental life, which form such an important background for the habitual consciousness, that we should stand ready to repeat our encouragements over and over under the same or new forms, or to exert a thousand influences of indirect kinds, some one of which may be successful in planting these sentiments of hopefulness where they cannot easily be dislodged, and where they may act to counteract the emotions and processes adverse to health. The choice of such influences is apt to be determined by the instinct or experience of the physician. This must perhaps always be so; but I think it will be a gain, especially for those physicians in whom these instincts are not strongly developed, to systematize them, and to study the principles on which they rest.

(A) The principal means which have been used to help the patient exert his own reasoning and will in overcoming his disease are the following:

By demonstrating to him, with all the patience and

repetition that is necessary, something of the nature of his disease, the fact that his symptoms—his morbid fears, for example—do not necessarily entail the gloomy outlook which he fears, and that if he can change his point of view, can look on himself as capable of better things, and can learn to look in the right direction for the expected good, it will be seen. It is, of course, only now and then that this attempt succeeds; but the better hope is that, if our demonstration is really well thought out, and is presented again and again under different forms, some argument or word may make a relatively deep impression, and if it happens to coincide with a wave of improvement, will come to mind again as one of the re-enforcing associations of this latter state and give it a logical cast. In this way it often happens that the physician's logic gets credit which it does not strictly deserve; but nevertheless it does occasionally seem that an intelligent patient is led by a powerfully presented or thoroughly grounded argument to make a strong and successful effort to get the better of his own delusive reasoning.

Dr. Edward Cowles has exerted himself to develop this method, and has succeeded in several cases, even where a good deal of melancholic depression was already present.² It is unquestionably important, if not essential, for success that a definite and sufficiently logical plan of exposition should be followed. Even if this is not clearly understood by the patient in exactly the same sense as by the physician, the presentation can hardly fail to increase confidence in the physician for the thought and study which he has given the case. Usually the anxious patient is keen to detect some flaw in the reasoning, but where the emotional state is not too deep and the symptom is an isolated one, it is well known that success is more common. Abundant instances of this are on record, and a striking example is given by Dr. Prince in his interesting discussion of the "association neuroses" (the use of an artificial rose to cure a fancied imperative tendency to sneeze at the smell of roses).

A great deal is gained if the patient can be taught to really conceive of himself as capable of being a different person; for different he must be, as a rule, in habits of mind, temperament, and often even habits of daily life, if he is to make any material improvement. One reason that this is difficult is that the patient finds for the moment a positive relief in acting out his morbid instincts and indulging his morbid thoughts, just as persons with morbid impulses to repeat words or acts and the like, find for the instant a certain satisfaction in doing so, though it is a satisfaction which entails a new torment. There is a certain temporary relief to many persons in assuming the mental habits of a Mrs. Gummidge, but in the long run it is a drain upon the nervous strength.

It is interesting to note that persons who have been exposed to some powerful influence, such as a deep personal experience or some religious change of sentiment, and have thus had effected rapidly the sort of change in temperament which the physician tries to bring about slowly, are apt instinctively to show their own recognition of their new life by adopting simpler forms of dress or by changing their habits and associates, and, in the reverse sense, it may sometimes be possible to favor the mental change by adopting pri-

marily some outward expression consonant with the desired order of things.

It is a matter of immense importance and often entirely possible, to deliberately adopt and persistently maintain the demeanor of cheerfulness and hopefulness. It is easier to act a new rôle in a new and appropriate dress. Prof. William James has dwelt upon this point in his studies on the nature of emotion.³ It is for this reason, in part, that frequent changes of surroundings, if only for a short time, are often of such benefit to neurasthenic patients.

It must, however, be remembered that it is infinitely more difficult, and requires infinitely more pains and persistence to effect an alteration in character than an alteration in mood. *Cælum, non animum, mutant, qui trans mare currunt.* The physician must distinguish between the cases that can really be helped in this way, and those which might even be made worse. The patients of the latter class, if they are really intelligent enough, can often do best by looking their difficulties clearly in the face and striking for a more radical improvement which shall be associated with the growth of character and will, and the founding of the really soundest and best habits of daily life.⁴

It is better, where the facts justify or can be expected to justify the assumption, that a patient should learn not to look on himself as an invalid, but, rather, as a person who is well, but who must have a shorter working day than some of his neighbors, and who realizes that he has his health at the price of certain sacrifices which he is ready to make.

Some neurasthenic patients suffer very much from a sense of disgrace at being ill with a condition of nervous weakness; and I cannot but think that this is partly due to the existence in the community at large of a barbarous sentiment of this sort like that which used to be held with regard to insanity. If the patient can be persuaded that he is no more responsible for an attack of neurasthenia than for an attack of gout, provided he is doing his best to get rid of it, and if in this way he can be led to take a somewhat objective interest in seeing what he can make of himself, an important point will have been gained.

A special cause of distress to many of these patients is the fear of insanity, to which they think their symptoms are tending. Fortunately, it usually lies in the power of the patient and his physician to make this fear a groundless one; and no effort tending to this end should be spared, especially in the early stages of a neurasthenia which is likely to become chronic. In this, as in every part of the treatment, it is essential to form powerful associations in the mind, which have a strong sense of hopefulness and cheerfulness as one of their elements; hopefulness associated with signs of improvement which the patient should be systematically taught to recognize; hopefulness associated with definite logical processes through which the patient has been taught to disprove his own morbid reasoning; and with active and engrossing occupation. Van Eeden says that he has

² See also Lange, *Les émot ons*; and Fere, *La pathologie des émot ions*.

³ "In the Will work and acquire, and thou hast chained the wheel of Chance, and shalt sit hereafter out of fear from her rotations. A political victory, a rise of rents, the recovery of your sick or the return of your absent friend, or some other favorable event raises your spirits, and you think good days are preparing for you. Do not believe it. Nothing can bring you peace but yourself. Nothing can bring you peace but the triumph of principles."—*Emerson, Self-Reliance*.

⁴ See also Prof. Josiah Royce's very interesting analysis of the case of John Bunyan, in *Philosophical Review*, 1894.

found it of service to recommend to patients harassed with morbid ideas to study some foreign language and to repeat their lessons to themselves when alone, as a distraction from their thoughts; and the same writer speaks of the fact that the artist, William Blake, got rid of his visions by painting them, thus making them an object of objective interest. Others have similarly helped themselves by studying and describing their morbid fancies.

(B) Methods of influencing the patient's mental state *without the direct intervention of his own will.*

It is needless to point out that the most striking of these methods are those which have been discussed under the name of hypnotism. I should, however, be glad if I could show that the hypnotic methods used in practical therapeutics by the best men have nothing abhorrent in them, and are only a further development of various means of treatment familiar to every one.

These methods may be looked at from two points of view: first, as increasing the personal influence of the physician; second, as increasing the susceptibility of the patient.

Every one who deals with neurasthenic patients knows how much the *personal influence* of the physician counts for in their treatment; and knows, too, that the gain of this personal influence is not without its objectionable side. It furnishes opportunities to the charlatan as well as the conscientious physician; and it is a truism to say that the latter is under obligation to use the influence which he gets, solely for the benefit of the patient and for his best benefit. He should feel it his responsibility to leave the patient not only improved in health but with a stronger character, and so far as practicable free from a sense of dependence upon him. It is the duty of the physician, as Madame de Staël said of the ideal legislator, to make himself unnecessary.

Besides the many and almost indescribable means at the physician's disposal for increasing his personal influence, there is one of some slight value which is secured to him by the growing habit of the physician's dispensing his own medicines, at least to a certain extent. It is not a good thing for a nervous patient to carry off a prescription which he can mull over and criticise at his leisure and perhaps get refilled or hand to his friends as if he were himself the doctor. The physician's medicine ought, logically, to be, like his advice, a part of his personal armamentarium, and if it brings him a little additional glamour in the eyes of the patient, there is gain for both, provided the doctor is an honest man.

More important than the therapeutic influences already alluded to, if only because more capable of systematization, are the means — to use a conventional phrase — of increasing the patient's *suggestibility* to the beneficial influences of every sort by which the physician seeks to surround him. In general, this is done either by taking advantage of states in which the consciousness is favorable to the particular influence and lends it its support, or else states in which the conscious attention is otherwise absorbed, or temporarily in abeyance. Under the latter circumstances an impression can sometimes be made upon the mind which may be so strong as to become a permanent working force, affecting nutrition on the one hand and modifying the current of thought on the other hand. The new influence gets into the cham-

bers of the mind by the back door, but for that very reason is able to entrench itself the more strongly, because the owner of the house hardly realizes what the intruder is about until his presence has become so familiar that he passes for an assured member of the family. To use another simile which I have found very useful, let us suppose that we wish to drop a marble down through a funnel. So long as the funnel is kept in motion, the marble will roll round and round in the brim; bring it to rest and it will fall through. In the same way, if it be desired to drop an effective idea into the deeper strata of a patient's mind, his critical consciousness must first be shunted out, or the idea will be rolled about and torn to pieces in the cogwheels of his habitual and false logic.

It is well known that many healthy persons may be made, in an abstracted mood, to perform quite complex mental acts almost automatically, also that powerful impressions made on any one, especially in youth, may excite antipathies or prejudices which the reason, even years afterwards, is helpless to dislodge.

It is in this way that "fixed" ideas become such dominant forces in men's lives. Some of these fixed ideas are habitually present to consciousness, though even then they have their roots tenaciously intertwined with mental processes over which consciousness never had or has ceased to have authority.

In other cases, and especially with hysterical patients, the fixed ideas are known to consciousness only through the acts to which they prompt. If, under these circumstances, it be considered a misnomer to speak of these mental processes as "ideas," or as evidences of a "subliminal consciousness" (Myers), or of "unconscious cerebration" (Carpenter), at least it will be admitted that these words denote physiological processes occurring in the brain and leading to such and such results, and that for exciting such physiological processes, words falling on the ear, or any of the more subtle modes of human converse may be an adequate stimulus. In other words, there is nothing unreasonable in the notion that mental processes of which the patient is unconscious should be induced or modified by "verbal suggestion."

The working out of the methods for taking advantage of susceptible or "suggestible" moments for the implantation of ideas or initiating physiological processes favorable to mental and physical health, either with or without the conscious co-operation of the individual, has been carried on by educators, psychologists, irregular practitioners, and by regular physicians; by every one, in fact, with whom it has lain deeply to exert a strong influence over his fellows.

A large part of the study of these methods has been conducted wholly unsystematically, and often for selfish ends, but may still be psychologically of interest.

The physicians who have had the most success in the treatment of neurasthenic cases have gained it by working up special methods, which although dissimilar in detail have been from the very nature of the case similar in principle. Some of them have bent themselves to invent new ways of diverting their patients' morbid energies into channels of active work, or of keeping them under the healthy influence of an intelligent nurse, and prescribing with care the details of their daily life; while for a certain class of patients the plans worked with so much skill by Dr. Weir Mitchell, have been studied and utilized with profit by physicians to whom this method was congenial.

Putting aside the influences directed to the improvement of the nutrition, it may be said that all these methods have one feature in common.

Whether it is sought to make the patient realize that he can after all do some effective work, or learn to be cheerful, or learn to accept, temporarily, the physician's will for his own, it is always found advisable to place him under special and peculiar conditions to get the best effect. Either he is isolated, or he is put to bed, or he is kept under the new and carefully chosen influence of another individual. In other words, to use the terms of the day, it is sought to influence him in "suggestible" or susceptible moments of his life.

All those who have studied the literature of this subject are aware that not only the artificial but the natural sleep, or half-sleep, sometimes brings with it an increased receptivity of verbal suggestion. I do not know to what extent this has been utilized, but I was interested to find, one day, that an intelligent nurse was using this method, either following her own instincts or led by some tradition, for the sake of making a child sleep better.

It is, however, the modern students of hypnotism and hysteria and kindred subjects that have undoubtedly carried on these inquiries the most deeply and systematically. There is no doubt that the methods of the school of Nancy are invaluable for those who have to use them properly, and practically free from danger under the same conditions. The physician's personal influence over the patient is increased, but so far from this in itself tending necessarily to enslave the patient's will, it may be made, as in health, to strengthen his will and character if the physician's efforts are intelligently directed to this end.

There is, however, a strong prejudice in the minds of some of the best and soundest people in the community against the use of anything which goes under the name of hypnotism, as seeming to imply the reign of superstition and mysticism, and a falling off from the sound principles which underlie the best mental health. This prejudice is founded on a misconception, but it must be respected, and yet it must not be allowed to interfere with our giving such persons the full benefit of our skill any further than is necessary. Very often it is possible to secure the first degree of the hypnotic sleep, or enough increase in susceptibility to be useful, without mentioning the word hypnotism. If a patient comes to us already coached in hypnotic doctrines, it is often an excellent plan to talk it over with him further; and there are many cases where it is desirable to do this in any event. In general, however, it seems to me a mistake for the physician to assume that a patient can really understand so complex a subject unless when presented in the simplest way; and I think it is better for him to come down to the patient's level and to explain his intentions briefly and in popular language, than to use terms which may, for all he knows, carry mysterious or terrifying associations. All that is necessary is that the patient should give his full and intelligent co-operation to promoting the induction of quiet or sleep; and if he has confidence in his physician, it can often be made sufficiently clear to him that this is a suitable thing to do.

To illustrate my meaning more fully, I will give briefly the case of a lady who has been suffering for many years from a distressing nervous cough which attacked her on the occasion of every embarrassment,

even the slightest. I persuaded myself very soon that no treatment but one of a psychical character would help her, and was ready, if it should prove necessary, to propose to her hypnotism, pure and simple. Before doing this, however, I determined to secure the quiet and suggestibility which often attends, or more strictly speaking, can be made to attend the use of static electricity. I told her that I was going to give her a treatment addressed to quieting the general mental irritability from which she suffered, and that at the same time her cough, which was a sort of nervous trick, would become less troublesome; that I wanted her to relax her muscles and her thoughts, and let herself sink into a state of restfulness, which would then stay with her through the day. The result was eminently satisfactory. She made in all ten visits, and before these were over her cough had become so much better that she considered it practically cured, while her general conditions likewise improved. The word hypnotism was never mentioned, and though I am not sure that she went actually into the stage of not being able to open the eyes, yet all the abstraction that I needed was obtained, and that without the necessity of explanations on my part, or of making her an adherent and perhaps prophet of hypnotism, which she would surely have misunderstood. I have treated many other patients in this same way with excellent effect, sometimes using more, sometimes less, in the way of verbal suggestion. I recall especially two cases of asthenopia of long standing, which were greatly benefited.

It often happens that patients fall actually asleep under the agreeable sensations and monotonous sounds attending the application; and although it may well be that for the best "suggestive" effect the operator must take special pains to keep the patient's mind in touch with his own during this process, yet there would seem to be no reason why this should not be done if necessary. On the other hand, the treatment often carries its own suggestion, and the necessity for the physician to intrude his own personality is largely obviated. I am myself in the habit of asking an assistant nurse to carry out the applications, so far as possible, and consider that if the patient is thus led to take a more matter-of-fact view of this process, it is so much the better, provided the desired end is gained.

In this way I have treated with good though not invariable success a number of cases of neurasthenia, and several cases of the milder forms of melancholia. How much the electricity in itself has contributed to the result, I do not feel able to say; but a little light may perhaps be thrown upon this point by some observations on temperature to which I shall refer in a moment. I do not vaunt this method as making hypnotism unnecessary, for both my experience and judgment would lead me to think that where it is a question of dealing with a serious case, requiring a high degree of personal influence or of suggestibility — suggestibility, that is, with special relation to the physician — more can be accomplished through the methods of Nancy, than in any other way, provided the physician is skilled in their use.

It is often said that neurasthenics are not hypnotizable, but the facts do not bear out this view, although success often implies more time and patience than most physicians can give. These statements are borne out by the elaborate statistics of Schrenck-Notzing based on the analysis of 228 cases treated

by a limited number of the best observers.⁵ About 7.3 per cent. were shown to be non-influenceable; about 32 per cent. influenceable only in slight degree; nearly 61 per cent. susceptible of deeper degrees of influence. As regards the result, about 31.6 per cent. received but slight benefit or none; nearly 37 per cent. were considerably relieved; 31.6 per cent. were reported as cured.

The detailed histories illustrating the psychical treatment of the psychoses of this class which are given by Van Renterghem and Van Eeden⁶ are full of interest, since they enable us to see the progress of the cases, their exact character, and force us to recognize that in some of them the treatment only reinforced the patient's efforts in his life-long struggle with an incurable malady.

The details of their treatment, which is by no means confined to the use of verbal suggestion, but are those of the broad-minded physician as well, are worthy of special note. To make up for the slight degree of induced suggestibility they sometimes continued the treatment through one or two hours, the patient lying quietly with closed eyes and being talked to from time to time in an appropriate manner. I cannot but refer in this connection to an important suggestion of Bernheim's, to the effect that a hypnotized patient is not a totally changed person, much less changed into a mere lump of clay, and that frequently it is necessary to address him with the same forms of argument that would have been used in his waking state. It is also important to remember Forel's caution, that the hypnotized patient is a keen mind-reader and may readily detect a false note in the physician's treatment. If he does not detect it to resent it, as he might do if appealed to with sentimental terms, or as a child, or an inferior person, and the like, then he may detect it and accept such terms as appropriate, to the injury of, we will say, his subliminal self-respect. It is not to be forgotten that the physician is a dual or complex person as well as the patient, and he owes it to the latter to have a sharp lookout on the workings of his own subconscious personalities, which are to be brought into such close contact with those of his subject. It is this sort of thing rather than anything more gross, that seems to me to constitute the true danger of modern hypnotism. The physician's personal influence is heightened, and if it is not sound the patient may detect the fact to his own disadvantage, in spite of the verbal suggestion which is made to him.

The principal good effect to be looked for from the psychical treatment of neurasthenics is, by general acknowledgment, an improvement in hopefulness and the general emotional background of the thought and the relief of certain symptoms. The attempt has sometimes been made to go further than this, and, after patiently unravelling the web of false logic which the patient's fears have woven, and tracing back his fixed and morbid thoughts to their original source, to neutralize this primal mental conception with the aid of the hypnotic sleep.

It is well known to all students of the subject that Janet and Breuer and Freund have published remarkable cases of relief from fixed ideas in *hysteria*, obtained through this method; but I doubt whether

we can in strictness admit that the same process is likely to occur with neurasthenic patients, whose mental machinery and its disorders are more complex than those of the hysteric. It is legitimate to make the attempt, and probable enough that the patient would be relieved, but in many cases a close critic might say that the patient had probably only lent himself to the belief that the cause of his unhappiness had been unearthed, with the half-whispered hope that he might thus be cured.

In the course of the treatments with static electricity I have been much interested in studying the changes of temperature which occurred, being led to do so through interest in the extended observations of like character made by Dr. W. J. Morton of New York.

Dr. Morton had found that the temperature of neurasthenic patients was generally subnormal, though sometimes above the normal, and that under an electrical treatment it usually swung, in either case, towards the normal line; and he was inclined to attribute the change to the tonic action of the electricity upon nutrition.⁷

I have observed the temperature in a limited number of cases, during applications of static electricity (breeze, with enjoined rest), and I have also studied the effects of a modified suspension treatment in cases of locomotor ataxia, of massage, and of spurious electrical application, the patient being placed in the chair as usual and enjoined to relax the muscles and close the eyes yet without being connected with the plates of the machine, which, however, were put in motion as usual.

The results were as follows: The temperature in a case of exophthalmic goitre, with nervousness and debility, was either unaffected, or, what was more common, rose from a few tenths of a degree to a degree, but on several occasions when no electricity was actually given the result was the same.

		Temperature		Pulse	
		Before.	After.	Before.	After.
March 11	. . . . .	98	99	150	154
" 13	. . . . .	99	100	128	118
" 15 (no elec.)	. . . . .	99	99	148	148
" 20 (no elec.)	. . . . .	98	98	112	104
" 22	. . . . .	99	99.8		
" 27 (no elec.)	. . . . .	98.4	99.8	125	123
" 29	. . . . .	98.8	99.3	125	124
April 1 (no elec.)	. . . . .	98.6	99.9	124	118
" 3	. . . . .	99.6	100.6	134	129
" 5 (no elec.)	. . . . .	99.2	101.2	138	134
" 10	. . . . .	100	101	130	130
" 12	. . . . .	99	101		

In the case of a boy with a slight chronic chorea the figures were as follows:

		Temperature		Pulse	
		Before.	After.	Before.	After.
March 28	. . . . .	98.8	99.6	96	80
April 1 (no elec.)	. . . . .	99	99.4	78	76
" 4	. . . . .	98.6	99.2	78	75
" 8	. . . . .	99	99.2	80	78
" 11 (no elec.)	. . . . .	99	99	78	80

To judge from these two observations there would seem to be some doubt whether it is the action of the electricity in itself that causes the elevation of temperature, and not rather some more subtle influence on the nervous system, which can be exerted in various ways.

⁵ Ein Beitrag zur Psychischen und Suggestiven Behandlung der Neurasthenie, 1894.

⁶ Psycho-Therapie, Paris, 1894.

⁷ Transactions of the Electro-Therapeutic Association, 1893.

For the sake of control I give a summary of the temperatures taken before and after the treatments by modified suspension in cases of tabes, partly at the Massachusetts General Hospital, partly at my private office. These observations led me to note, incidentally, the interesting fact that, occasionally, in tabetic patients, the temperature is regularly very low. In one case the highest (morning) temperature that I could get, during the period of observation, was 98.2° F., with five minutes' exposure of the thermometer in the mouth. Generally it ranged from 97° to 97.8°, and after one treatment it dropped to 96.5°. In another case the initial temperature (taken at about 10.30 A. M.) was on one occasion 96.4°; and that after treatment, 96.2°.

There was no regularity as to the direction in which the changes occurred, nor could it be said that, as Dr. Morton's observations seemed to indicate, the deviation was regularly towards the normal line. The amount of change varied from nothing to .11° F., but changes of .4° to .6° were common.

This is not the place to discuss the psychical treatment of tabes, and I will merely say in passing that it is to this influence that I have been inclined to attribute the favorable effect of the stretching treatment in several cases.

It is, I think, certain that just as patients with sclerosis and organic degenerations are liable to exhibit more or less tendency to neurasthenia and hysteria, so the same class of patients often have more power to counteract some at least of their symptoms than they are aware of or can voluntarily command.

I have recently had a patient, a young girl, with diffuse sclerosis of the spinal cord (verified by autopsy, after death from an intercurrent disease), whose power of getting about was very materially increased through the mental aid of a skilful treatment by Dr. Hamilton Osgood.

In conclusion, I wish to say a word about the "Mind Cure" and "Christian Science" movement, which seems for some reason to have found a safe anchorage in our community. Although, in general outline, this is only the re-echo of old histories, yet such movements get a special tone from the characteristics of the generation and community in which they occur; and I have been greatly interested in the observations which I have made during the past few years.

It has seemed to me noticeable that patients of a simple and impressionable and at the same time not critical disposition, may become more sober, serious, and independent, and far more likely than before to count as figures instead of ciphers in the world. If they are sincere, they are apt to become fanatical for their new doctrines though not necessarily intolerant of those of others. If their critical instinct is a little stronger they are likely to suspect that they have bartered a part of their mental independence for the sake of their recovery.

Another interesting fact is, that besides the improvement in spirits and hopefulness, and what might be called moral regeneration, there are often certain by-products, as one might say, of this treatment, which are noteworthy, especially because they are liable to appear under any treatment of analogous kind, even when not made the subject of verbal suggestion. Such are the relief of constipation and menstrual pain, and improvement in the general nutrition. It is also noteworthy that in many instances the whole treatment

is carried on, not only without specific suggestion, but without even conversation of any kind between the patient and the operator. The two simply sit side by side for a sufficient length of time for the production of the required state of mind on the part of the patient, who then takes his leave without a word. A reasonable theory to account for the good effect of the treatment is, that the patient, whether he starts in a receptive mood or not, finds some day, perhaps through the operation of outside causes, that he is better, and at least suspects that the treatment is having its mysterious effect. The seeds of hopefulness and confidence which are thus implanted so regulate the subconscious forces of the mind that the gain becomes steady and progressive.

HEAT PROSTRATION. AN ANALYSIS OF ONE HUNDRED CASES OCCURRING IN THIRTEEN CONSECUTIVE YEARS.¹

BY CHARLES F. WITHINGTON, M.D.

THE dangers arising from heat prostration affect most particularly that portion of the community which is obliged to work at all times, irrespective of weather and in exposed situations,—in other words, exactly the class of persons for whom a hospital is especially designed. Hence, probably, a larger proportion of the cases of sunstroke and heatstroke which occur in the city are brought to the City Hospital than of any other accident to which the community is liable. It has seemed, therefore, useful to collect some facts from the hospital records bearing upon insolation. The records of the various medical services have been examined from the year 1882 to 1894 inclusive, and all cases of heat prostration tabulated. These numbered a little over a hundred, but after rejecting a very few in which the evidence was not perfectly satisfactory as to the nature of the illness, or where the records were incomplete, there remained exactly one hundred well-marked cases of insolation upon which the following report is based.

As was, of course, to be expected, the male sex was affected in a vastly preponderating degree. There were 95 males and five females. The oldest patient was 70, and the youngest 19, the average age being about 30, and representing that of the most laborious portion of the community.

The time of day at which the attack occurred was deemed of sufficient interest to be noted, and it appears that most of the cases happened in the afternoon. Fifty-two are recorded as occurring after noon, as against 15 in the forenoon, three at noon, and one in the night. Two to three P. M. represents the most frequent hour of the day, as would be natural, after several hours of heat have overcome the resisting capacity of the organism.

The great variation in a number of cases of insolation in consecutive years is illustrated by the following table:

CASES BY YEARS.

1882	4	1890	2
1883	8	1891	5
1884	8	1892	16
1885	3	1893	9
1886	2	1894	14
1887	19		
1888	9		100
1889	1		

¹ This paper will appear in the Boston City Hospital Reports, Sixth Series.

The distribution of the cases as regards the date of their occurrence is shown by the following table, in which is incorporated also the meteorological facts of maximum and minimum thermometer, and the mean humidity. These data are furnished through the kindness of Mr. J. W. Smith, Local Forecast Officer at Boston, from the official records of the United States Weather Bureau:

Date.	No. of Cases.	Maximum temperature.	Minimum temperature.	Mean relative humidity.
July 9, 1882.	1	87	65	69
" 27, 1882.	1	98	68	56
" 29, 1882.	1	92	68	59
Aug. 9, 1882.	1	89	68	67
June 6, 1883.	1	91	65	82
July 4, 1883.	1	96	64	68
" 6, 1883.	1	96	69	67
" 7, 1883.	1	96	74	63
" 12, 1883.	1	87	59	71
" 16, 1883.	1	78	62	87
Aug. 23, 1883.	1	82	68	53
June 6, 1884.	1	89	63	65
Aug. 18, 1884.	1	94	68	82
Sept. 5, 1884.	4	90	71	61
" 6, 1884.	1	88	66	61
" 10, 1884.	1	94	71	75
July 22, 1885.	1	86	67	60
" 25, 1885.	1	91	73	76
Aug. 13, 1885.	1	86	73	80
July 8, 1886.	1	81	70	62
Aug. 10, 1886.	1	86	64	62
May 10, 1887.	1	86	48	51
" 24, 1887.	1	77	64	76
July 2, 1887.	5	95	72	63
" 3, 1887.	1	88	71	76
" 13, 1887.	4	92	66	63
" 25, 1887.	1	87	74	75
" 26, 1887.	1	84	68	86
" 27, 1887.	1	78	62	91
Aug. 1, 1887.	2	80	70	74
" 9, 1887.	2	77	58	65
June 7, 1888.	1	81	56	73
" 11, 1888.	1	81	61	66
" 22, 1888.	1	88	55	79
" 23, 1888.	2	96	69	66
" 24, 1888.	1	78	57	88
July 3, 1888.	1	74	56	56
Aug. 2, 1888.	1	87	61	58
" 18, 1888.	1	84	68	67
July 30, 1889.	1	85	72	90
" 31, 1889.	2	95	76	74
June 15, 1891.	1	97	67	52
" 16, 1891.	2	96	73	52
Aug. 12, 1891.	1	90	72	80
" 25, 1891.	1	88	74	80
June 13, 1892.	2	94	72	59
" 14, 1892.	2	96	74	66
July 13, 1892.	2	91	70	73
" 14, 1892.	1	87	72	70
" 25, 1892.	2	94	73	69
" 26, 1892.	3	96	74	62
" 27, 1892.	2	93	72	47
Aug. 9, 1892.	1	89	71	78
" 10, 1892.	1	94	76	66
June 5, 1893.	1	91	65	72
" 6, 1893.	5	90	73	78
" 14, 1893.	1	70	58	96
" 15, 1893.	1	82	66	87
Aug. 26, 1893.	1	93	68	71
June 16, 1894.	3	92	66	68
" 17, 1894.	2	95	72	55
" 22, 1894.	1	88	66	70
" 23, 1894.	2	94	72	58
" 26, 1894.	1	88	66	84
" 28, 1894.	1	87	69	71
July 2, 1894.	1	86	72	74
" 20, 1894.	3	95	72	65
" 21, 1894.	1	87	65	74
Aug. 8, 1894.	1	90	67	67

From the foregoing table it is seen that the earliest date of any sun-stroke was May 10th, and the latest August 25th.

The following extracts from the Daily Journal kept at the Boston office of the Weather Bureau, are also contributed by Mr. Smith, and refer to dates which were particularly prolific in heat strokes:

September 5, 1884, "weather generally clear, and

very hot; wind from west or south-west." July 2, 1887, "very hot and clear; wind west all day." June 13, 1892, "continued high temperature, very warm, but owing to the low humidity, between forty and fifty per cent. not so oppressive as otherwise would be." June 14, 1892, "slightly higher temperature and very hot. The extreme heat caused many cases of prostration and sun-strokes." July 25, 1892, "partly cloudy day, with very humid atmosphere and high temperature." July 26, 1892, "highest temperature recorded thus far this summer; much lower percentage of moisture in the air (forty-four per cent. at 3 P. M.)." July 27, 1892, "continued high temperature, less moisture in atmosphere than for several days past." June 6, 1893, "high temperature; numerous prostrations from heat."

The relative humidity, it should be said, is taken regularly but twice a day, so that a true mean is difficult to get at. Still, for our purposes the average answers very well.

In only 73 of the cases does the history show whether the heat-stroke was due to direct exposure to the sun or not. Of these, about two-thirds, or 51 cases, were direct, and 22 were indirect. In the former category were, naturally, many laborers upon the streets and in ditches and sewers. There were half-a-dozen teamsters, some of whom were stricken while on their wagons. One, it is worth noting, drove an ice cart. Hod-carriers, coal-heavers, peddlers, masons, carpenters, quarrymen, farmers, etc., made up most of the remainder. Of course, a number of the direct cases occurred in persons not working, but walking on the streets.

Among the indirect cases were three out of the five women. These were employed respectively as cook, worker in a steam laundry, and dish-washer in a saloon. Among the men no indoor occupation proved so liable to heat-strokes as work in sugar refineries, there being five cases among this class of workmen. Iron-foundry men, bakers, stokers, stablemen, and plasterers were also overcome by heat without direct exposure to the sun's rays. A night watchman was found unconscious in the morning in his factory, having had to make the rounds of the boiler and engine room, dry-house, etc., in some of which the temperature was known to have been on the night in question 93°.

The following table shows the maximum temperatures recorded while the patient was in the hospital, with the results as regards recovery for each degree of temperature:

Temperature 111 or above . . .	3 deaths, 0 recoveries.
" 110-111 . . .	4 " 0 "
" 109-110 . . .	6 " 6 "
" 108-109 . . .	6 " 5 "
" 107-108 . . .	3 " 5 "
" 106-107 . . .	1 " 4 "
" 105-106 . . .	1 " 3 "
" 104-105 . . .	0 " 5 "
" 103-104 . . .	2 " 3 "
" 102-103 . . .	0 " 3 "
" 101-102 . . .	0 " 1 "
" 100-101 . . .	0 " 6 "
" below 100 . . .	0 " 27 "

The highest temperature recorded in any patient was 111.5° by rectum. The highest temperature in any patient who survived was 109.5°. Both the patients who died having had a temperature of 103°-104°, probably had uremia, though there was undoubted evidence of insolation being the immediate cause of death. Probably some of the patients who are re-

corded as having a low temperature (100° or less) had had a considerably higher temperature which had begun to fall prior to their reception into the hospital.

As to the mortality in general, of the 100 cases, 28 died and 72 recovered. All of the deaths except the two complicated with uremia just referred to, occurred in cases with a temperature above 105°. Several of the patients were moribund when they entered.

Loss of consciousness was present in 84 of the cases; in 14 consciousness was not lost, and in two the record leaves the matter in doubt. In 20 of the 28 fatal cases the patient never regained consciousness after the initial stroke. The longest duration of such unconsciousness was thirty hours. In four or more a partial return of consciousness took place, and in the remaining three or four cases, consciousness fully returned, but not permanently.

The deaths, as a rule, took place within a few hours; but 11 of the 28 fatal cases lived twenty-four hours or more after the seizure. The longest survival was more than three days, and here the temperature had fallen, the patient had regained consciousness and was mending when the delirium returned. He had had a sun-stroke two years previously.

The longest period of unconsciousness in a patient who recovered was thirty-six hours. Moreover, this person did not enter till the day after his seizure. So that the entire period of unconsciousness seems to have been two days and a half. Ten and fourteen hours of unconsciousness with ultimate recovery also occurred, but usually the favorable cases did not remain more than two to four hours without regaining their faculties.

Convulsions were a very frequent symptom. They are spoken of in 30 of the cases, and were present in at least 13 of the 28 fatal ones. They were tonic and clonic, sometimes local, again general. Universal rigidity and opisthotonos were at times present. Occasionally the convulsions were very violent. A curious spasmodic action which was seen in at least two of my own cases was the rapid darting out and withdrawal of the tongue. Unilateral spasm was occasionally observed. In a patient of Dr. Forster's there was noted "three minutes after death a slow bilateral rotary motion of the arms, beginning in the left and followed by the right. The upper arm was at right angles to body and hands were at shoulders, then both gradually swept down till hands were at umbilicus."

The reflexes were in many of the severer cases greatly diminished or abolished. The pupils were generally irresponsive to light; sometimes they were contracted, and sometimes dilated; often contracted at first, and later dilated; at times they were unequal.

Relaxation of the sphincters and vomiting in unconscious patients were rather frequent.

Albumin was present in the urine in 22 cases, and was recorded as absent in 32. In about half the cases of albuminuria casts were also found. Whether the albumin and casts had been present before the sun-stroke is not, of course, to be known, but in a few instances there is very little doubt that the patient was suffering from Bright's disease when he received the stroke.

The habits of the patients regarding the use of alcohol, like other parts of the previous history are, as might be expected in patients brought in unconscious, often lacking in the records. Where this point is noted, alcoholic addiction was admitted in probably

about the same proportion of cases in which it is found in the general run of hospital patients. In some cases, but not a large number, the individuals had been drinking considerable liquor just before the seizure, and in a few instances the heat-stroke brought on in its train symptoms of acute alcoholism. The excessive drinking of ice-water is also noted as having preceded the attack in certain cases.

In many of the most serious cases of heat prostration the patients had experienced prodromata of marked significance which should have warned them to protect themselves. For example, the woman already referred to, who washed dishes in a saloon, worked in a very hot place, and for three days had complained of headache, and a feeling of lassitude and weakness. A carpenter admitted to Dr. Shattuck's service, with a temperature of 109.4°, subsequently said that for two or three hours prior to his loss of consciousness, he had been getting weak, and that objects had looked blue to him. A laborer who was finally prostrated, though not unconscious, said that he had had nausea and great restlessness for four days previously. Headache, faintness, sweating, vomiting, and cramps were other precursory symptoms too often disregarded by patients until too late. A farmer had been working much in the sun for several days, and was finally stricken down by the heat while in a theatre. A laborer felt weak and faint all one day while in the sun, but continued to work; the following day, while driving a cow on the street, began to stagger, but kept on for some time until he fell, unconscious; was brought to the hospital, in the service of Dr. Rotch, with a temperature of 111°, and died in a few minutes.

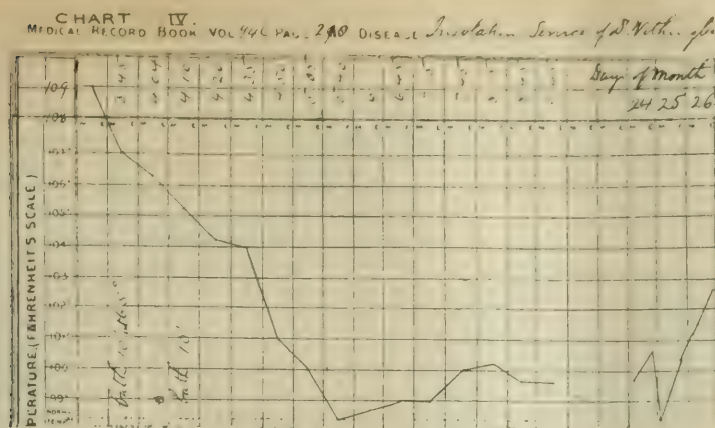
The sudden cessation of sweating was noticed by a few patients just before the attack. In one such case a 'longshoreman while "tending hatch" on deck of a vessel at 3 P. M., had been sweating profusely. This suddenly stopped and he "felt cold," then lost consciousness.

The tendency to recurrence of insolation is illustrated by the fact that a history of previous attacks of the same sort was elicited from nine of these patients, and it is probable that in a large number of the patients this point was either not inquired for or not learned. The previous attacks ranged all the way from eight years to a few weeks. One patient, a sugar refinery workman, was admitted unconscious with heat prostration July 12th, was discharged well two days later, was again admitted with a similar attack August 24th following, and again left the hospital "well" in two days.

The treatment followed in most cases was the abstraction of heat by cold baths. These were generally started at 70° or 75°, and rapidly cooled down by the addition of ice. This proceeding is generally followed by a considerable reduction of temperature. Sometimes the chilling of the surface drives the blood in upon the viscera, and collapse occurs. In such cases rubbing of the surface, the application of heaters, and the exhibition of cardiac stimulants is indicated.

The ice-cap and rubbing with blocks of ice are useful supplements to the full cold bath. A cold bath in ice-water sheets proved a useful adjunct. In one very fleshy patient of Dr. Buckingham's who could not be got into the tub, the temperature was reduced by ice and the external use of ether.

In the earlier years after the introduction of the



II. A second case, which occurred nearly simultaneously with the foregoing, July 26, 1892, with the thermometer at 96°, but with a relatively low humidity (44 per cent. at 3 P. M.), showed the phenomenal temperature of 111.5° (rectum) and, as was to be expected, resulted fatally. Its chief features are shown by the accompanying chart, in which the vertical lines represent intervals of about fifteen minutes.

Clinical Department.

THREE CASES OF HEREDITARY RUMINATION.

BY EDWARD C. RUNGE, M.D.,

Instructor in Physiology and Assistant Clinician to the Clinic of Nervous Diseases of the St. Louis Medical College, Medical Department of Washington University, St. Louis, Mo.

CASES of human rumination are not very numerous, or, to be more accurate, do not often come under the eye of an observer. But cases in which hereditary transmission plays a part, are still rarer; from this point of view, the following may prove of interest.

Having read a report of a case of merycism, which I presented on April 16, 1894, to the Academy of Science of St. Louis, a gentleman of high scientific repute volunteered the confession of being a victim to the same habit. He is the picture of vigorous manhood, and has been enjoying excellent health all his life. The only vulnerable spots in his physical make-up are a furred tongue and somewhat flatulent bowels, which defects are readily explained by good eating and a comfortable life spent to a great extent over books and the microscope. He has been ruminating for a long time—to use his own words, “for ten or more years, probably much longer.” This chronological uncertainty goes to show that the habit developed insidiously, without any evident exciting cause. To prove the utter unconsciousness of the process I cannot do better than quote from a note written in answer to a series of questions: “Breathing and our commoner performances, you know, are not the subject of very close observation, so that my answers are not as full as I would like them to be.” The food stuffs that require repeated mastication, before following their natural downward course, are “any coarser particles—lettuce, potato, stringy asparagus, gristly meat, etc.” The act occurs at any time after the meal, usually early, but occasionally as much as five or six hours

after; when that late, the food is distinctly acid, otherwise it is possessed of its natural flavor. Mr. — informed me that his father has had the habit of regurgitating coarse particles for many years, but that he ejected them without remastication. The latter complained of “heart-burn” at times, but this and the regurgitation were not coincident; his digestion was usually good. The father does not know of any other *mérycole* in the family. Some little time ago, my informant related to me that his boy, seven years old, had developed the ruminating habit, which was first noticed during a recent trans-Atlantic voyage. The child is apparently in perfect health. There is not a suspicion of

hysteria, neurasthenia or any other neuropathic disorder in the entire family.

This is a most striking illustration of “hereditary” rumination, occurring as it does in three consecutive generations. The fact that the old man persistently refused to subject the regurgitated particles to repeated mastication, does not absolve him from being considered a *mérycole*. The involuntary phase of the process is as clearly manifest in his case as it is in his son's and grandson's. The prompt response of the sensitive gastric mucosa to mechanical stimulation by coarse food particles, the retroperistalsis set up, unaided by any effort on the part of the extrinsic abdominal muscles, and the yielding of the cardiac sphincter, all these occurring without a trace of nausea, and, lastly, the process ceasing to recur whenever the food reaches the proper consistency—these are the requisite elements that go to make up a case of genuine human rumination.

By his refusal to remasticate and thus render available the regurgitated food, the grandfather simply proved himself to be possessed of a smaller power of adaptation to changed conditions. He was fortunate in having been able to ingest sufficient food in such a shape as not to require any further mastication. If not for this, he would have shared the lot of Sauvage's *mérycole* who, yielding to the importunities of his spiritual adviser, ejected every food particle as soon as regurgitated, and in two weeks developed an alarming degree of emaciation, from which he did not recover until he returned to his possibly sacrilegious, but to him evidently natural habit.

While at work upon the first case of merycism, I subjected the patient's stomach to quite an extensive chemical analysis, following the course laid out by Alt, Juergensen, Boas and Sievers, who sought to explain the etiology of this phenomenon in some abnormalities of the secretory function of the stomach. The result of my examination was absolutely negative, and I caudly admit that I had expected just such a result. I still hold that the phenomenon of human rumination, if genuine, cannot possibly be caused by any deficiencies of gastric function, whether secretory or motile; to call it a “neurosis” shelves the difficulty but does not overcome it.

The three cases reported in this paper serve me as further proof that we must penetrate deeply into the mysteries of the laws of evolution in order to find a satisfactory explanation for this curious phenomenon. Human rumination, as I said on a former occasion, is

not a pathological entity, but a physiological anomaly, most probably produced by an awakening of the latent tendency to revert to ancestral types, a tendency inherent in all living organisms, and too well established to be refused most serious consideration.

SULPHONAL AND TRIONAL COMPARED.

BY S. G. WEBBER, M.D., BOSTON.

DURING the last few years several hypnotics, differing in value, have been introduced to the profession. Among the drugs of this class two, sulphonal and trional, deserve especial favor; and it may be interesting briefly to compare them, as they both give good results, yet differ so much in their effect that it is well to know to what class of patients each is the more suitable.

Sulphonal is sparingly soluble in cold water, and is slow in its action. Sometimes as long as two or three hours are required for it to induce sleep. So slow is it at times that patients become impatient waiting for its effect, hence it is better to give it in the evening a while before bedtime. I have sometimes thought that the slowness of its action interfered with the induction of sleep, the patient becoming so nervous waiting for sleep that he was thoroughly aroused. The effect of a full dose, however, continues long; and it will often produce sleep the second night, and in a few cases even the third.

Trional is much more soluble. It produces sleep much more quickly, within a few minutes. In one case the drug was taken before preparing for bed, and its effect was felt so soon that it was an effort for him to get into bed. Its action is less prolonged than that of sulphonal. I have never known it to produce sleep on the second night as markedly as sulphonal, though patients may sleep well the night after taking it, but not from its direct effect.

The day after taking sulphonal there may be great drowsiness during the day. This is less likely to occur after a dose of trional, and if it does is much less intense.

In consequence of the more rapid action of trional, some patients much prefer it to the more slowly acting sulphonal. This is especially true of those who have difficulty in getting to sleep when they first go to bed. Those who suffer from this form of insomnia become impatient at their inability to sleep, and each minute finds them more restless; indeed, it is in part owing to this restless nervousness that they are unable to get to sleep, and for this reason they are desirous of seeing an early result from any medicine they take. To such patients it may be well to give trional.

Another class of patients have no difficulty in going to sleep when they first go to bed; but they wake in a short time and lie awake two, three or four hours, or may have no more sleep that night. To this class sulphonal is the better drug, as it does not interfere with the first early sleep of the night, and acts later so that the patient does not wake at midnight as usual.

The effects of trional do not continue so long towards morning as sulphonal. It gives good refreshing sleep for four or five hours, or perhaps six; then the patient wakes and does not sleep again. In such cases it is possible that the next time a larger dose will produce a longer sleep. The effects of sulphonal

are more likely to continue through the whole night until morning.

The dose of either of these drugs is ten or twenty grains. In many cases ten grains are sufficient, but where there has been obstinate wakefulness it is better to give more, fifteen or twenty grains. I have only very rarely given thirty grains of sulphonal. I have never had occasion to give more than twenty grains of trional; possibly not having tried it in such obstinate cases as the other drug. In the case of either drug it is better to give one sufficient dose than to give two or more insufficient doses.

After taking sulphonal there is not infrequently more or less cerebral heaviness and distress the next day. In a few cases the discomfort has been so great that patients have objected to taking the medicine, and preferred to get along with less sleep. I have found much less of this unpleasant effect after trional. One patient, who refused to take sulphonal on account of this after-effect, had little or no discomfort after a dose of trional.

After fifteen or even ten grain doses of trional, I have known slight vertigo or dizziness to be felt before sleep was induced, if the patient rose from bed, lying down caused this to cease; but for a short time it was somewhat distressing. I do not remember this after the ingestion of sulphonal. It may be well, therefore, to warn some patients not to rise after taking trional, to wait until fully ready for the night before taking it, and then to stay in bed without getting up so as to avoid this unpleasant experience.

Sulphonal may be given in small doses, not more than five grains, to quiet restlessness in neurasthenia, hysteria and mania; given three times a day and, if necessary, during the night, it will often have a most soothing effect. I have not tried trional in this way,* but should not expect such an effect, as it acts so much more quickly and its action it so much less lasting.

It will be readily seen from this comparison which of these two drugs to choose in combating insomnia; but it must be remembered that neither is a certain cure for this distressing symptom, and that the treatment must be directed to the patient's condition and not simply to the symptom insomnia.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, SECRETARY.

REGULAR Meeting, Monday, March 4, 1895, the President, DR. C. J. BLAKE, in the chair.

DR. J. J. PUTNAM read a paper on

PSYCHICAL TREATMENT OF NEURASTHENIA.¹

WILLIAM JAMES: I did not come here prepared to say anything, nor have I anything that I could say before such an assemblage as this. All I know of the subject is derived from books, but the facts which these books contain seem to me to form a body of phenomena which certainly impresses me, and I have been much pleased and interested to see that Dr. Putnam has taken them up seriously. It would seem if these are a natural class of phenomena that they must

¹ See page 505 of the Journal.

become more numerous as men become interested in observing them. I think that there is a considerable future for this mode of treatment.

DR. OSGOOD: I have been very glad to hear this paper, because it seems to me it is time for some one to show us that for some unexplained reason the mind is neglected by physicians. By any form of treatment neurasthenia is not successfully treated unless means are used to withdraw the mind of the patient from his physical being and allow the functions of his body to return to their natural and automatic action. In cases where that is not done almost any form of treatment of this disease is liable to fail. Neurasthenia, of course, is accompanied by a weak and flabby body, by functional languor, absence of good sleep, appetite *nil*; but undoubtedly the root of the trouble is in the mind of the patient. To neglect that and treat physical symptoms alone, seems to me like eating nut-shells and throwing away the kernels. My own experience, as you know, for a number of years has dealt largely with suggestion. Hypnotism is a word which I wish might be banished from the language. About it cluster the misunderstanding and prejudices which so misrepresent the suggestive treatment. Hypnotism was Charcot's pathological and hurtful method of producing sleep. Whereas, a therapeutic sleep produced by gentle verbal methods very rarely fails to benefit the patient. In these five or six years, during which I have been using this treatment, of course I have had very many cases of neurasthenia, and it has been my good fortune to relieve, within a comparatively short space of time, a good many cases which had run the gamut of all drugs and other forms of treatment. It may be thought that I am an enthusiast in the use of suggestive treatment. That is not true. I have made a very thorough study of it, not merely in reading. Since I began to use suggestion I have kept myself practically familiar with the work of the leading men abroad who apply it, and am simply a convert and not an enthusiast. I have simply reached the conclusion that this is a remedy which in proper cases is of great value. A case of neurasthenia may not always be helped by this form of sleep, because all patients are not susceptible.

What this treatment directly does, it seems to me, is that an awakened will arouses an unawakened will. The treatment in my opinion should not always be confined simply to suggestions, for, medical remedies frequently aid suggestion, and I have also discovered, and it is a matter of great interest to me, that medicines, tonics like digitalis and iron, which are indicated and have failed to accomplish any good without the use of suggestion, under the use of the suggestion will be useful, and immediately produce their strongest effects. I must confess that I have been surprised during these years that more physicians have not made use of this treatment, because in susceptible cases it is rapid in its action, and it is more direct where it does act than any other form of treatment except surgery. If applied in the proper way it is absolutely free from danger, whatever may be said to the contrary. It is just as necessary to know how to apply suggestion as to know how to pass the catheter or how to use electricity; and it is simply the abuse of the treatment, the causation of hallucinations and that sort of thing which has brought reproach upon this method of sleep. No fair-minded man would think of taking advantage of his patient's

mind, when it was in a deep sleep, beyond the actual needs of that patient's organism, any more than he would of stimulating his patient with whiskey beyond that patient's need in order to amuse himself with the drunken antics of his subject. Van Renterghem and Van Eeden came out in print some years ago very decidedly in a plea that all physicians who use the treatment should confine themselves wholly and strictly to the mental and physical needs of the patient. I believe that if physicians would only put themselves in the way of seeing suggestion applied, that their experience would be that of Bernheim, than whom there was never a greater sceptic, until he was dragged into the school of Liebault and forced to acknowledge the benefit of the treatment which he then began to use himself with results with which you are all familiar.

DR. PRINCE: I think we all ought to feel very much obliged to Dr. Putnam for taking the bull by the horns and presenting this subject to us in such a satisfactory way, saying boldly what many of us have been thinking for some time, and formulating in a precise way what many of us have thought, but perhaps have not felt like proclaiming. That the mind has a deleterious influence upon the body I do not suppose any of us would pretend to contradict; and that in neurasthenia this influence is one of the strongest and most active factors, I think is a fact that impresses itself upon a physician the more he has to deal with this class of cases. Dr. Putnam has said that all those who have been most successful in the treatment of this disease have usually had special treatments of their own, but there has generally been a common principle running through all these treatments. I think if these treatments are carefully analyzed it will be found that there is one factor that is common in them all, namely, the psychical element. When I first started in practice I thought that given a case of neurasthenia, all we had to do was to make fat and blood, give the patient rest, build up the nutrition, and as we saw the fat and blood increase the symptoms would disappear. I soon found that this was a mistake. Another element was wanting, and that element I believe to be the psychical element. It is this element which is present in what is so strongly insisted on by Weir Mitchell and others, namely, taking the patient away from home. The psychical impression produced by isolation is complex in its action but effective. I have on more than one occasion attempted to treat a patient at home, and I think I may say in most cases where the neurasthenia has been of any gravity I have been unsuccessful. Charcot recognized this fact. I was fortunate enough to see Charcot a few months before he died. He conversed with me about this treatment. He said it is not necessary to feed them up and make them fatter, but to take them away from their homes. I said: "Dr. Charcot, I think there is one thing you forget. You forget the good big dose of Dr. Charcot you give them every time you see them." And that is another fact — the influence of the personality of the physician. That is a fact the physician himself cannot personally recognize. Those physicians who have been most successful in the treatment of neurasthenia do not, I think, fully realize how much of their success is due to the influence of themselves upon the patient. It is also a fact, I think, that many cases of neurasthenia in which we cannot trace the connection between the

mind and body nevertheless are really the result of a morbid psychical influence. I will cite one case illustrative of this, because it is a very striking one. I had a patient who was a typical case of neurasthenia. She was below weight, anemic, and had very bad digestion; had got into a condition where she took almost nothing in the way of food; had every kind of symptom referable to all-parts of the body; and had been a nervous invalid some eight years. She had been under a number of physicians, and treated by all without success. I attempted to treat her by the Weir Mitchell method in her home. I recognized the fact, as I thought, that though she was debilitated, she was the subject of a large number of symptoms grafted upon her condition by mere process of habit. She was fattened up, and she weighed more, her digestion improved, and in many respects she was a great deal better; but when she attempted to resume her occupations she immediately broke down and largely went back into her old ways. I went to Europe at this time, and she consulted a Christian Scientist. In the course of two weeks she was cured, and is well to this day. There, undoubtedly was a case in which the symptoms were entirely due to the influence of mind on the body, and cured by a psychical process, although I could not see the connection between the two. There is much else I would like to say on the pathology of these affections, especially on the relation of the substrata of consciousness to bodily processes; but it is late and I won't take up the time.

DR. WEBBER: I have been very happy to hear this paper. I do not wish to take up time in adding anything to what has been said. I think about all the points have been touched upon; but I think, as has been remarked, that the mental influence was used a good many years ago, and that the success of many of the old practitioners was due to their personal influence upon their patients, not simply cases of nervous disease, cases of neurasthenia, but ordinary cases of sickness. It is an element which comes in play and is of very great use, that the patient's mind should be turned upon a cure, and that he should be reassured continually by the physician as much as a physician can honestly assure a patient that he is to get well; and I think it is the hopefulness and cheerfulness of the physicians, not only in former times, but now in general practice, which has added a great deal to their success. A doctor who is not hopeful, cheerful, cannot keep his patient's spirits up, is much less likely to be successful either in general practice or in treating these cases of neurasthenic patients. One reason for taking patients away from home is not only to get them away from the family and surroundings, but that they may come into more direct and personal relations with the physician. A neurasthenic patient at home thinks that the physician who calls upon her twice a day or once a day is making unnecessary calls. Often a patient thinks that a call every two or three or four days is as much as is needed, and the patient and friends become impatient because the physician makes so many calls. If the patient is taken away from home and put in a sanitarium, the physician sees that patient every day or twice a day, and keeps up a constant mental influence and exercises continually this influence instead of exerting it remittently; and the result is very much better. Suggestion plays an important part in helping towards recovery. I am glad that Dr. Putnam touched upon gymnastics. Graduated

gymnastics is of very great importance; and breathing exercises, I should add, as being of very great value. When the patient is taught to breathe properly and take deep breaths, it is soothing and quieting. There must be more or less relaxation of other muscles besides those of respiration, so that the patient is in a more or less receptive condition, and I am not sure but it aids in suggestion. I should like to mention one case showing the power that the mind had over a patient. Some fourteen years ago a patient was under my care who had got into such a mental state that one drop of the tincture of belladonna produced dryness of the throat, one drop of tincture of nux vomica produced relaxation of the bowels, and two or three grains of bromide of potassium produced quiet and sleep; she had come to learn the physiological effect of the drugs. By using a little mystery, and giving the medicine to her masked, and by gradually working upon her mind, she got out of that. She thought that the little pills I took to her had a wonderful effect. There was really no medicine in the pills. The whole influence was purely mental in that case.

DR. PUTNAM: I have practically nothing more to say. In one sense, these special movements such as the Mind Cure are, as Dr. Folsom has said, only repetitions of many similar movements in the past, and the same might be said of other methods of using psychical influence. Nevertheless, each such event will always be instructive, both psychologically and practically, and is sure to have a character of its own, corresponding to that of the particular generation and community in the midst of which it occurs. My main object is to insist that physicians who are using their personal influence and manipulating the patient's mind for therapeutic ends, should not do so blindly and in simple reliance on their instincts, but should increase the scientific value of their work by systematizing their own methods and by studying in detail the methods of others.

AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING. BALTIMORE, MD.,
MAY 7-10, 1895.

(Continued from No. 20, p. 497.)

SECTION ON SURGERY.—FIRST DAY.

THE Section was called to order and opened by the Chairman DR. JOSEPH RANSOHOFF, of Cincinnati, O., who in lieu of an address read a paper entitled

CONCERNING STONE IN THE KIDNEY AND ITS OPERATIVE TREATMENT.

Clearness in the diagnosis and skill in the operative treatment of surgical diseases of the kidney are among the conquests of the closing decades of our century, but there still remain many problems pertaining to the diagnosis and treatment of primary stone in the kidney.

Stone in the kidney is not a rare affection, yet in the majority of cases found at autopsies, no tangible symptoms were developed during life. On the other hand, no other affection of the kidney is so often erroneously supposed to be present as stone. In seven cases of nephrotomy, by the author, for stone, the search was fruitless in two instances, yet all the symptoms were present. The presence or absence of crys-

tals in or from the urine is not a reliable diagnostic point. Far more important is the presence of red blood-discs at every examination, and especially so when associated with acid pyuria.

The cystoscope is very valuable as an aid in diagnosis, for with it we can eliminate vesical disease as well as locate by means of the ureters the kidney affected.

Nephro-lithotomies, as in hernia, may be divided into those of choice and necessity. In the unobstructed we may choose the time for operative interference; in the strangulated, delay means death.

The choice of operation must be between simple incision, and extirpation or partial resection of the kidney. Large size, confirmation and multiplicity of the calculus should not weigh in favor of nephrectomy, since with the longitudinal incision along the renal convexity ample room for manipulation can be obtained. Incision along the convexity is least likely to wound the larger vessels and the hemorrhage is parenchymatous, and may be reduced to a minimum by temporary pressure. Stone in the pelvis of the kidney should, if possible, be removed through an incision in the cortex. The concluding act of every operation upon the kidney should be fixation in its normal position.

In conclusion the following theses are presented for consideration:

- (1) Absolute diagnosis of stone cannot be made.
- (2) Nephro-lithotomies must be divided into those of choice and necessity. In anuria and profuse hematuria delay is fatal.
- (3) Pyuria and hematuria, as evidences of beginning destructive changes, are positive indications for operative exploration.
- (4) The oblique incision is preferred for the ease with which it permits the exploration of the entire kidney.
- (5) Acupuncture is not to be relied upon.
- (6) Incision should be made along the convex border, and only when the circulation is controlled by digital compression.
- (7) Incisions into the pelvis for exploration and for removal of a stone are to be avoided.
- (8) Primary nephrectomy for stone should be reserved for extreme cases.
- (9) Primary union by suture, where feasible, makes nephro-lithotomy an ideal operation.
- (10) Tight packing of the kidney wound and perirenal space endangers the nerve-supply of the colon.
- (11) Nephrorraphy should form the closing act of every operation which has seriously disturbed the relations of the kidney.

AERO-URETHROSCOPY

was the title of a paper read by DR. WILLIAM K. OTIS, of New York City.

Little, if any, change has been made in urethroscopic tubes since the invention of the original illuminating apparatus. In 1892 the first single instrument combining the source of illumination with the air apparatus was made.

This instrument is heavy and cumbersome, and the distance between the glass surface of the diaphragm and the meatus is over two inches and a quarter. In making applications the diaphragm must be removed, laid aside and replaced, making an annoying break in the rhythm of the operation. The illumination from a concave mirror is inferior to that from a plano-convex lens.

In the author's instrument the diaphragm is arranged to swing on a pivot, and urethral tubes of any length or calibre may be used. The claimed advantages are:

- (1) Ready access to the urethral field for the purpose of making local applications under the direct control of the light.
- (2) Minimum distance between the eye and the urethral mucous membrane, hence a better and clearer view of the field.
- (3) Extreme lightness.
- (4) Simplicity of construction and moderate cost.

There is difficulty in obtaining a thorough appreciation of the morbid conditions present in the many obscure cases which present, where the urethra is implicated. Despite its many drawbacks, this instrument furnishes us an aid to diagnosis which no urethroscope of the present day can afford to ignore.

THE VALUE OF URETHROSCOPY IN CHRONIC URETHRITIS, WITH DEMONSTRATIONS OF THE NITZE-OBERLAENDER, CASPER, AND POSNER URETHROSCOPES AND OTHER URETHRAL INSTRUMENTS

was the title of a paper by DR. FERD. C. VALENTINE, of New York. This paper was practically a demonstration of instruments.

The Posner Urethroscope is a prolongation of the meatoscope without the obturator. It is made in two forms: one with the tube vertically cut off, the other terminating obliquely. The illumination is thrown in at the top funnel.

The Casper is more extensive. The tubes are metal and longer than the Posner and have an obturator at the visual end of the rim, with an arrangement of condensers and prism by which the electric light is reflected into the urethra. This instrument requires much experience in its use to be of value.

In the Nitze-Oberlaender the urethral tubes have a light-carrier inserted, by which means the light is placed at the point to be examined. Two small tubes carry a current of water around the light to protect the urethra from undue heat.

Cystoscopy has great value. By it we not only eliminate the bladder in doubtful cases, but we are also enabled to examine the mouths of the ureters and find, almost to a certainty, which kidney is affected; and by its aid we can catheterize the kidneys and get the urine uncontaminated by the bladder.

DR. OTIS considered the external light better than one placed within the urethra. The internal light required a cumbersome, complicated and expensive apparatus for the purpose of protecting the urethra from the heat of the light. With the aero-urethroscope you get all the light necessary.

DR. DEEVER, of Pennsylvania, thought it almost impossible to be absolutely correct regarding the diagnosis of renal stone, and that the presence of red blood-discs in consecutive examinations of urine was of the greatest importance. He believed the oblique incision best and that it should be a posterior operation. He believed the disturbance to the colon by the packing was due to the pressure on the bowel itself, which obstructed its lumen and was not due to pressure upon the nerves.

He regarded the urethroscope more as a diagnostic instrument than one adapted to treatment.

DR. VALENTINE thought that the inflation of the urethra with air obliterated the striæ and distorted the picture.

DR. OTIS stated that while air distention did distort the urethral membrane, by turning the diaphragm you could allow the air to escape and get the normal picture.

DR. HOMER GAGE, of Worcester, Mass., read a paper on

MOVABLE KIDNEY.

He cited a case of a woman who had been operated upon the right side for this affection, and who shortly afterwards developed the same condition on the left side. Just before the operation, while lifting a stove she felt something give way on the left side. Three silk sutures were used in this case, and after two years there has been no recurrence. The only symptom this patient had was local pain.

Another of his cases had a train of symptoms along with the pain. In December he operated, and used six carbolized sutures, but did not get firm hold upon the kidney. She was free from pain until the following April, when the symptoms returned. The second operation was performed in December. He split the capsule on the outer border, and passed five sutures through the fascia. The pain again returning, she entered the hospital for removal of the kidney. Upon exposing the kidney adhesions were plainly visible, and its apparent mobility was due to the relaxed and flabby condition of the tissues. Since removing the kidney she has remained well.

Case I was interesting as a double affection and absence of accompanying symptoms; and where this absence of complicating symptoms exists the success of the operation is greater. Case II had all the complicating symptoms.

W. E. B. DAVIS, M.D., of Birmingham, Ala., also presented a paper on "Movable Kidney," which was read by title only.

DR. WYMAN, of Detroit, thought sutures should always be passed through the kidney substance itself. He also thought the extreme laxity of the peritoneum was responsible for failure of fixation. The peritoneum forming the natural support of the kidney, it should be drawn back into the wound and sutured there.

DR. WEEKS, of Portland, Me., uses silk sutures, passing them through the substance of the kidney, capsule and muscular tissue and fastening to the posterior part of the incision.

The paper was further discussed by DRs. FERGUSON of New York, WILLARD of Philadelphia, ROBINS of California, FENGER of Chicago, and DAVIS of Alabama.

THE RADICAL CURE OF HYDROCELE,

a paper by DR. D. C. HAWLEY, of Burlington, Vt.

The only known method of absolute cure is the complete obliteration of the tunica vaginalis. Injection with iodine is painful, causes great swelling, confines the patient to his bed from three to five days; and three to four weeks elapse before a complete cure is obtained. Carbolic, while being less painful, requires the same length of time.

Dr. Hawley's method is to make an incision two inches in length along the anterior surface of the tunica, allowing the fluid to escape. The sack is irrigated, and its interior irritated by rubbing with the finger-tips. It is then packed with iodoform gauze. The edges of the tunica are stitched to the skin with

black silk sutures and the patient kept in bed. The next day the gauze is removed, and strips of adhesive plaster applied around the scrotum causing equal pressure, and a light dressing of gauze is applied. In four or five days the sutures should be removed; should a sinus exist, it should be treated upon general principles. In from six to twelve days the wound is entirely healed. Its advantages are shorter duration of treatment, probability of radical cure in every case, and the ability to inspect the condition of the testicle. General anesthesia is unnecessary, as the operation is done under cocaine.

DR. MACLEAN said, of all the various plans brought forward, he knew of none giving better results than injection with iodine. He used the strong, and in some cases Churchill's tincture of iodine. The patient should stand up, a large trocar should be plunged into the sack, and every drop of fluid pressed out before he injected two drachms of the strong tincture. The scrotum should be violently shaken immediately after withdrawing the canula. He has always allowed his patients to go about their business, and did not confine them to bed nor the hospital. He had never failed by this plan except in one instance, where there was an enormous double hydrocele with complications.

DRs. GASTON, of Atlanta, and VANCE and RODMAN, of Kentucky, endorsed Dr. Maclean's plan.

SECTION ON SURGERY. — SECOND DAY.

WHAT ADVANCE HAS BEEN MADE IN THE SURGICAL TREATMENT OF HERNIA?

This paper, by DR. W. B. DEGARMO, of New York, reviewed the various methods of operation for the past twenty years.

Of all the various methods he thought that of Bassini was the best. He believed in opening up the entire canal and removing everything, including the fat, which if left in acted as a wedge and reopened the canal. The sooner surgeons recognized the sack as a foreign body and completely obliterated it, the better the results would be. For suturing he thought kangaroo tendon better than silk.

DR. WEEKS, of Maine, wished to know whether all cases were to be operated on for radical cure. He thought that cases which could be controlled by a properly fitting truss should not be operated on, and in children under three years the operation was usually fatal; also, that the greater the number of appliances used, the greater the difficulty in accomplishing a cure. He favored the Halstead plan; the only distinction being that the cord is placed immediately beneath the skin and, including all muscles, stitched to Poupart's ligament.

DR. JOHN B. DEEVER, of Philadelphia, Pa., read a paper on

APPENDICITIS.

The writer said there were many sceptics as to the course of this disease and its radical cure.

The diagnosis was easily established. Upon palpation a localized point of tenderness could usually be found, which was of great value. Excruciating tenderness indicated pus. Temperature was not reliable, but a sudden fall indicated perforation. The point of tenderness was frequently referred to the left side. Foreign bodies were often retained in the appendix, causing no symptoms until a catarrhal inflammation caused by a cold; suppuration would then ensue.

Early operation made the prognosis better. If the general peritoneal cavity had been invaded, the prognosis was bad. With perforation into the bowel recovery was the rule; into the bladder, the prognosis was very bad.

Operation was the treatment for all cases as soon as the diagnosis could be made. We had no way of foretelling whether perforation, gangrene or pus would ensue, or that it would be a simple catarrhal inflammation.

As to the danger of operation, one hundred operations without a single fatality required no comment. Early operation was more of a conservative treatment than a radical procedure. One attack was sure to be followed by another. Early operation was comparatively easy; but pus once formed, the operation demanded the best of judgment and skill.

The median incision should be avoided, as it was necessarily a large one, and the peritoneal cavity could not be so well protected from infection. The abscess to be drained before removing. Unless the appendix was removed the operation was not a curative one. McBurney's operation was the best for chronic cases and prevented hernia.

DR. GASTON, while admitting early diagnosis and operation to be imperative, thought it was not always easy to determine that you had a case of appendicitis. He had seen a case where all the usual symptoms were absent but pus was abundantly present.

DR. MCGONIGAL's experience was recovery in all early operations, but death where the operation was delayed for four or five days.

DR. QUIMBY, of New Jersey, disagreed with the writer; he thought medicine and nature should be first given an opportunity, and that it was a serious mistake to treat every case as a surgical one. In small places where expert surgeons were not available, what was to be done? He treated this disease as he would peritonitis.

DR. WYMAN, of Michigan, said his experience was limited to cases where suppuration had already taken place, the delayed diagnosis being due to the powerful contraction of the abdominal muscles. As to the cause of the disease; he believed there was a geographical distribution of it, as existed in malaria, and that the presence of a foreign body was merely a coincidence.

DR. MURPHY, of Chicago, said a diagnosis could best be made within twelve hours after the first attack. The variety of the infection governed the symptoms. Where a blistered condition of the peritoneum existed, as though parboiled, the case was a bad one, and far more fatal than the mere presence of pus.

DR. MARCY, of Boston, endorsed DR. MURPHY's views.

Rigidity of the muscles on the right side of the abdomen, in the opinion of DR. HAWLEY, was evidence enough for operation in every case.

DR. WILLARD believed in early diagnosis and lateral incision.

DR. RANSOHOFF, of Cincinnati, thought the removal of the appendix was not necessary in cases of circumscribed abscess to bring about a radical cure. This could be accomplished by drainage.

In closing the discussion, DR. DEEVER claimed that where the appendix had not been removed, there was a recurrence in fully fifty per cent. of the cases.

RADICAL INTERFERENCE IN DISEASES OF THE CHEST.

by DR. J. MCFADDEN GASTON, of Atlanta, Ga. This paper was a plea for early operations, especially in empyema.

DR. SMITH, of California, in experimenting upon the rabbit, found by packing the chest with gauze the hemorrhage could be stopped, and recovery of the rabbit ensued. If this was possible in an animal with so low a vitality, why could not the same be done with man with as good results? He claimed as much could be done with the pleura as with the peritoneum.

The paper was further discussed by others, with the conclusion that the best results followed an early diagnosis, with resection of as many ribs as was necessary to establish complete drainage.

TREATMENT OF MALIGNANT TUMORS BY THE TOXINES OF THE STREPTOCOCCUS OF Erysipelas.

This paper was read by DR. NICHOLAS SENN, of Chicago. Its use proved a failure in all cases where he used it. Actual attacks of erysipelas and injections must differ in the effects produced; because in one instance, by limiting it to the superficial lymphatics, in certain cases these pathways must be obliterated, and in exceptional cases, by obstructing these pathways, a limitation of the extension or a complete cure of the disease might be possible. In many cases where cures had been claimed, the diagnosis had not been verified by clinical or microscopical examinations.

His toxins were derived from three different sources. In nine cases he had used from twenty-five to seventy-five injections of from three to fifteen minims. He not only failed to obtain a cure, but in some instances the injections appeared to aggravate the local and general condition of the patient. The cases in which this treatment had been resorted to were all inoperable; and as nothing else could be done for this class of cases, he would continue his experiments, but he believed in a year or two this remedy would be relegated to the past.

By invitation from the Chair, DR. W. B. COLEY, of New York, opened the discussion. He had treated 84 cases during the past four years. They were all malignant: 43 sarcomas and 27 carcinomas. Eleven sarcomas and two carcinomas were cured. With 11 successful cases to its credit, he did not think the remedy stood in much danger of being relegated to the past.

The questions to be answered in Dr. Senn's paper are: (1) Have toxins any curative effect? (2) Is the cure temporary or permanent? (3) What form of tumors are susceptible to it?

The first question was answered by eleven successful cases. Three of the cures at present, being of two years' standing, with absolutely no symptoms of a recurrence, answered the second question. As to the third question; until the present he had advocated its use in nothing but sarcoma. As these tumors yield differently, according to their forms, in some cases no success whatever was obtained.

While DR. SAYRE, of New York, had had no personal experience with the remedy, he had seen some of Dr. Coley's cases before treatment, and again one year after treatment. In no single instance was there any evidence of a return of the disease.

DR. FENGER, of Chicago, had used it in twelve cases without any benefit resulting.

DR. WYETH, of New York, thought the following might reconcile the different reports on toxines: Eleven years ago he injected arsenic around a tumor. It caused great pain, with widespread suppuration, eventually resulting in the man's recovery. He had used Dr. Coley's toxines in a case of epithelioma, with no result. Might not the good results obtained by Dr. Coley be due to the inflammatory action of the injection destroying the rank cells of the growth?

DR. HERRING removed a growth reaching from the abdomen down to the knee. After the operation an attack of erysipelas ensued, after which the growth apparently proceeded more rapidly. This was repeated several times, and each time appeared to aggravate the disease more than ever.

DR. KEEN, of Philadelphia, said that while he had absolute faith in Dr. Coley's statements, he had no faith in the treatment. He used it for two reasons. He was not prepared to condemn it, and when he met such cases he would use anything that held out any hope. He would continue its use in all such cases until convinced of its hopelessness. His toxines were obtained from Dr. Coley. He used them in cases of sarcoma and carcinoma, with disappointment, except possibly in one. This was a large angio-sarcoma of the brain. It was too large to be removed entire. He removed portions at two successive operations and subsequently injected the toxines. Two months after ceasing the injections there was no apparent improvement whatever. Some time after this, when he again saw the patient, the wound had healed over, and a great shrinkage had occurred. Whether this was due to the toxine and would be a cure, he did not know. He had seen cases of abdominal tumors pronounced as sarcoma disappear of themselves.

In reply to Dr Wyeth's question DR. COLEY said, that in many cases the tumor appeared to be simply absorbed; there was complete absence of any breaking down or inflammatory action.

AN ORIGINAL OSTEOPLASTIC OPERATION FOR THE REMOVAL OF LARGE VASCULAR TUMORS GROWING IN THE VAULT OF THE NASO-PHARYNX, ANTRUM OF HIGMORE, SPHENO-MAXILLARY AND PTERYGO-MAXILLARY FISSURES.

An interesting paper with this long title was read by DR. JOHN A. WYETH, of New York; the case being a desperate one, nothing was left but a formidable operation.

As a precautionary measure a canula was inserted in the median cephalic vein, and a quantity of salt solution prepared for immediate use, if necessary. The incision was commenced along the temporal arch, carried down parallel with the nose to the *alæ nasi*, then turned outward and upward, making an oblique incision. The tissues were dissected loose, and carried over, exposing the bone. A key-hole saw was then inserted, separating the malar from the frontal bone. The hemorrhage was terrific; and at this point a pint of salt solution was injected. After removal of the malar bone, by depressing the zygomatic bone, he had full access to the cavity, and the growths were removed. The tissues were replaced, but bone sutures were omitted. Recovery was uninterrupted, and the patient has excellent motion of the eye. The whole operation occupied but one and one-half hours, and about five pints of salt solution was injected in all.

TUMORS OF THE MAMMARY GLAND,

by DR. W. L. RODMAN, of Louisville, Ky. It consisted of a plea for early radical operation in all cases of breast tumor. Not only the tumor itself, but the entire breast, with all underlying structures, including the muscles, should be removed; otherwise you risked a recurrence of the trouble.

FOREIGN BODIES IN THE ESOPHAGUS WITH A REPORT OF FIVE ESOPHAGEAL TUMORS,

by DR. A. VANDER VEER, of Albany, N. Y., was read by title only.

IS TOTAL EXTIRPATION OF THE RECTUM EVER JUSTIFIED?

was the title of a paper by DR. J. M. MATTHEWS, of Louisville, Ky., who said: Like many kindred operations, while strongly advocated by many, it has but little to recommend it. They are done chiefly to test its efficacy and the methods of others. We have periods in which there is a rage for certain operations, but he is the best surgeon who studies his case from all standpoints, as great responsibility rests upon his decision. Do we always stop to think whether the new is as good as the old operation? Is it justifiable? Is the patient ever cured of a malignant disease by the operation? Is he relieved or benefited by it?

The author thought not. His reasons for deciding against this operation were that it was an exceedingly difficult thing to decide whether systemic infection existed or not. By the time the growth had assumed sufficient size to attract the patient's attention and cause him to seek medical assistance, many of the surrounding tissues were already involved. It was one of the bloodiest operations known. You could not follow the rule of cutting wide of the mark without invading vital parts; and if such was the case, of what avail to extirpate the rectum and leave surrounding infiltrations? Under such admitted circumstances when was the operation justifiable?

COLOTOMY AND EXTIRPATION IN CASES OF CANCER OF THE RECTUM,

by DR. L. H. ADLER, of Philadelphia.

These were two recognized operations, cancer of the rectum rarely manifested itself early enough to admit of much benefit ensuing from a radical operation. The writer had never seen one case benefited by extirpation. But colotomy retarded the growth of the tumor, relieved the pain, and substituted a painless death for a painful one. It prevented intestinal obstruction, enabled the patient to sleep, eat, and pass his remaining days in comfort. It was the least dangerous of the two operations.

DR. KEEN, of Philadelphia, endorsed Dr. Rodman's views regarding breast operations, by removing the entire breast, underlying tissues, including the muscles, and all structures likely to be involved. The incision should be carried above the clavicle, along the border of the sterno-mastoid muscle. Regarding the mortality of the operation, we had got better results in this country than in England, where out of 489 operations there were 46 deaths. In American operations to the number of 464, there were but four deaths.

Regarding extirpation of the rectum, the mortality had been small and the relief immense. In two cases operated on two years ago for removal of the entire

rectum, he removed the coccyx and a large part of the sacrum and both patients were well today. In both cases he had first done a colotomy. In another case he removed the rectum, uterus, ovaries, tubes and the posterior wall of the vagina, and the woman was to-day perfectly comfortable.

DR. JACOBSON thought that the surgeon who looked down upon extirpation as the bloodiest of operations was not well posted on the present methods. He knew of no operation for malignant tumor less bloody. He referred, of course, to cases where the surrounding tissues were not infiltrated. He had never lost a case.

DR. DAVIS never saw this operation without considerable hemorrhage. He endorsed colotomy, and claimed every relief from colotomy that could possibly be obtained in extirpation, which he regarded as a very difficult operation.

DR. L. McL. TIFFANY thought extirpation should be done in all cases where a diagnosis was made early.

DR. MARCY, of Boston, thought the rectum should be excised if seen early enough.

In closing the discussion DR. MATTHEWS said every one who had discussed his paper had agreed with him in the main. Total extirpation in operable cases were the ones he spoke of; and it was one of the bloodiest of operations. Continuing, he asked, Are you justified in extirpating in these cases, where all these men who advocate it have just admitted they never seek aid until other structures are invaded? Dr. Keen's report is of cases operated upon only two years ago; after colotomy cases have lived six years. Can extirpation show better or as good results? All these advocates first performed colotomy; what then was the object of the extirpation?

DR. RODMAN, in closing the discussion on the breast, said that Dr. Keen's foreign statistics went back as far as 1870, and this accounted for the large average mortality of the Germans; but he thought the German statistics of the past five years were equally as good as the American. The reason the English had such a high mortality was because they did not keep up with the times.

DR. D. D. STEWART, of Philadelphia, presented a paper on

ELECTROLYSIS IN THE TREATMENT OF SACCULATED ANEURYSM, THROUGH INTRODUCED WIRE, WITH REPORT OF A SUCCESSFUL CASE.

He inserted a gold wire, of sufficient calibre to form spirals, in the centre of the cavity. Ten feet were passed in. The current was passed without interruption for seventy-five minutes. Before the expiration of half an hour the needle was able to stand up in the cavity without support. The operation caused no pain. Three weeks afterwards the operation was repeated because the upper part of the sack was not sufficiently occluded. This time but two and a half inches of wire could be inserted.

SECTION ON SURGERY.—THIRD DAY.

DR. CARL BECK, of New York, read a paper on

ASEPSIS IN PRIVATE PRACTICE.

This was practically an exhibition of a portable sterilizing apparatus. He claimed that with our present methods, almost any operation done in a hospital could be done equally as well in the patient's home.

The room in which the operation was to be done

should be prepared the day previous by an assistant; and then nothing in it should be disturbed for several hours preceding the operation. The patient should have a warm bath the day before.

The apparatus consisted of a series of four pans or trays, which fitted into one another, which when closed could be carried in an ordinary surgeon's-bag. The heat was supplied by two alcohol lamps. A small apparatus of the same description was exhibited, which when closed could be carried in the pocket. This was intended for sterilizing pocket-case instruments.

ILEUS.

A paper illustrated by charts and plates, by DR. J. B. MURPHY, of Chicago.

By the term ileus, we mean a plexus of symptoms: where there is pain in the abdomen of greater or less severity, accompanied by nausea or vomiting, or both, and inability to evacuate the bowels.

The surgeon is interested in the intestinal tract only from a mechanical standpoint. It is a long muscular tube with various points of strictures and contractions, such as at the pylorus, ileo-cecal valve, etc. This canal has a mechanical purpose, and with this mechanical action only are we interested.

Causes of intestinal obstruction are paralysis of its muscles; mechanical obstruction and spasmodic contraction. Of the dynamic variety, we have paralysis from operation on the gut.

In intestinal operations, how much can we interfere with the mesentery without producing paralysis of the ileus? This depends upon the position of the ligature. The blood-supply is from the mesenteric arteries, and again from the parallel artery, which is not accompanied by a vein. Upon the dog you can cut off the mesenteric supply for six and one-half inches without causing paralysis or necrosis; but if both vessels are ligated, anything over one-half an inch, causes a necrosis.

What becomes of the strangulated and constricted bowel, and why? After the twisting, the venous circulation is first disturbed; then damming of the bowel, cessation of the circulation in the mesenteric vessels, and lastly in the parallel vessels. The parallel vessel being protected by a cushion of fat, it takes a long time for it to give way. There being no vein to return the blood great congestion of the bowel ensues; and if sufficient time has not elapsed to cause a thrombosis, the bowel can be placed back into the abdomen after the obstruction has been removed.

When excision of a bowel section is necessary, cut off a little more of the gut on the convex side than on the mesenteric side; otherwise you will have a necrosis of the bowel.

We have paralysis from spinal affections, such as fractures, injuries to the afferent nerve, etc. He had seen a case of this kind where for a considerable length the bowel was distended to three times its ordinary circumference, and the distention was not due to fluid or gas. It is also obstructed by reflex paralysis, such as obstruction to the cystic duct from calculus, renal calculus and spasmodic contraction. The latter is especially frequent in lead-poisoning. Local paralysis occurring in peritonitis, is an important cause and one of the most difficult to differentiate.

Regarding differential diagnosis, in dynamic ileus you can by careful auscultation of the abdomen determine the absence of peristalsis; and the presence or

absence of peristalsis in early obstruction is of more importance than any one sign or symptom known.

SCIENTIFIC USES OF THE SURGICAL FLAP,

by DR. GEORGE WILEY BROOM, of St. Louis, Mo.

Attention was called to the fact that the particular point of amputation was not as important as the technique. If this is properly carried out and the cicatrix where it ought to be, the artificial limb-maker can readily adjust artificial limbs to any variety of stumps.

In speaking of the drainage-tube he claimed that it exposed the wound to 178 varieties of cutaneous bacteria. A blood-clot in a wound was not a foreign body, and as blood possessed bactericidal properties, it was not a source of danger.

SURGICAL TECHNIQUE OF ASEPTIC WOUNDS,

by DR. HENRY O. MARCY, of Boston.

Suppuration means that something has been wrong in the technique or its carrying out after operation.

The parts should be protected by towels wrung out in bichloride solution. Frequent sponging of the wound is harmful. The so-called drainage resulting from the use of chemicals has been greatly overestimated. Drainage-tubes are still too frequently used. Tendons of animals make the best sutures. They are stronger and lighter than silk, and do not absorb too quickly. In the application of buried sutures we should use no undue constricting force.

For the coaptation of wounds the running sutures are best.

DR. B. MERRILL RICKETTS, of Cincinnati, O., read a paper on

FLAT-FOOT.—SUPRA-MALLEOLAR OSTEOTOMY, WITH REPORT OF A CASE.—PHOTOGRAPHS AND SPECIMENS OF FEET OF MAN, ORANG, BABOON, CHIMPANZEE AND GORILLA.

The mastoid process in man's skull is only rudimentary in other animals, and is due to the upright position in walking. Children are born flat-footed. Savages wearing no shoes are always flat-footed. Civilization tends to obliterate flat feet. Flat-foot is principally due to failure of the tarsal bones to become rigid. It becomes aggravated by age. The chimpanzee has but little arch. The posterior part of the gorilla's os-calcis touches the ground.

The manner of dressing the feet in early life is a prominent factor in producing deformed feet. All flat feet which cause pain or deformity should be operated upon. Trendelenburg's operation is the best.

GALL-STONES IN THE COMMON DUCT, AND THEIR SURGICAL TREATMENT,

by DR. CHRISTIAN FENGER, of Chicago.

In the great majority of cases these stones are floating, and in manipulating you may push them up into the hepatic duct and out of reach. These floating stones act as ball-valves.

In eighty per cent. of the common-duct cases instead of a dilated gall-bladder, we find it small and atrophied.

Symptoms of floating stones are repeated attacks of pain, but not of sufficient duration to cause much jaundice. These attacks of pain are repeated until there comes a final one causing death.

As we can never foretell this final attack we should

operate as soon as diagnosis is established. Operate by the usual incision, removing all adhesions until you get down to the duct; and then sometimes it is impossible to find the stone, owing to its having slipped back through the hepatic duct.

Out of forty-four operations the mortality has been eighteen per cent. Of the writer's three cases, all recovered.

DR. MARCY had operated only three times on the common duct. In the first case he abandoned the operation, and the patient died ten days later. In the second case he laid the entire duct open; the patient recovered. The third case died because the patient was poisoned before the operation.

The paper was further discussed by DRs. GASTON and WEEKS.

In closing, DR. FENGER said the duct should invariably be closed by a double row of sutures and drainage always adopted.

SKIN-GRAFTING AFTER THE METHOD OF THIERSCH,

by DR. J. C. OLIVER, of Cincinnati, O.

Its frequent application is limited by three causes: weak granulation, large blisters, and replacing cicatricial tissue.

EXSECTION OF THE KNEE-JOINT, WITH REPORT OF A CASE OF COMPLETE DISLOCATION OF THE KNEE, OF NINE YEARS' STANDING, WITH ESPECIAL REFERENCE TO METHODS OF FIXATION.

This paper by DR. S. F. FORBES, of Toledo, O., was interesting from the method of fixation. Nine years previously the knee was completely dislocated and never reduced. The leg was bent at an angle of forty-five degrees, shrunken and poorly developed.

The incision divided all the structures; a slice one and three-eighths inches thick was removed from the femur, and three-eighths of an inch from the end of the tibia. The surfaces were brought together; and six catgut sutures, three on each side, and one silver suture, inserted. The periosteum was drawn down and stitched with gut, and the external flap treated in the usual manner. Layers of iodoform gauze were applied; next absorbent cotton followed by flannel roller, and the whole covered with a plaster bandage reaching from the toes to the groin. Strips of wood were inserted with the bandaging.

Three weeks afterwards the bandage having become stained with discharge, upon examination it was seen that the edge of the upper cuff had necrosed and was being sloughed off. One week afterwards, the slough being detached, the silver suture was seen lying loose and was removed. Two weeks later the wound healed; and in seven weeks more the plaster was removed. The patient was discharged with a good straight limb ten weeks after the operation, and at this writing she walks without the aid of crutch or cane. She wears an iron support two inches high under the shoe.

The conclusions were, that in knee exsection direct fixation is unnecessary, and that external support gives instant and permanent fixation.

DR. MACLEAN said that while Jonathan Hutchinson of England condemns exsection, he (Dr. Maclean) had had good results following it. He uses no internal fixation; no silver wires, or ivory pegs, etc.

Replying to a question of Dr. Garcelon's, Dr. Maclean said most of his tubercular cases were old chronic ones where the active process had stopped. He had

operated on several cases where the disease was active.

DR. DAVIS, of Philadelphia, wished to know what part the silver suture Dr. Forbes inserted, played in the good result. He believed the bandage should go as high as the waist.

DR. WEEKS thought if the apposing surfaces of bone were in exact position you required no internal fixation. A posterior splint of tin reaching up to the ischium was the best fixation.

In closing the discussion, Dr. FORBES said that as all the muscles were divided in this operation, he failed to see how any muscular action could disarrange the limb, and did not think it necessary to carry the bandage up to the waist.

DR. E. A. TRACY, of Boston, described

THE NEW SURGICAL SPLINTING.

The splint is made from crushed wood-fibre. While moulding the splint the patient should be placed in the proper position; after moulding the splint is dried over a kitchen fire. Its edges should be covered with chamois, and when applied, fastened to the limb by roller bandages. Its advantages are extreme lightness, perfect adaptation to the limb, and great strength.

A SIMPLE METHOD OF DRESSING FRACTURES OF THE EXTREMITIES AUXILIARY TO THE BANDAGE.

This consisted of a practical demonstration by DR. JOHN E. LINK, of Terre Haute, Ind.

He used shavings of birch-wood about six inches wide and ten in length. These shavings were so flexible that they could be wound around the finger. Moistened roller bandages were wound around the limb in one direction, no reversing or twisting being done. Between the various turns of the roller bandage the shavings were inserted. The shavings remained exactly where you placed them, and you obtained absolute rigidity of the limb without increasing its weight beyond that of the roller bandage.

In discussing the last two papers DR. THOMAS H. MANLEY, of New York, said he was glad to see plaster bandage being driven out, for he believed the number of deformities were increased by its use. The only objection to the crushed wood-fibre was its cost; which barred it from hospital use for the present. He regarded Dr. Link's shavings as the ideal treatment for fractures in children.

SECTION ON SURGERY. — FOURTH DAY.

DR. THOMAS H. MANLEY, of New York, read a paper on

DEFORMITIES FOLLOWING FRACTURES OF THE SHAFTS OF BONES.

In complicated fractures in adult life, more or less deformity will sometimes result regardless of the line of surgical or mechanical therapy adopted.

Cases are divided into two classes: The preventable, and those beyond our control. In the majority of cases, if we treat our cases rationally, we will secure fair restoration of function and normal contour of limb. When both bones of the forearm are completely broken, or the fracture extends through a joint, or impaction is present, can we always prevent deformity?

The author's observation of several thousand fractures inclines him to believe that in a considerable

number of such cases deviation from the normal outline follows.

Hyperostosis with excessive callus is always observed in badly adjusted fractures. This not only disfigures and impairs the use of the limb, but may also lead to serious pathological conditions by pressure on the main vascular conduits and nerve-roots.

In fractured femora the great difficulty lies in being compelled to treat the patient as well as the fracture. Gross distortion generally implies maladroitness or neglect in treatment.

Non-preventable cases are those dependent on extrinsic circumstances and those following organic or constitutional disturbances. They are pathological.

Prothylaxis is of the first importance. The problem is to preserve vitality and secure osseous repair without disturbing the reposition of the fragments.

If not attended by loss of bone or excessive shortening, rectification can be accomplished in the early stages of repair. After osseous solidification is complete it is a serious question whether radical surgical interference should be adopted as a routine treatment. It should not be done unless the functional integrity is seriously impaired or the deformity very great.

The operations are osteoclasia, osteotomy and osteectomy. These operations are valuable in young and growing subjects, but beware how they are applied to the humeral or femoral shafts of matured development. In many cases coming under the author's notice, life itself was imperilled; and in a few recovery succeeded only with a permanent ankylosis of the limb and muscular atrophy.

None of the various operations devised for correcting deformities after a Pott's, Colles' or elbow fracture promised anything in the way of improvement sufficient to compensate for the risk to life which they always involve; and a few cases which were so treated, and who afterwards came under his notice, were not only not improved, but they were worse than before the operation.

The following papers were read by title only: "Foreign Bodies in the Esophagus, and a Report of Five Esophageal Cases," by A. Vander Veer, of Albany, N. Y.; "Hypertrophy of the Thyroid Gland: An Experimental Study," by Wm. S. Halsted, of Baltimore, Md.

The following officers were elected for the ensuing year: President, C. A. Wheaton, St. Paul, Minn.; Secretary, W. L. Estes, South Bethlehem, Pa.

(To be continued.)

Recent Literature.

A Text-Book of Pathology, Systematic and Practical. By D. J. HAMILTON, M.B., F.R.C.S.E., F.R.S.E. Professor of Pathology, University of Aberdeen. Macmillan & Co. 1894.

The second volume of this work in two convenient and neatly bound parts of about 550 pages each has recently appeared. The special pathology of the various organs begun in Volume I is concluded, and chapters are added on Malformations and Animal Heat and Fever.

The arrangement of the work is exceedingly unfortunate. For example, the subject of Practical Bacteriology was disposed of in Volume I, at the end of

Volume II, Systematic Bacteriology occupies a hundred pages under the heading "Diseases due to Vegetable and Animal Parasites." The bacteriology of certain diseases, however, such as diphtheria, typhoid and cholera is described in the section devoted to the Pathology of the Special Organs. The arrangement in Thoma where all bacteria are treated of in a chapter under the heading "General Etiology" is much more to be recommended.

Much space is devoted to the consideration of physiological and clinical subjects which have little or no place in a work devoted to Pathology. "Pain in Hepatic Disease" covers almost half a page; "The Act of Micturition" and "Stammering" occupy each over a page; and ten pages are given up to "The Movements of Respiration," "The Respiratory Centres," and "Respiratory Volume"; and forty-two pages to the "Morbid Conditions of the Urine." On the other hand, less than four lines are devoted to the Appendix and its lesions (although Typhlitis and Perityphlitis take up nearly half a page), and eight lines are sufficient for the Inflammatory Affections of the Pancreas.

The deficiencies of the work cannot, perhaps, be more clearly brought out than by noting the manner in which the author has treated two subjects of vital importance, namely, Lobar and Lobular Pneumonia.

Under Lobar ("croupous") Pneumonia he considers at some length Friedländer's pneumo-bacillus as the causal agent. The micrococcus lanceolatus of Fraenkel and Weichselbaum, according to Welch the only causal agent of true lobar pneumonia, is referred to in small print only as a possible occasional cause. Welch's classical monograph on the latter organism is not even mentioned. In regard to Friedländer's bacillus we think Thoma voices accurately the present opinion held by pathologists when he says that the pathogenic significance of this bacterium for man is questionable. After giving Welch's view above, what shall we say to this statement by the author? "Multiple fat embolism from a simple fracture of a bone, and in an individual with a powerful heart, frequently induces a croupous pneumonia, in all respects like that following from the action of specific agents!"

The chapter on Lobular ("catarrhal") Pneumonia shows the greatest lack of knowledge of the recent work done in this field. The exudation is described as consisting of fluid and of desquamated alveolar cells. "In cases where the disease becomes chronic, the discharge assumes a more and more solid character, the tubercle bacillus develops in its midst and caseation follows. It thus constitutes a tubercular pneumonia." Not a word is said about the various organisms concerned in the production of lobular pneumonia, the varying character of the exudation dependent on the causal agent and the outcome of each affected area as determined by the organism or organisms producing it, beyond referring to the bacteria present in lobar pneumonia.

The illustrations are numerous, but are neither very attractive nor very instructive, especially those illustrative of finer histological details. The work certainly cannot be recommended to students as a good text-book on pathology, although a standard pathology written in English is greatly needed, because the author does not treat his subjects logically from an etiological standpoint, and is not abreast of the times in his information and teaching.

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TRANSFUSION OF BLOOD OR INFUSION OF SALT SOLUTION.

In an article under this heading in the *Münchener medicinische Wochenschrift*, April 2d, von Ziemssen calls attention to the fact that in spite of simplification of method, and in spite of the considerable number of cases which he had been able to report of the curative effect of repeated transfusions of blood in the same individual, the method of infusion of salt solution is given almost uniform preference in surgical practice, and blood transfusion considered of comparatively little value in comparison. The reason for this is evident, namely, that in the majority of the surgical and obstetrical emergencies in which either infusion or transfusion must be employed, the infusion of salt solution gives a simpler and more rapid means of restoring the lost bulk of fluid in the vessels, and is, therefore, far preferable to the more complicated operation of blood transfusion. On the other hand, the effect of salt infusion is at the best only transitory, and it becomes necessary, according to von Ziemssen, in most cases to follow it sooner or later by an infusion of blood.

The indications for choosing one or the other method are usually plain. For instance, in the acute anemia resulting from sudden and profuse hemorrhage, salt infusion is to be chosen. In anemia resulting from disease of the blood-making organs, on the other hand, in which the percentage of hemoglobin and the number of red blood-corpuscles falls even below that which results from sudden and profuse hemorrhage, no one would think of resorting to salt infusion. In simple anemia resulting from profuse hemorrhage in a healthy patient, the restoration of the normal condition of the blood is immediately begun and carried on by the blood-making organs; in pernicious anemia, etc., the blood-making organs are so diseased as to be incapable of effecting repair of the blood tissue.

In case of frequently repeated hemorrhage from internal organs, as in typhoid, ulcers of the stomach, etc., salt infusion, although it momentarily restores

the heart's activity, leaves much to be desired on account of the fleeting nature of its effects.

It is in such cases as these that von Ziemssen recommends transfusion of blood. He reports the case of a patient upon whom infusion of a litre of salt solution was performed, *ex indicatione vitale*, with marked temporary improvement. The operation was performed in the evening, and the following morning the patient's condition again became critical, and a loud systolic murmur appeared at the heart's apex. An arm-to-arm transfusion of 175 cubic centimetres of blood was performed. Immediately after the operation the patient sunk very low, but was revived by an injection of camphor, and the percentage of hemoglobin was from 32 to 40 per cent. on the following day. The anemia was rather resistant to treatment, but finally yielded to subcutaneous injections of sodic arsenite, and the patient left the hospital in two months, well.

In von Ziemssen's opinion, the salt infusion in this case had an excellent, but temporary effect; and without the transfusion which followed it, the result would have been fatal. He recommends that in all cases where the effect of salt infusion is temporary, it be followed by blood transfusion, and considers it questionable to wait more than twelve hours before resorting to this procedure. He finds that even during the operation the color of the skin and mucous membranes is improved, and that the subjective feeling of improved strength is quite marked for some hours after the operation; and he considers the good effects of the transfusion to be due as much to the fact that the blood-making organs are excited to activity, as that the number of red blood-corpuscles is directly increased.

In our experience with infusion of salt solution which has been chiefly confined to surgical cases, we have found that in a very large proportion of cases the effect, though always excellent, was but temporary, and that it was necessary in order to render its effects permanent to follow it up with copious and repeated enemata of salt solution and stimulants, or even to repeat the operation. In one case of hemorrhage from the ovarian artery following a laparotomy, in which the abdomen was reopened and the ovarian artery tied, the patient being enabled to bear the operation only by means of an intravenous infusion of salt solution which was performed at the same time, the effect of the infusion was marked, and the patient was put to bed with a better pulse than she had before the operation. Three hours later, the symptoms of acute anemia—absolute pallor, restlessness, and complete failure of the pulse—again returned, and infusion was repeated with the same result as before. The result was more permanent, however, the effect being kept up by copious and repeated rectal injections of salt solution, and the case progressed to recovery. Other cases might be cited in which the same treatment was successful. Whether the stimulating effect of a transfusion of blood upon the blood-making organs would have led to a better result it is difficult to say.

At any rate, the same beneficial effect was noted in these cases from repeated salt infusion, that von Ziemssen found from his blood transfusion.

It is certainly true in these cases that in the first place the vascular system is depleted by the hemorrhage; then the tissues are emptied of serum taken up by the depleted vessels in order to enable the heart to act. The pressure in the vessels is so lowered by the hemorrhage that osmosis takes place from the lymph spaces into the capillaries, so that the lymph-vessels as well as the blood-vessels are depleted. The bulk of salt solution given at the first infusion fills the blood-vessels temporarily, but is quickly taken up by the tissues, reducing the blood pressure, and again reducing the volume of fluid with which the heart has to work, and causing the symptoms of acute anemia to recur. The second infusion fills the vessels again, and the tissues being already supplied with fluid, do not absorb it from them. Hence equilibrium is restored, and the effects of the second infusion are permanent.

If a sufficient amount of fluid is injected at the first operation, the second may be unnecessary, but it will always be a good rule to follow up an infusion by copious enemata of salt solution, and, if necessary, to repeat the operation.

A REPORT OF ONE THOUSAND EXCISIONS OF THE THYROID.

At the German Surgical Congress at Berlin, on April 17th, Kocher, of Berne, reported his results in one thousand thyroidectomies for goitre. This enormous and wholly exceptional experience, which would be hardly possible for a surgeon not a resident of Switzerland, renders his contribution to our knowledge on the question of thyroid operations of the greatest importance.

Twelve years have elapsed since he reported one hundred cases of complete extirpation of the thyroid, with observations upon the cachexia strumipriva consecutive to the radical operation.

Since that time he has abandoned the radical operation, and has practised partial extirpation of the goitre, with the result that in nine hundred cases operated on since that time cachexia strumipriva has resulted in only one case. In this case the cachexia was due to the fact that after the excision of one-half of the thyroid gland, the other half atrophied. On the other hand, all the cases of total extirpation have gone on to cachexia, except in cases where fragments of the gland have been left behind and produced recurrence of the disease. Alterations of the voice, paralysis of the vocal cords, etc., can almost always be avoided in carefully performed operations. They have been observed in seven per cent. of the cases, but have disappeared in the non-malignant types of the disease.

Eliminating the malignant cases, the mortality in eight hundred cases becomes a little higher than one per cent., eleven cases in all having died. Some of the cases were desperate when brought to the clinic

(one moribund, one intra-thoracic goitre with general edema and hydropericardium). Among other causes of death may be mentioned one of interstitial nephritis; two of influenza followed by pneumonia; three of the exophthalmic type, in whom the conditions for operation were very poor, in virtue of the size and brittleness of the vessels, so that the ligation of only three of the arteries and not of all four, was possible. He now prefers to operate by ligation of the thyroid arteries rather than by excision in these cases.

One death was due to bronchitis, after the inhalation of ether. No deaths resulted from chloroform anesthesia. Kocher always begins the anesthesia with chloroform and continues it with ether; in extremely cachectic subjects he has employed with success local anesthesia with cocaine.

Two deaths were produced by infection, both being in operations for recurrent disease. In one series of 272 operations there were no deaths. The operation is often difficult, especially when the disease extends into the thorax. For simple goitre, non-malignant, or exophthalmic, Kocher had only three deaths in nine hundred excisions, which is certainly a most excellent record.

We are to be congratulated upon the fact that prophylaxis and cure of goitre by thyroid feeding is the order of the day. The author's clinical experience has demonstrated that enlargement of the thyroid often diminishes under prolonged thyroid alimentation.

The administration of phosphates, according to the researches of the Polish physician Zakrzewski, can also lead to the atrophy of goitre. The phosphate of soda has also been given in Basedow's disease, with the result of the disappearance of the disease and its symptoms, a fact which corroborates the view that the disease is an auto-intoxication, due to an abnormal thyroid secretion, although the origin of the disease may be in an abnormal nervous impulse.

Rehn, of Frankfort-on-the-Main, has just successfully treated a case of Basedow's disease by extirpation of the tumor. Vascular goitres are very difficult of removal, and he had had three deaths from the operation. From the result of his operation in the case of Basedow's disease he is led to believe that we have to do in this disease with an auto-intoxication by the thyroid secretion.

Krönlein said that he was completely convinced of the efficacy of the treatment of Basedow's disease by excision of the thyroid. He had cured the eight cases upon which he had operated. All the symptoms did not at once disappear, the exophthalmus persisting for the longest time. In his two hundred cases of goitre he has had no deaths. After chloroform anesthesia he had sometimes seen a pneumonia, which he had not observed when ether and morphine had been employed exclusively.

Mikulicz had found that feeding with the thymus as well as the thyroid gland produced a diminution in the size of goitres. He has successfully treated eleven cases of Basedow's disease by operation. Trendelen-

burg, of Bonn, had operated in six cases of Basedow's disease — once by excision, which operation was followed by a severe hemorrhage; once by ligation of three arteries; four times by ligation of all four arteries. No cachexia had been produced, and all the cases had been greatly relieved by the operation. Rydygier, of Cracow, had ligatured all four arteries twenty times without producing cachexia.

MEDICAL NOTES.

THE NEW PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS. — Mr. Christopher Heath has been elected president of the Royal College of Surgeons of England, for the remainder of the term left vacant by the death of the late Mr. Hulke.

THE GERMAN CONGRESS OF GYNECOLOGY. — The Sixth Congress of the German Association of Gynecologists will be held in Vienna June 4th to 7th ult. The subjects for discussion will be "Endometritis and Rupture of the Uterus." Clinical demonstrations will be given at Chrobak's clinic.

THE STREPTOCOCCUS ANTITOXIN. — The *Wiener klinische Wochenschrift* is informed that the streptococcus antitoxin discovered by Marmorek at the Pasteur Institute in Paris, and successfully demonstrated in experiments on animals to be a remedy for erysipelas, has already been employed in about fifty cases of this disease in the hospitals of Paris, with most excellent results.

THE PURIFICATION OF DRINKING WATER. — According to *La Médecine Moderne*, at a discussion at the French Academy of Sciences on the question of furnishing pure drinking water to the French troops in Madagascar, M. Friedel presented a new disinfectant, "monol," by which it was possible to render swamp water, or even water impregnated with vegetable poisons, pure, palatable and harmless.

SPLENOPEXY. — At the German Surgical Congress Rydygier, of Cracow, reported that he had successfully performed splenopexy three months before on a patient with a movable spleen. Splenopexy is a difficult operation on account of the danger of hemorrhage. Rydygier made an incision in the median line and dissected up the peritoneum at the level of the eleventh and twelfth ribs, so making a pocket in which he lodged and fixed the spleen. The fixation sutures were passed through the gastro-splenic ligament. Up to time of report the spleen had remained in place.

A MAN WITH FIVE HUNDRED SPLEENS. — Albrecht¹ reported at the Vienna Medical Society on April 26th, the autopsy on a man of twenty-five years who had died of chronic nephritis, in whose abdominal cavity were found five hundred spleens of various sizes, some so small as to be hardly visible, and others varying from the size of a pin-head to that of a walnut. The largest spleen, the size of a walnut, lay in the position of the normal spleen, and was provided

¹ Vienna correspondent of the *Münchener med. Wochenschrift*.

with the regular splenic artery and vein. The earlier reported cases of accessory and multiple spleens have shown that the additional spleens were situated in the positions which their development would render probable, but in this case they were scattered all over the peritoneal cavity right and left, in the diaphragm, on the suspensory ligament and in the capsule of the liver, in the greater omentum, along the descending colon and ileum, even in Douglas's pouch. The tissue of these scattered spleens was indubitably proved by microscopical examination to be true splenic tissue.

THE ALBERT MEDAL OF THE BRITISH SOCIETY OF ARTS.—Sir Joseph Lister was on April 9th presented with the Albert Medal of the Society of Arts by the Prince of Wales, as president of the Council of the Society. The medal was awarded to Sir Joseph Lister in recognition of "the discovery and establishment of the antiseptic method of treating wounds and injuries, by which not only has the art of surgery been greatly promoted and human life saved in all parts of the world, but extensive industries have also been created for the supply of materials required for carrying the treatment into effect."

ANTITOXIN IN THE ANTIPODES.—In the *Australasian Medical Gazette* of March 15th is an account of six cases of diphtheria treated with Behring's and Aronson's antitoxin at the Sydney Children's Hospital. Three of the cases are classed as very serious, and in three of them tracheotomy was required. Five of the cases recovered, and one died of post-diphtheritic cardiac paralysis after the local condition had considerably improved. Out of six cases treated at the Brisbane Children's Hospital, two died. At the meeting of the Queensland Medical Society of February 12th, a committee was appointed to request the colonial secretary that the government bacteriologist be asked to undertake the manufacture of antitoxin.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, May 22, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 51, scarlet fever 26, measles 122, typhoid fever 9.

EXAMINATION FOR THE MASSACHUSETTS MEDICAL SOCIETY.—The usual annual examination for admission to the Massachusetts Medical Society will be held by the Censors of the Suffolk District on Thursday, June 6, 1894, at 2 P. M., at 19 Boylston Place.

THE SMALL-POX EPIDEMIC AT CLAREMONT, N. H.—The origin of this epidemic illustrates very well the method of the sudden outbreaks of small-pox in places remote from the original source of the disease. Dr. Irving A. Watson, the Secretary of the New Hampshire State Board of Health, reports that the disease was brought to Newport, N. H., by a man who returned from Chicago, and came down with small-pox immediately after his return, the case not being recognized as small-pox. A man to whom he communi-

cated the disease proved to be a walking case, and distributed small-pox in the town of Claremont. A woman who likewise contracted the disease from the first case, distributed it in the town of Croydon, so that two rather active local epidemics were started.

PUBLIC HEALTH IN CONNECTICUT.—The *Bulletin* of the Connecticut State Board of Health for April, 1895, states that: "The month of April was notable for several epidemics in various parts of the State. One reported by Health Officer Fitzgibbons, of scarlet fever in Bridgeport, originated in a public school. It was necessary to close the school. Another of scarlet fever was reported by Dr. H. E. Wilcox, Health Officer of Windham, in which he thinks there may have been 600 cases, although only 231 were reported to him. Notwithstanding the extensive spread of this disease, there have been but few deaths, so mild is the type of the disorder at this time. Dr. Congdon, Health Officer of Salem, reports scarlet fever 'developed one year after exposure.' The probable fact is, a recent exposure to some wearing apparel, that had not been disinfected. Whooping-cough is epidemic in East Haddam and New Canaan." The epidemics of typhoid fever at Stamford and New Milford, both due to infected milk, have already been noted in the *JOURNAL* for May 9th and May 16th respectively. With regard to the latter epidemic the *Bulletin* states that: "In this outbreak the physicians of the town neglected to report their cases to the health officer, on the excuse that they did not know the disease was typhoid fever. Hence the extent of the epidemic was not recognized until it attracted public attention. Immediate reports to the health officer and prompt suppression of the sale of the infected milk would probably have prevented a part of the cases. There could not well be a more convincing illustration of the importance of some authoritative supervision of the ways and methods of milk production for public use. So long ago as 1881, fifty typhoid epidemics from infected milk had been traced in England, and now all English dairies are subject to the supervision and control, in a sanitary sense, of health officials."

NEW YORK.

LICENSES FOR DENTAL PRACTICE.—The Legislature has passed and the Governor has signed a bill vesting the power to grant licenses to practise dentistry in a State Board of Dental Examiners, and assimilating the licensing of dentists to the licensing of physicians.

THE APPROPRIATION FOR THE DEPENDENT INSANE.—The State Senate has passed the bill of the Finance Committee providing the annual appropriation for the care and maintenance of the dependent insane. The bill imposes a tax of one mill on each dollar of real estate and personal property, and the total sum to be raised is \$4,200,000 an increase of \$2,800,000 over last year, owing to the taking in under the State Care Act of the insane of New York and Kings Counties.

PUBLIC HEALTH OF NEW YORK.—The reports of the Bureau of Vital Statistics show a very satisfactory state of the public health. During the week ending May 18th there were 771 deaths, which is 44 less than in the preceding week, and 109 less than the average for the corresponding weeks of the past five years. The mortality from pneumonia, however, still continues high. During the week 123 deaths from it were reported, which is 24 more than occurred from phthisis. Diphtheria was the cause of 36 deaths.

DR. BOZEMAN'S BUTTON SUTURE.—On May 12th a considerable number of medical friends were present at St. Francis Hospital, Jersey City, where Dr. Nathan Bozeman, of New York, operated for the closure of a vesico-vaginal fistula; applying, as usual, his button suture. In his invitations to the operation Dr. Bozeman announced that this date was the fortieth anniversary of the invention and employment of the button suture as a strictly aseptic suture for all forms of perforating lesions in the walls of the vagina and cervix uteri.

A CASE OF QUADRUPLTS.—A German Jewess in Brooklyn, a patient of Dr. Louis Pulvermacher, recently gave birth to four children at a time. Drs. A. S. Nicholson and C. C. Henry were called in consultation, but the labor proved fatal. Of the four children, three were males and one a female, and two of them died shortly after birth. The two surviving infants were doing well, according to the last reports. Each of the quadruplets weighed more than four pounds, and their combined weight was eighteen and a half pounds. The mother was a little past forty years of age and had previously given birth singly to five children, all of whom are now living. The oldest is eighteen years old.

COLUMBIA UNIVERSITY.—At a meeting of the trustees of Columbia University held May 6th, President Seth Low announced that he would donate, as a memorial of his father, the late A. A. Low, of Brooklyn, the sum of \$1,000,000 for the erection of the new library of the University. It was also announced that Mr. Wm. C. Schermerhorn, Chairman of the Board of Trustees, had made a gift of \$300,000 for the erection of the Natural Science building, or any other building that might be selected by the board. On the recommendation of the National Academy of Sciences the trustees voted to make the first award of the Barnard medal for the most important discovery in physical or astronomical science to Lord Rayleigh, the discoverer of argon, a constituent of the atmosphere. The late Dr. F. A. P. Barnard, President of Columbia, in his will provided for the award every five years, beginning in 1895, of a gold medal for "Meritorious Service to Science," the competition being open to citizens of all countries.

PUBLIC BATHS.—At a meeting of the Board of Health held May 2d, action was taken in regard to the erection of free public Baths in various parts of the city. A recent act of the Legislature makes provision

for such baths, and the Board decided to ask the Board of Estimate and Apportionment to purchase land and build seven houses. President Wilson called in consultation Mr. John P. Faure and Prof. Wm. H. Tolman, of the Committee of Seventy's Sub-committee on baths, and also Dr. Simon Baruch, who has devoted much attention to the subject of balneology. Mr. Faure presented a report, based on the work of his committee, showing the great need of public baths, especially on the crowded tenement districts of the east-side. The recommendations were as follows: "Bath-houses to be built on an ordinary city lot, 25 by 100 feet, to have two stories suitable for at least forty baths, twenty on each floor, in addition to spray baths for children in the basement. The baths on the street level should be arranged for men, those on the second floor for women. The spray or rain-water system of baths should be adopted because there is no waste of water. The cost of erection should be very moderate, and the system is characterized by cleanliness and simplicity. The bath-houses should contain divisions for the use of the cleanly and of those not cleanly. Each should have a system of fumigating clothes when necessary. In tenement districts public wash-houses should be opened in connection with the baths, thereby relieving many homes of one and two rooms of the unhealthy conditions of laundry work." Six sites for the proposed bath-houses were also recommended. Dr. Baruch said that much good had been accomplished by the various baths already provided by some of the charitable societies. He estimated that seven buildings of ample size could be erected for \$140,000. The Committee of Seventy's estimate was \$25,000 for each house. The question of introducing baths in the public school buildings was also discussed, and the proposed plans for this were heartily approved by the Board.

Miscellany.

RECENT MEDICAL LEGISLATION IN MINNESOTA.¹

THAT Minnesota is in the van of progress as regards keeping up a high standard of attainments among those allowed to practise medicine within the State, has been acknowledged ever since the passage of the first medical practice act ten years ago. By that act applicants for a license must have attended at least three courses of lectures of six months each. The legislature just adjourned has gone a step farther, and has passed a bill providing that of all graduates of a later date than 1898 must have attended at least "four courses of medical lectures, in different years, of not less than six months' duration." From this it is evident that no student who after this year enters a medical school with a three years' course will be admitted to practise medicine in Minnesota unless he does enough post-graduate study to comply with the requirements.

The legislature was also liberal to the Medical Department of the State University, and gave it a grant

¹ Northwestern Lancet.

of \$40,000 for the purpose of building a laboratory. This makes a total of \$150,000 appropriated for buildings alone for this department during the last four years.

THERAPEUTIC NOTE.

QUININE IN WHOOPING-COUGH. — G. Theodor Fischer, of Rochester, N. Y., influenced by the monograph of Baron in the *Berliner klin. Wochenschrift*, 1893, No. 48, on this subject, has employed the treatment and dosage recommended by Baron, since June, 1894, in his practice at Rochester, N. Y., in twenty-seven cases. In summing up his experience in an article in the *New York Medical Journal* for May 11, 1895, he comes to the conclusion that quinine, given in proper doses, is the best remedy for whooping-cough at present known, for the following reasons:

(1) It diminishes the number of attacks essentially in five days at latest; (2) it reduces even the most vehement whooping-cough to a mild bronchitis in twelve to fifteen days; (3) it influences most favorably a possibly existing broncho-pneumonia; (4) it often stimulates the appetite.

Correspondence.

COLLODION IN PLASTIC OPERATIONS.

SALEM, May 13, 1895.

MR. EDITOR:—A quarter of a century ago, there appeared in the *JOURNAL* (April 14, 1870) a decidedly original and readable article on "The Surgical Lessons of the Late War," by Dr. Asterisk, A.M., M.D., LL.D.

His paper illustrated in a most graphic manner the value of *ichthyocolle preparata Spaldingii* in medical and surgical practice; but, like many much-vaunted new remedies, this one has apparently passed into oblivion.

Speaking seriously, there is a therapeutic agent of undoubted value in many cases of plastic surgery that is less employed than its merits deserve; reference is made to the official collodium of the *United States Pharmacopœia*.

By its use the inconvenience and pain of sutures can frequently be dispensed with. For example, when inversion of the lower eyelid is present, as is not uncommon in elderly people, and which naturally causes much annoyance, it is sufficient (Noyes), not infrequently, to apply two or three coats of collodium on the skin below the in-turned lashes, and repeat its application every two or three days for some weeks, till either relief follows or the patient consents to have a strip of skin excised. When the latter is done, fibres of cotton saturated with the collodium will keep the edges of the wound in perfect apposition during the healing process, sutures not being called for.

Its contractile property is also of value after the out-scoping of cysts on the eyelids. They are ordinarily incised through the tarsal surface, and when evacuated the sac sometimes becomes much distended by hemorrhage and occasionally an abscess is the sequel. Collodium applied on the skin over the site of the chalazion expels the blood and brings the walls together and so promotes immediate union. This is favored by inserting a drop of castor oil in the line of the incision, which it tends to keep open for a day or two.

Since calling attention in these columns a year or two ago to the use of collodium on distended tear-sacs it has, in several instances, continued to be of help in abridging the treatment of this not uncommon affection.

Very respectfully,
DAVID COGGIN, M.D.

METEOROLOGICAL RECORD.

For the week ending May 11th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermo- meter.		Relative humidity.		Direction of wind.		Velocity of wind.		Weath'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S.. 5	30.36	44	47	42	94	100	97	N.E.	N.E.	11	8	O.	R.	.38
S.. 6	30.16	62	82	43	86	54	70	S.W.	S.W.	5	13	O.	C.	—
F.. 7	30.14	73	87	59	72	72	72	S.W.	S.W.	12	17	C.	C.	—
W.. 8	30.00	75	87	63	72	63	68	W.	S.W.	12	16	C.	C.	—
T.. 9	29.89	76	88	65	76	62	69	W.	S.W.	10	8	O.	C.	—
F.. 10	29.90	76	86	66	44	44	44	N.W.	S.	5	13	C.	C.	—
S.. 11	29.75	79	90	68	49	74	62	W.	S.	2	18	C.	C.	—

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., transient; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 11, 1895

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	815	340	14.64	21.96	1.56	6.72	2.88	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	454	143	10.12	13.86	1.76	4.18	—	
Brooklyn	1,043,000	394	134	12.75	20.00	1.75	8.50	1.50	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	218	71	6.44	32.54	.46	3.68	.46	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	81	23	3.69	8.61	1.23	—	1.23	
Cincinnati	325,000	133	41	9.00	15.00	5.25	—	.75	
Cleveland	325,000	105	—	9.50	6.65	1.90	.95	.95	
Pittsburg	272,000	92	31	8.72	14.17	—	2.18	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	23	5	—	17.85	—	—	—	
Charleston	65,165	30	6	10.00	3.33	10.00	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	28	13	10.71	17.85	3.57	—	—	
Fall River	92,233	29	10	10.35	24.15	6.40	3.45	—	
Lowell	90,613	28	10	3.57	7.14	3.57	—	—	
Cambridge	79,607	34	12	7.88	10.82	—	—	—	
Lynn	65,123	12	6	12.50	6.25	—	—	—	
Springfield	50,784	15	4	6.66	6.66	—	—	6.66	
Lawrence	49,900	18	7	22.22	11.11	16.66	—	—	
New Bedford	47,741	20	7	—	10.00	—	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	33,939	8	2	12.50	25.00	—	—	—	
Salem	33,155	12	3	12.50	6.25	6.25	6.25	—	
Haverhill	32,925	8	5	25.00	—	—	12.50	—	
Malden	30,209	8	1	—	12.50	—	—	—	
Chelsea	29,066	17	5	—	11.76	—	—	—	
Fitchburg	29,383	12	2	—	12.50	—	—	—	
Newton	28,837	8	0	12.50	25.00	—	12.50	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	5	2	—	—	—	—	—	
Waltham	22,058	8	1	—	12.50	—	—	—	
Quincy	19,642	10	2	30.00	10.00	—	20.00	—	
Pittsfield	18,802	—	—	—	—	—	—	—	
Everett	16,585	5	2	—	20.00	—	—	—	
Northampton	16,331	5	1	—	—	—	—	—	
Newburyport	14,073	6	1	—	16.66	—	—	—	
Amesbury	10,920	1	1	—	—	—	—	—	

Deaths reported 2,752; under five years of age 933; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 313, acute lung diseases 477, consumption 322, diphtheria and croup 130, diarrheal diseases 56, measles 37, scarlet fever 34, whooping-cough 16, typhoid fever 19, erysipelas and cerebro-spinal meningitis each 8, small-pox 5.

From scarlet fever New York 13, Philadelphia and Providence 5 each. Pittsburg 3, Boston, Cleveland and Cambridge 2 each. Washington and Medford 1 each. From typhoid fever Philadelphia 4, New York and Cleveland 3 each. Brooklyn and Pittsburg 2 each. Boston, Cincinnati, Providence, Lawrence and Quincy 1 each. From whooping-cough New York 6, Philadelphia 4, Brooklyn 3, Boston, Cincinnati and Haverhill 1 each. From cerebro-spinal meningitis New York, Worcester and Lynn 2 each. Cleveland and Somerville 1 each. From

erysipelas New York 5, Philadelphia, Pittsburg and Brockton 1 each. From small-pox Philadelphia 3, Cincinnati 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 4th, the death-rate was 17.5. Deaths reported 3,551; acute diseases of the respiratory organs (London) 290, whooping-cough 90, measles 80, diphtheria 49, diarrhea 39, fever 24, scarlet fever 22, small-pox (London) 1.

The death-rates ranged from 10.6 in Nottingham to 26.7 in Burnley, Birmingham 16.9; Bolton 20.1; Bradford 16.6; Bristol 13.3, Gateshead 15.2, Hull 21.4, Leicester 12.4, Liverpool 23.2, London 23.9, Newcastle-on-Tyne 16.6, Manchester 23.9, Portsmouth 11.9, Sheffield 18.4.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MAY 15, 1895.

W. A. WHEELER, surgeon, detailed as Chairman Board for physical examination of applicants for appointment in Revenue Cutter Service, May 13, 1895.

J. H. WHITE, passed assistant surgeon, detailed as Recorder Board for physical examination of applicants for appointment in Revenue Cutter Service, May 13, 1895.

P. M. CARRINGTON, passed assistant surgeon, granted leave of absence for fourteen days, May 4, 1895.

J. O. COBB, passed assistant surgeon, granted leave of absence for fourteen days, May 1, 1895.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 11, 1895, TO MAY 17, 1895.

CAPTAIN CHARLES RICHARD, assistant surgeon, will when relieved from duty at the Military Prison, Fort Leavenworth, Kansas, proceed to and take station at St. Louis, Missouri, for duty as attending surgeon, and examiner of recruits.

CAPTAIN PETER R. EGAN, assistant surgeon, is relieved from duty at Fort Custer, Montana, and ordered to Fort Assiniboine, Montana, for duty, relieving MAJOR CHARLES B. BYRNE, assistant surgeon. MAJOR BYRNE on being thus relieved is ordered to Fort Snelling, Minn., for duty.

MAJOR WILLIAM C. SHANNON, surgeon, upon the expiration of his present leave, is ordered to Fort Custer, for duty.

FIRST LIEUT. DEANE C. HOWARD, assistant surgeon, will be relieved from duty at Fort Snelling, Minn., upon the arrival there of MAJOR CHARLES B. BYRNE, surgeon, and will then proceed to Fort Custer, Montana, and report for duty, at that post.

CAPTAIN ALONZO R. CHAPIN, assistant surgeon, having been found by an Army Retiring Board incapacitated for active service on account of disability incident to the service, is by direction of the President retired from active service this date, May 10, 1895.

Leave of absence for four (4) months, to take effect on being relieved from duty at Fort Thomas, Kentucky, is granted CAPTAIN WILLIAM J. WAKEMAN, assistant surgeon, U. S. Army.

Leave of absence for one month and fifteen days, to take effect on or about June 16, 1895, is granted MAJOR WILLIAM E. WATERS, surgeon, U. S. Army.

The extension of leave of absence on surgeon's certificate of disability, granted MAJOR WASHINGTON MATTHEWS, surgeon, is further extended four months, on surgeon's certificate of disability.

AMERICAN SURGICAL ASSOCIATION.

Programme of the Annual Meeting to be held at the New York Academy of Medicine, Nos. 17 and 19 West 43d Street, New York, May 28, 29 and 30, 1895. Members of the Medical Profession are cordially invited to attend the meetings of the Association, except when it is in the Executive Session.

TUESDAY, MAY 28th.

Session 9.30 A. M. to 1 P. M. — Roll Call. President's Address. Executive Session. Discussion on the Operation for the Radical cure of Hernia. By Drs. William T. Bull, of New York, Charles McBurney of New York, Henry H. Mudd, of St. Louis, John E. Owens of Chicago and John H. Packard of Philadelphia. Results of the Treatment of Hypertrophy of the Prostate Gland by Castration, Dr. J. William White, of Philadelphia. Discussion by Drs. L. S. Pilcher, of Brooklyn, Roswell Park, of Buffalo, and William S. Halsted, of Baltimore. Operative Treatment of Cancer in Various Localities: 1. Anatomical Arrangement of the Lymphatic Vessels in the various regions, by Dr. F. H. Gerrish, of Portland, Me.

Clinic at Bellevue Hospital, 2 to 3.30 P. M. (Dr. Dennis and the Visiting Staff.) Clinic at Presbyterian Hospital, 4 to 5.30 P. M. (Drs. McCosh and Briden with Drs. Pilcher and Wight.)

WEDNESDAY, MAY 29th.

Session 9.30 A. M. to 11 A. M. — Operative Treatment of Cancer in Various Localities (continued): 2. The Female Genital Organs including the Uterus and Vulva, Dr. John Homans, of Boston. 3. The Lips, Tongue, Floor of Mouth and Pharynx, Dr. P. S. Conner, of Cincinnati. 4. The Breast, Dr. J. S. Wight, of Brooklyn. 5. The Male Genitals, Dr. Hunter McGuire, of Richmond, Va.

Clinic, New York Hospital, 11.30 A. M. to 1 P. M. (Drs. Weir, Bull, Hartley and Murray with Drs. Gerster and Abbe.) Clinic, Roosevelt Hospital, 59th Street and 9th Avenue, 3 to 5 P. M. (Dr. McBurney, with Drs. Lange, Fowler and Rushmore.)

THURSDAY, MAY 30th.

Session 9.30 A. M. to 1 P. M. — Operative Treatment of Cancer in various Localities (continued): 7. The Rectum, Dr. Arpad G. Gerster, of New York. Discussion by Drs. L. McLane Tiffany of Baltimore, Theodore A. McGraw of Detroit, C. H. Mastin, of Mobile, and L. S. Pilcher of Brooklyn. The Present Status of Anesthesia: 1. Circumstances under which chloroform is preferable to Ether as an Anesthetic, Dr. G. W. Gay, of Boston. 2. Influence of Ether upon the Kidneys, Dr. Robert F. Weir, of New York. Discussion by Drs. T. F. Prewitt of St. Louis, H. R. Wharton of Philadelphia, J. D. Rushmore of Brooklyn, Robert Abbe of New York and F. E. Lange of New York. Discussion on the Restoration of Joint Function after Fracture. By Drs. W. H. Carmalt of New Haven, L. A. Sayre of New York, N. P. Dandridge of Cincinnati, J. B. Roberts of Philadelphia, E. H. Bradford of Boston and John Ashhurst, Jr., of Philadelphia.

Afternoon, 3 P. M. The Bacteriological Aspects of Pus and Suppuration, Dr. Roswell Park, of Buffalo. Discussion by Drs. W. S. Halsted of Baltimore, L. M. Tiffany of Baltimore and John Parmenter of Buffalo. Gunshot Wounds of the Heart, Dr. Claudius H. Mastin, of Mobile. Injuries to Pneumogastric and Phrenic Nerves, Dr. Roswell Park, of Buffalo. Dislocation of the Ulnar Nerve at the Elbow, Dr. Henry W. Wharton, of Philadelphia. Ligation of the Innominate Artery, with the Report of a Case, Dr. H. L. Burrell, of Boston. Immediate Suture of the Gall-Ducts and the Gall Bladder after Extraction of Stones, with Cases, Dr. J. W. Elliot, of Boston. A Case of Cholecystotomy, Dr. S. H. Weeks, of Portland, Me. Personal Experience with Mad Dogs, Dr. Basil Norris. Hernia of the Bladder as met with during Operations for Inguinal and Crural Hernia, Dr. Christian Fenger, of Chicago. The Radical Cure of Hernia by a New Procedure, Dr. John H. Packard, of Philadelphia. Ligation of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate, Dr. J. Ewing Mears, of Philadelphia. Congenital Esophageal Pouch, Excision, Immediate Suture of Esophagus, Recovery, Dr. S. J. Mixter, of Boston.

RECENT DEATH.

GEO. A. PERKINS, M.D., M.M.S.S., died at Salem, May 18th, aged eighty-two. He graduated in medicine at Harvard in 1844, and went to West Africa as a medical missionary. He returned to Salem in 1849, and practised there until 1863, when he became post-surgeon at Forts Lee and Pickering. He was interested in macroscopy and chemistry, and was a member of numerous scientific and social organizations. He was one of the original staff of the Salem Hospital.

BOOKS AND PAMPHLETS RECEIVED.

The Surgical Treatment of Spina Bifida. By Henry O. Marcy, M.D., of Boston, Mass. Reprint. 1895.

Nerve-Suturing — Neurorrhaphy — Nerve-Grafting. By De Forest Willard, M.D., Ph.D., of Philadelphia. 1894.

The Differential Diagnosis of Traumatic Intracranial Lesions. By Charles Phelps, M.D., New York. Reprint. 1895.

The Influence of Pregnancy upon Dental Caries. By Reuben Peterson, M.D., Grand Rapids, Mich. Reprint. 1895.

The Spinal Cord Lesions and Symptoms of Pernicious Anemia. By Charles W. Burr, M.D., Philadelphia. Reprint. 1895.

On a Modification of the "Invagination" Method of Operating for the Radical Cure of Hernia. By John H. Packard, M.D. 1895.

A New Method of Examination and Treatment of Diseases of the Rectum and Sigmoid Flexure. By Howard A. Kelly, M.D., of Baltimore. Reprint. 1895.

Transactions of the American Pediatric Society, Sixth Session, held at Washington, D. C., May 29, 30, 31, and June 1, 1894. Edited by Dillon Brown, M.D., New York. Vol. VI. Reprint. 1894.

Original Articles.

TRANSVERSE SEPTA OF THE VAGINA.¹

BY A. K. STONE, M.D.

DURING the summer of 1893 there came to the out-patient clinic at the Massachusetts General Hospital three cases of transverse septum in the vagina. All three occurred in young women who had never borne children, and in none was there any history of injury or instrumentation which would account for the condition. The rarity of this anomaly was forced upon me, for, questioning a number of gynecologists and obstetricians in Boston, Baltimore and Washington in regard to the frequency with which they had met transverse septa, with very few exceptions they stated that they had never seen such a condition.

While visiting the Columbia Hospital in Washington, in company with Dr. J. F. Scott, I chanced to mention the subject; and the house physician, Dr. Murphy, said that such a case was then in the hospital, and that he had seen still another in the out-patient clinic. Dr. Scott has since then seen a case in private practice. With great kindness he has placed his cases at my disposal, and I take this opportunity to acknowledge his courtesy.

My cases are briefly as follows:

CASE I was an unmarried woman of twenty-one or twenty-two years, who came to the examining-table because of symptoms which made me suspect the possibility of pregnancy. She was well developed, and everything about the external genitals appeared normal. The hymen was not intact. About two inches from the introitus the examining finger came upon a barrier to further advance. Finally a small opening was found which with considerable difficulty allowed the admission of the tip of the finger, which could then be made to feel the os beyond. The os was soft and the uterus enlarged, and pregnancy of about four months diagnosed. With the speculum the obstacle which had prevented the free examination was found to be a thin membranous septum completely blocking the whole lumen of the vagina with the exception of a small central opening. The membrane was elastic and had no different appearance from the rest of the mucous membrane of the vagina. Anteriorly the septum was in close connection with the vaginal portion of the cervix. There was no thickened portion that would in any way make one suspect the septum to be of inflammatory origin. All injuries were denied. Menstruation had always been regular and normal up to the time of the pregnancy. I lost track of the patient in spite of my attempts to have her confined at the Boston Lying-in Hospital; and as she also changed her address, I have not been able to obtain any account of the confinement.

CASE II was a young unmarried woman who feared pregnancy, and was in every way a duplicate of the first case, excepting that there appeared to be a few bands running from the cervix and connecting with the membranous septum. Menstruation here had been normal. This patient, too, has been lost sight of, in spite of attempts to trace her.

In each of these cases the opening through the septum was of nearly one-half inch in diameter, and the

edges were thin and sharp, and presented no inflammatory conditions. The septum formed an almost closed pouch at the upper portion of the vagina, into which if the semen once gained entrance; there would be a condition most favorable for conception.

CASE III is somewhat different. This patient had a uterine displacement and some endocervicitis consequent to this. Examination of the cervix was attended with great difficulty, from the constant tendency of the speculum to slip. Careful investigation into the cause of this showed that about two inches from the introitus there was a distinct narrowing of the lumen of the vagina by a ridge of tissue. This ridge was scarcely perceptible to the examining finger when introduced in the ordinary manner, but a distinct thickening could easily be made out if the finger was passed so as to press against the vaginal wall. There was no history here of previous injury or of any operation. Neither was there any tendency to contraction. The ring was so high up that when the Sims speculum was introduced the tip caught upon the ridge, and instead of falling into the posterior cul-de-sac slipped forwards. Hence the difficulty which led to the discovery of the condition.

Dr. Scott's cases are as follows:

CASE I was a colored girl about eighteen, who was well formed and well developed. She had always menstruated regularly and had never known that she was in any way different from other girls. She presented herself at the Columbia Hospital, in Washington, early in November, 1893, being then nearly at full term. On examination the os could not be found, but about one and three-quarters inches from the entrance of the vagina the finger came against a smooth, soft, yielding membrane which completely occluded the vagina. At the centre alone there was a little roughness. Examination with the speculum showed a small opening which would admit the entrance of a uterine probe. The edges of the opening were somewhat thickened, as though at some time there had been a slight inflammation. The membranous septum could not be stretched enough to make a bimanual examination to determine the position of the head of the fetus. About a week later, labor pains came on and the os evidently dilated in a perfectly normal manner, for the head entered the vagina and bulged the septum, which held firm and resisted for several hours the further advance of the head. A probe-pointed bistoury was passed through the opening, and the membrane was slit in several directions to the vaginal wall and the remainder of the labor was rapid and normal.

CASE II was a white woman, age thirty-three, who had been married for two years. Menstruation first appeared at fourteen, but was not seen again until she was seventeen. At this time she suffered severely, and the lower abdomen swelled considerably, and at times there was difficulty of urination. With the recurrence of menstruation at seventeen, "there was an awful quantity of it, and the flow was black and tarry." Since then there have been several periods of intermission in the flow. When first seen she was habitually suffering with free menstruation continuing for fifteen days at a time. The menstrual flow was described as being like "coffee grounds." There was severe pain all this time, but no clots were passed. After the "tarry-like" flow had ceased a very offensive flow, like the "yolk of an egg," followed. The

¹ Read, by invitation, before the Obstetrical Society of Boston, March 9, 1896.

patient was habitually constipated, often going for twenty days without any movement of the bowels.

Passing the finger into the vagina an obstruction to its further advancement was met at the depth of one and one-half inches from the hymeneal orifice. With the aid of the speculum an opening to the right and anterior to the centre was found, which just admitted the passage of a uterine sound into a spacious cavity beyond. By rectum the uterus was to be felt, small and straight and much flattened and in comparatively normal position. There were no adhesions, and the uterus was freely movable.

An operation was performed April 6, 1894, under chloroform. A probe-pointed bistoury was used to cut the opening large enough to introduce the finger. A catheter was passed into the bladder to define the course of the urethra, and then the opening was much enlarged. The septum was very dense and tight, and fully one-eighth of an inch thick. After cutting, the parts were forcibly distended by the fingers to the normal size of the vagina. The vaginal mucous membrane retracted much both upwards and downwards from the cut septum. The vagina was then packed snugly with iodoform gauze, and the denuded surface left to granulate. The packing was removed daily, and the vagina washed with lysol (1-100) and re-packed.

Since the operation the patient states that the tenderness in the lower abdomen, which she has had for years, has disappeared.

The literature of this subject, with one exception, is confined to the reports of single cases; and it is rare that any one man has had an opportunity to see more than two such cases. Therefore it may be of interest to give a partial *résumé* of some of the cases already reported, in addition to the above-mentioned five cases.

Amédée Maurin, in 1875, reported a septum with three openings more than half-way up the vagina. This patient had menstruated regularly, but had had no children. The septum was removed, and there was no further history. This case is interesting, as the reporter thinks that the septum was due to an inflammatory process which was the result of small-pox which the patient had contracted at the age of twelve, though there was no direct history to be obtained to point to such a conclusion.

More recently Dr. Osmont, of Caen, has reported a case where a woman of thirty was confined, and after a long labor was delivered by forceps. Later she presented herself at the hospital with a recto-vaginal fistula, and with a transverse septum in the vagina still intact. The head had descended until it had reached the septum, and after several days had torn through the posterior wall of the vagina and so, *via* the rectum, had passed round the obstruction and into the vagina again, whence the instrumental delivery took place. The septum in this case had a small opening, and menstruation had been regular since the age of fourteen. This septum was situated three and a half centimetres above the hymen.

Ostermann states that he has found for the most part that the septa occur in the upper third of the vagina, though he found that there had been but little work done upon the subject in France and still less in Germany. In the discussion of this paper Oderbrecht reported a case occurring in the upper third of the vagina where the woman was sterile. The septum

was cut, and a favorable result was obtained. Here the opening would simply admit of a probe, and the menstruation was painful. Grimm, at the same time, reported a case which he has under observation at the present time. The patient was a Japanese girl of eighteen; and though there was only a pin-hole opening through the membrane, there were no unpleasant symptoms at the menstrual period.

In three successive years cases were reported to the Obstetrical Society in London. In Smith's case the catamenia had been regular, though scanty and accompanied with some pain. The patient had been married for a number of years, and coitus had probably taken place through the urethra, which was dilated so that it admitted two fingers with ease. One and one-half to two inches above the vaginal opening there was a membrane, which at time of delivery and at previous outpatient examination presented no opening. In one part there were some apparent granulations which may have covered an opening previously present, otherwise there must have been some communication *via* the bladder. The patient came to the hospital while in labor. The septum was divided and dilated, and a safe delivery effected.

Boulton's case was evidently one where the remains of a longitudinal septum played an important part. The patient came to the clinic saying that she was not like other women, for after the regular menstrual flow, which lasted for three days, she had a discharge of "green waters" for several days. A septum was found, one and one-half inches in depth, in which no opening could be detected with the examining finger. When, however, the vagina was dilated with a speculum, two small openings were found on either side of the vagina; and on further examination it was found that a triangular shaped septum extended from the transverse septum nearly to the os. This case should rather be classed as a rudimentary double vagina than as a transverse septum.

Gervis found in a patient, presenting herself because of a urethral caruncle, that the vagina ended in a double cul-de-sac, and in the left side there was a small opening leading into the upper portion of the vagina. Menstruation had begun at fifteen years of age, and had continued ever since without trouble. There had been a slight leucorrhœa, which promptly disappeared when the septum was removed. Carter also reported a thick septum through which the menstrual blood escaped by a very small opening, the process taking a very long time. This was operated upon with relief.

Dolérís's case was that of a patient who came to the hospital in the course of a miscarriage at the sixth month. She had had regular catamenia since her seventeenth year. Examination under chloroform showed a very short vagina ending in a cul-de-sac which communicated with the upper part of the vagina by an opening which would admit of only the passage of a filiform sound. The patient returned to her home, but came back in a few days with the membrane bulging through the vaginal opening and the opening enlarged to one-half to three-quarters of an inch in diameter under the softening and dilating influences of the labor. The membrane was torn, and the fetus delivered in a few minutes.

In 1889 Cullingworth reported two cases in the *Lancet*. In the first, a widow, age thirty, presented herself for an offensive vaginal discharge. Catamenia

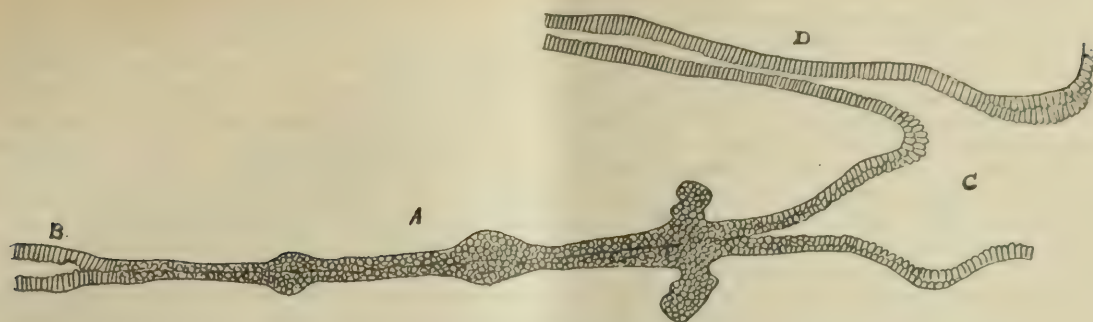


FIG. 1.

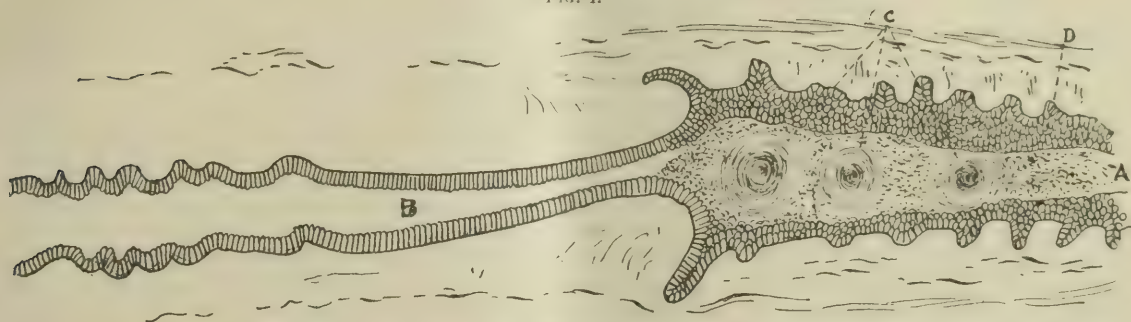


FIG. 2.

had come on at fourteen, and had been regular though preceded by pain. In the intervals there had been an occasional brown discharge, which at last became constant and offensive. The vagina was one and three-quarters inches in depth; and in the anterior part, a little to the right of the median line, was an aperture large enough to admit of the passage of a uterine sound. The opening was stretched and then torn to the vaginal wall, and after a few days' packing with gauze and wearing a glass speculum, the patient was discharged. Two months later there was no erosion, and except for a little ridge to mark the spot, the vaginal walls were smooth and normal. The second case was a woman, age twenty-three, who was admitted in labor because no os could be made out. Catamenia had appeared at twelve years of age, and had been regular until after marriage. There was habitually a slight discharge between the periods, but without ill odor. A membrane was found about midway in the vagina, and a little posteriorly to the centre was a nodule, and at the side of the nodule an opening which with difficulty admitted the tip of the forefinger. The opening was dilated and the septum torn, and the labor was finished without any further incidents. When discharged there was only a slight ridge to be felt along the anterior wall.

Heyder gives a very full report of a case seen by him. The patient was six months pregnant, and came to the hospital because of hemorrhage following a fall. There was found, one-half to three-quarters of an inch above the hymen, a septum through which there was only a pin-hole opening, situated near the symphysis and about one-twelfth of an inch in diameter. Menstruation had begun at fifteen, and continued quite normally and regularly. The membrane was split in the middle line and removed close to the vaginal wall with scissors. The vaginal mucous membrane was then united with fine stitches. The septum at its base was about one-twelfth of an inch in thickness. The

membrane showed no sign of scar-tissue on most careful examination. When full term was reached, the woman was delivered in a perfectly normal manner.

Dr. J. R. Chadwick has reported a case operated on by him, in which he gives a diagram of the pelvis, showing the condition.

In the course of the history of the above-mentioned cases, there is only one in which there has been any report of the histological structure of the tissue of the septum, and in this there was no inflammatory scar-tissue found. In almost all of the cases there has been no history of instrumentation or inflammation and we must conclude that it is most probable that this rare condition is usually congenital. No attempt has been made so far as I know, to explain this phenomenon which presents many difficulties, and the theory which seems to me most probable, may not be supported by subsequent investigations.

The Wolffian ducts which form the genital tract fuse together during the third month of fetal life. The process begins about two-thirds of the way down the genital tract, and extends both upwards and downwards. It may be that the septum is the result of the fusion beginning in two places, and thus a band is left separating the upper and the lower portion of the vagina. Boulton's case is probably an example of such an incomplete fusion of the Wolffian ducts; but the majority of cases probably are due to the persistence of conditions belonging to a later stage of fetal development.

The fusion of the Wolffian ducts is completed by the end of the third month; and, in the course of the fourth month, the genital tract which has been already by a sharp bend differentiated into an upper (or uterine) and a lower (or vaginal) portion, becomes flattened, and the epithelial surfaces meet and grow together, forming an epithelial lamina (Fig. 1) which, near the opening into the urogenital sinus, is thickened, presenting on section a T-shaped appearance.

The next step in the development is that the epithelial lamina rapidly proliferates and the vaginal tract becomes much thickened. The floor and roof are thrown into folds which persist as the rugæ of the vagina; the external thickened portion dilates even more in proportion than the rest of the vaginal tract, forming the ampulla of the vagina and leaving a thin membrane, the hymen, between this dilatation and the outer sinus. At the upper portion of the vaginal tract the proliferation of the epithelium makes a cup-shaped outgrowth which embraces the lower end of the uterus. During the sixth month the lumen of the vagina begins to appear by the degeneration of the central portion of the thick mass of epithelial cells of which the vaginal tract is composed. From Tourneux's section there appears to be several distinct foci of degeneration (Fig. 2), and it seems possible that at some point in the vaginal tract between these foci there might be a group of cells which could retain their vitality and not be involved in the degenerative process and thus a transverse septum of the vagina result. That this condition is different from that known as an imperforate hymen may be seen from the fact that the hymen does not arise from a growth of one of the papillæ, as has been affirmed by some, but is the result of the resistance of the end warts of the original tubes to the proliferation of the epithelium which takes place freely inside the vagina. Should for any reason the vaginal opening which at the fifth to sixth month is a mere fistulous tract with a diameter of only one-tenth to fifteen-hundredths of a millimetre (0.1 to 0.157 mm.) remain closed or fail to connect with the sinus, the condition of imperforate hymen results.

The fact that such a condition as transverse septum may exist and not be discovered until the woman is in labor, makes this anomaly of practical value to the obstetrician, for although the septum seems to offer a decided hindrance to labor, yet when it is recognized, simple division of the membrane is sufficient in most cases to allow a speedy delivery and effect a permanent cure.

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TEXAS STATE MEDICAL SOCIETY.—At the annual meeting of this Society, held at Dallas on April 23d to 27th, Dr. P. C. Coleman, of Colorado, was elected President, Drs. Wagley, Kennedy and Bass, Vice-Presidents, and Dr. H. A. West, of Galveston, Secretary. The next meeting will be held at Fort Worth on the fourth Tuesday in April, 1896.

SURGICAL TREATMENT OF HEMORRHOIDS.¹

BY E. H. TROWBRIDGE, A.B., M.D.,

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THIS subject of hemorrhoids should be of equal interest to the general practitioner and to the surgeon.

I presume hardly a day goes by but that some one of you are consulted in regard to this troublesome affection; and very often by reason of the fact that the doctor does not manifest sufficient personal interest in the case, or from the fact that the patients become tired of further dabbling with palliative measures, they are allured by those who promise a speedy cure, without the use of the knife, or detention from business. Possibly the profession has been remiss in this particular affection, for certainly we are bound to give our patients the benefit of every improvement, whether it be in surgery or in medicine.

The existence of the hemorrhoidal state is favored by the structure of the parts and the arrangement of the arteries, and of the veins, which are valveless and tortuous; in this locality more than in any other in the body, the vessels are constantly liable to contraction and relaxation, on account of the function of the part, and the intricate arrangement of the muscles.

The natural classification of hemorrhoids is into those external to the anus, and those internal; while a third variety may be formed by a fusion of the external and internal masses.

The external pile may consist of a tag of skin which, when irritated, becomes inflamed and hypertrophied, or it may be a bloody tumor caused by the rupture of a vessel; the clot becoming organized and undergoing a fibrous change, and the submucous and the subcutaneous tissue becoming hypertrophied, there results a large mass at the anal orifice.

The internal pile consists of tortuous and dilated veins and arteries, attended with more or less exudate in the submucous and subcutaneous tissue. These masses are soft and spongy; may be large or small; may be easily irritated, inflamed and ulcerated. The large pile generally protrudes at stool while the small pile is not so likely to prolapse. The blood-vessels being easily distended and the mucous membrane being thin, rupture readily takes place and hemorrhage results. It is this hemorrhage which constitutes the dangerous element of the internal pile; at each stool the patient may lose a large amount of blood, which in time renders him anemic and debilitated.

The special feature of the external pile is pain, which is aggravated after stool and when the pile is inflamed; the pain is intensified, by the patient sitting, standing or walking; the recumbent posture is the only one which offers relief.

The diagnosis of the hemorrhoidal condition can be readily made by ocular inspection; but in every case, never fail to examine digitally and that by the little finger; this is long enough to reach to the highest point where the piles are liable to exist, and by reason of its small size it gives the patient less pain than when any of the other digits are used in the examination.

Finding this affection existing in our patient, what method of treatment shall we adopt in order to effect a speedy cure, and that, too, agreeably to the patient and without pain?

¹ Read at the meeting of the Worcester District Society, January 9, 1895.

The treatment of the external hemorrhoid is very simple; the pile should be thoroughly excised by either the knife or scissors; the knife, however, is preferable. In excising it, I grasp the mass without making traction with small volsellum, and with the knife encircle the base; this leaves a clean, even surface which heals readily.

To this surface is applied vaseline, and a powder consisting of six parts iodoform and two parts boric acid; and the dressing of sterilized gauze and boric-acid absorbent cotton is placed next to the parts, and a T bandage adjusted. The wound is attended to daily, and convalescence is brief and uninterrupted.

There are, however, a great many cases where on account of a slight constipation, the hemorrhoidal plexus of veins becomes temporarily dilated, and the dilated parts are constricted by the sphincter, which is irritated by this varicose condition; then, too, on account of the heat and dryness of the rectum, the sphincter is tightly contracted. Now, where these conditions exist, I believe in the use of cold water to relax the sphincter muscle and to relieve the congested vessels, and also in the use of a soothing ointment, which keeps the parts soft and pliable. In this way the threatened permanent condition of hemorrhoids is aborted, and the patient is relieved.

I now come to the discussion of the treatment of the internal pile. The method which I have practised, and shall advocate, is the clamp and cautery.

The other methods, besides the clamp and cautery, are (1) injection of carbolic acid and glycerine, (2) crushing, (3) caustics, (4) ecraseur, (5) excision, (6) strangulation by ligature.

I suppose every person here has been taught that the ligature method was *the* one to use; and being schooled to this method, it is somewhat difficult to abandon it, even for a better one. I am convinced, however, if you once use the clamp and cautery as I believe it should be used, you will never torture your patient with the ligature.

The method which I have used for the last three years is as follows: Patient to be prepared the day previous by saline laxatives, and on the morning of operation the lower bowel is *thoroughly* cleared out by enema. After complete anesthesia the parts are shaved, and irrigated with bichloride solution.

After thoroughly stretching the sphincter, by the thumbs, the pile-bearing area rolls out, presenting to view the various masses. These should be grasped one by one by the volsellum, and raised sufficiently to allow the clamp to be applied.

The ivory plate of the clamp should grasp the pile completely at the anus, at the junction of the skin and mucous membrane, and also in a line *longitudinal* to the bowel, *never obliquely* to that. After the clamp is tightened, then with a pair of curved scissors cut off the mass close to the clamp, and then apply the cautery at a red heat until the base *ceases* to bleed.

After removing all the hemorrhoidal masses in this way, there will be formed at the base of each pile, a cicatrix, longitudinal to the bowel, and these cicatrices will radiate from the anus, like the spokes of a wheel. I emphasize this point of applying the clamp in the longitudinal line of the bowel, for then we have the cauterized bases uniformly arranged in lines about the anus, and after they are healed, there is a uniform appearance of the part and if any contraction should result, it would be uniform.

You can readily see that if the pile is grasped obliquely by the clamp and removed, we will then have a series of irregular cauterized lines, some in one direction, and others in other directions, to which after they are healed, the cicatrices are liable to give an irregular and uneven appearance, and if there should be any contraction, it would be irregular about the anus.

In the most recent work on this subject, the illustration, showing how to grasp the hemorrhoid by the clamp, represents the clamp applied at an angle of about forty-five degrees to the longitudinal line of the bowel, while it should be in the direct longitudinal line of the bowel.

The wound is dressed in the same manner as mentioned after excising the external hemorrhoid, namely, vaseline should be applied, and then a powder, consisting of six parts iodoform and two parts boric acid, dusted on, then sterilized gauze and boric-acid absorbent cotton placed on the parts, and finally a T-bandage; sometimes a gauze tampon is inserted in the rectum, when there is a tendency to ooze.

The great bugbear in the use of the clamp and cautery is hemorrhage; but, I ask, why should hemorrhage be any more of a bugbear here than in any other surgical operation? On this account, there are very few, comparatively, who employ the clamp and cautery, and the operators who still use the old ligature method justify their use of it by saying that there is no danger of hemorrhage; well, there certainly ought not to be, after tying off as tightly as possible these masses. But there are other means besides the ligature to control hemorrhage.

The clamp serves the purpose of a hemostatic, as it grasps the pile; the blades are tightly pressed together, and held there by the thumb-screw, and firm pressure is thus maintained during the time it takes to cut off the pile and use the cautery. I have never experienced any hemorrhage in any of the cases I have operated upon.

I desire to present briefly, a few cases from many operated upon, illustrating the superiority of this method over all the others. These cases are not selected, but taken at random, from my notes.

CASE I. Dr. P., dentist, age thirty-nine. Operated upon in October, 1893. Dr. P. had suffered for a long time with internal hemorrhoids; they had especially troubled him while standing, and thus incapacitated him from attending to his patients. Being unable to endure the misery any longer, he was referred to me by Dr. Fay, for operation.

After stretching the sphincter, a rosette of piles presented themselves. The operation was done at the patient's residence, and in a room heated by a coal stove. The operating-table was placed near by the stove, and I here used a common poker to cauterize the bases of the hemorrhoidal masses. The wound was dressed with vaseline and the iodoform-boric-acid powder. The patient made uninterrupted and rapid recovery; there was no pain; no retention of urine; no severe soreness; no long detention in bed.

CASE II. Mrs. B., wife of a physician, age fifty-two. Operated upon in May, 1893, with clamp and cautery. This patient being a large, fleshy person, suffered exceedingly from hemorrhoids of the muco-cutaneous variety. Extreme irritation of the rectum, pain, soreness and tenesmus were the principal symptoms, and these symptoms she had endured a long time, though alleviated by palliative measures.

Operative treatment had been frequently advocated, but

being fleshy, she feared the ether. The operation was performed, as before stated, and the patient kept in bed about two weeks. The anal surface was dressed with the iodoform-boric-acid powder and vaseline.

This patient told me the other day, that she was in perfect health, and had never experienced any symptoms which would remind her of the fact that she had suffered from piles.

CASE III. Mrs. K., age twenty-two. Operated upon on December 30, 1893. A mass of hemorrhoids presented themselves, after stretching the sphincter. These had given her trouble for a long time.

They were removed by the clamp and cautery. In this case I used a hot poker for cauterizing; the parts were dressed with vaseline and the iodoform-boric-acid powder. Patient made uninterrupted recovery, and was free from any pain or discomfort during convalescence; there has been no vestige of the former trouble.

CASE IV. Mrs. H., age thirty-four. Operated upon Friday, July 13, 1894. Mrs. H. had suffered from internal hemorrhoids since graduating from school, and by reason of the loss of blood at the stools, had become very anemic. After examining the patient, an operation was advised, and she readily consented to have it done at the earliest opportunity.

The hemorrhoidal masses were large, and entirely encircled the anus. These were removed by the clamp and cautery, and parts dressed as in the other cases.

Mrs. H. was seen on the 14th, 15th, 17th and 20th; and on the 23d, a week from the following Monday after the operation, she went to Fitchburg. From the time of recovery from the ether, there was not the slightest pain or discomfort; no trouble in micturition. On the fourth day following, the bowels were gently relieved by a saline laxative. A few weeks ago, this patient came to my office, and I asked her in regard to her present state of health. She replied that she was in perfect health; she had gained in flesh, and the anemic condition had disappeared.

CASE V. Mr. W., from North Brookfield, age fifty. Operated upon in October, 1894 (Friday, 12th). This patient had suffered more or less during the past twenty years; for the past eighteen months had been unable to do any work. First saw the patient on the 11th of October. At that time a large mass of muco-cutaneous, inflamed and irritated hemorrhoids presented; they were very painful when sitting and in walking. These were removed by the usual method with clamp and cautery. Anal surface dressed with the iodoform-boric-acid powder and vaseline.

Saline laxative administered on fourth day, and bowels moved without pain. Patient was free from pain during all the time after the operation; no retention of urine; no soreness.

Mr. W. went home on Saturday the 20th, just a week from the day following the operation.

CASE VI. Mrs. D., widow, age thirty-two. Operated upon July, 1893. This case I operated upon for Dr. Fay, and I cite this in contrast to the others, as here I used the ligature on account of some trouble with the cautery. This patient had become anemic, on account of the hemorrhage attending the internal piles, and was forced to undergo the operation.

The hemorrhoids were ligated, and the wound treated in the usual way. I expressed to the attending physician, that I regretted using the ligature, as I was sure the patient would experience the torture and misery which usually follows.

In this case, patient was confined to bed for over two weeks; the ligatures did not come away until about the eleventh day; on recovery from the ether, the pain was excruciating, and hypodermics of morphia were required, more or less, for a week following the operation, also inability to pass the urine gave the patient additional pain, and required the use of the catheter. When the bowels were first evacuated, after the operation, the patient suffered exceedingly, as the ligated masses acted as an obstruction, and when the sphincter was dilated and con-

tracted, these ligated stumps were subjected to pressure and irritation.

I resolved that I would never operate again with the ligature.

It is hardly necessary for me to cite numerous other cases, all bearing the same favorable evidence, in behalf of the clamp and cautery.

As compared with the other methods, what shall we say?

The carbolic injection is dangerous and inefficient, and is liable to cause peritonitis, embolism and pyemia; and if a cure is effected, it takes a long time, and causes the patient much suffering.

The crushing method I have not tried; but it is liable to cause sepsis on account of the jagged base of the crushed pile and sloughing is liable to result.

The use of caustics is to be avoided for the same reason: danger of sepsis.

Of all the methods hemorrhage is most liable to occur in the use of the ecraseur.

The ligature, while it is the simplest of the radical cures for the internal hemorrhoid, causes the patient severe pain from the time of operation until the ligatures come away; retention of urine, from a few days to a week or more, is the almost universal rule; difficult and painful defecation; confinement in bed from twelve to fourteen days.

If there is any one present who has undergone the ligature operation, I think they can sympathize with the speaker, in saying that they are not very desirous to repeat the experience of the first ten days following the operation.

The Whitehead method, that is, excising that portion of the mucous membrane which contains the hemorrhoidal plexus is not all that was promised for it. It should be employed only in selected cases. Full and complete paralysis of the sphincter muscle is absolutely necessary. The operation is difficult, tedious and bloody; and if non-union occurs, there is retraction of the mucous membrane, and a large circular granulating area left, which may be the source of sepsis. Retention of urine is also liable to exist for a week or ten days.

In the case of the clamp and cautery, none of the above mentioned consequences or complications occur.

The operation can be done (1) expeditiously, and with little loss of blood; (2) the cauterized base of the pile is rendered aseptic by the cautery; (3) there is no pain following the operation; (4) retention of urine is extremely rare (I have never seen a case where the patient suffered from retention); (5) convalescence is brief and uninterrupted—confinement in bed from three to seven days is sufficient.

Such in brief are the advantages in operating with the clamp and cautery.

Clinical Department.

EARLY CURETTING IN PUERPERAL SEPSIS.¹

BY HORACE E. MARION, M.D.

Mrs. —, twenty-eight years of age, fell in labor on the morning of the 25th day of January, 1895. Second pregnancy and second child. Her first con-

¹ Read, by invitation, before the Obstetrical Society of Boston, March 9, 1895.

finement was without incident. Labor, still in the first stage, was well underway when I first saw her. Before making an examination, the toilet, if I may use the word, of the vagina and pudenda, as well as my own hands, was carefully attended to.

Presentation O. L. A. The labor was perfectly natural, and terminated within four hours. No examinations were made after the first, except to protect the perineum during the passage of the head. There was no tearing of the soft parts. The patient was not in the least exhausted. The baby was a girl and weighed seven pounds. The placenta, apparently intact, followed in about ten minutes. Sterilized napkins were used.

For five days the temperature and pulse, taken by myself, were absolutely normal. At my visit on the sixth day patient complained of having passed a sleepless night, with pain in the head and back of the neck. Temperature and pulse 100. Very slight odor to the lochia, and slight tenderness to pressure upon the uterus, which seemed about as large as it was twenty-four hours after labor. There was nothing else, so far as I could learn after careful examination, to account for the elevation of temperature.

On the following day, the seventh, the temperature was a little higher. Pulse about as the day before. Bowels had been moved freely. Condition of the uterus about the same, with no more odor to the lochia. Headache not relieved. On the morning of the eighth day the temperature was 102° and pulse 110. Headache and insomnia. Flow of milk very much diminished. Lochia about the same in character as the day before. Vaginal douche had been used.

Bimanual examination showed the uterus larger, with flabby walls, os patulous. Specular examinations revealed no lesions of vaginal walls or of the cervix. With the usual aseptic precautions the cervix was seized with double hook and the interior of the uterus was carefully and thoroughly curetted with large sharp curette, resulting in the removal of a piece of tissue, presumably placental, from two to three inches square. No microscopic examination was made and no cultures were taken; it was slightly offensive. The uterine cavity was left packed with iodoform gauze, which was removed on the following day. The temperature fell at once, as may be seen by the chart, and recovery was rapid, the uterus promptly returning to a normal condition. The internal medication was two grains of quinine three times daily and Dover's powder as necessary.

I have selected this case for no special reason except that it is the last one in a limited obstetrical practice that required any interference. I have purposely given a detailed account of it because it seemed so very simple. So simple, indeed, that, had not the indications been met as they were, it might have eventuated in a very decided and possibly fatal case of puerperal septicemia. I regret that no cultural test was made.

It is from this Society, and such as this, that the science of obstetrics in general practice must be advanced; and I cannot too strongly emphasize the indications for and the method of curetting the puerperal uterus laid down by Dr. Edward Reynolds in his excellent paper read before the Massachusetts Medical Society at its last annual meeting.

The point I wish to bring out in this case is the timely use of the curette, to ascertain if there is within

the uterus a possible source of sepsis. The interior of the uterus was *carefully* gone over with a sharp curette, as we believe, without any injury to the endometrium. As the tissue removed, be it placental or otherwise, was not in an advanced stage of necrosis, we were content, without deeper curetting, to leave the uterus packed with iodoform gauze. Of course, had it been evident that the deeper structures were involved, I should have removed everything down to firm uterine tissue, as Dr. Reynolds insists upon.

I have never used the cervical speculum in these cases. The canal is so large and patulous there can be but little danger of retained douche; besides where gauze is used for packing, the cavity of the uterus is readily drained. Moreover, in severe cases, the interior of the uterus, down to and about the os, should be thoroughly curetted.

The country obstetrician, especially in the past, has labored under the great disadvantage of being either without a nurse at all, or what is quite as bad, having a nurse with a limited personal experience and absolutely without training, always ready to account for any symptom that may arise and to apply a remedy therefore.

Thanks to our many and excellent training schools, this condition of things will soon pass away.

With a nurse faithful to her training and a physician who has the courage of his convictions, sepsis in midwifery will be rare indeed.

CASE OF SEPTUM OF VAGINA.

BY S. W. TORREY, M.D., BEVERLY, MASS.

PATIENT, single, about twenty years old, applied to me in March, 1892, for relief from suffering from dysmenorrhea and general pelvic discomfort. Examination showed intense hyperesthesia of entire vagina up to within three-quarters of an inch of the cervix, where the finger struck against a tight transverse septum, cord-like in its tenseness, and so sensitive that the slightest rubbing of the finger over it caused the patient to cry out with pain. The surface of the cervix, as far as it could be examined visually beyond the septum, was red and rough from friction upon the band.

After two or three weeks of treatment by ichthyol on cotton between the cervix and the septum, with improvement in the inflammatory condition but none in the neuralgic, the patient entered my hospital; and her subsequent history, from my case-book, is as follows:

April 21st, patient fully etherized, as slightest touch to septum caused pain under partial anesthesia. Even when under deep anesthesia stretching the septum evidently gave pain, as patient writhed with discomfort. When vagina was distended by Sims's speculum it was seen that the probable cause of the local pain and general neurasthenia was the chafing of the cervix upon the tightly-drawn, cord-like septum. The septum was divided in two places, close to wall of the vagina; no ligatures required. Iodoform gauze to cervix, and large glass vaginal plug inserted.

April 23d. Result of operation entirely successful; pain relieved, and Sims's speculum applied without giving discomfort. Boric-acid to cervix; tampon to upper part of vagina.

Patient discharged from hospital April 25th. My

notes show that local treatment for the cervicitis extended over two months after dividing the septum, and that persistence in the use of ichthyol was followed by cure. There was no stenosis of vagina as a result of the division of the septum. Careful questioning of the patient revealed no traumatic cause for the abnormal condition of the vagina, and I believe the septum to have been congenital.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Continued from No. 20, p. 490.)

RESECTIONS OF THE ILEO-CECAL COIL FOR STRICTURE AND FISTULA.

W. S. MAGILL, of Chicago, has contributed a paper on the above subject to the *Annals of Surgery*, December, 1894, with a review of 104 cases. He says that excision of the cecum should be attempted in every case of primary neoplastic tumor where extensive infiltration of the vicinity or ganglia is not present to forbid the intervention.

Tuberculosis or inflammation localized at the ileo-cecal coil should determine its resection in every case in which the immediate operation is possible without surpassing the patient's power of resistance, provided that other tubercular localizations be not so extensive as to render the advantage of this radical operation only temporary.

Examination of reports of tubercular cases leads to the hypothesis that operated appendicitis with unsatisfactory results—persisting fistula, repetition of accidents, induration, etc.—is amenable to resection, and that primary excision of the ileo-cecal coil would be less dangerous than and preferable to excision for fistula. A careful diagnosis should therefore be made to determine this point before operating.

Invagination in the region of the cecum is frequently complicated with cancerous disease; and in any case of resection the excision should be extensive to assure the result.

The longer the time that separates the actual condition of the parts from a state of acute inflammation, the better are the results of the operation assured.

Fistula of the ileo-cecal coil can safely be treated by resection, if no extensive suppuration has invaded, nor been allowed to enter, the iliac fossa.

An irreducible cecum may be excised with safety.

After resection, in all cases, the continuity of the digestive tract must be immediately established and secured against leakage. The only exception might be made for acute obstruction.

The continuity has been sought by uniting the intestine, with sutures, with a lateral anastomosis with absorbable plates, with a terminal or lateral implantation of the ileon into colon, best effected with the anastomotic button.

The greater part of the mortality of resection of the ileo-cecal coil is directly imputable to the insufficiency of the sutured intestine. Many of the recoveries show the leakage of intestinal contents through the line of sutures, by the formation and persistence of stercoral fistulae.

The length of time required for operation is maximum for sutures.

With the exception of a fault of too little excision, not a reproach is found for resection followed by ileo-colostomy with absorbable plates or with the anastomotic button.

These last two methods have time-saving advantages.

These statements correspond with the results of the plates and buttons which Magill has demonstrated in his article.

The conclusion is, therefore, justifiable that sutures are not to be used for establishing the continuity of the digestive tract after resection of the ileo-cecal coil.

He then follows with an account of the preparation of the patient and the operation in detail—the closure of the abdomen and the post-operative care. Bibliography is appended. The article is of value for reference.

INCISION FOR APPENDICITIS.

Charles McBurney,¹² has found that following appendicitis, in a certain number of cases, ventral herniae occur. He has advised an operation which is of value. It is as follows: The skin incision should be made. The section of the external oblique muscle and aponeurosis should correspond, great care being taken to separate these tissues in the same line, not cutting any fibres across. This is easily accomplished. When the edges of the wound in the external oblique are now strongly pulled apart with retractors, a considerable expanse of the internal oblique muscle is seen, the fibres of which cross somewhat obliquely the opening formed by these retractors. With a blunt instrument, such as the handle of a knife or closed scissors, the fibres of the internal oblique and transversalis muscles can now be separated, without cutting more than an occasional fibre, in a line parallel with their course, that is, nearly at right angles to the incision in the external oblique aponeurosis. Blunt retractors should now be introduced into this in turn and the edges separated. The transversalis fascia is thus well exposed, and is then divided in the same line. Last of all the section of the peritoneum is made.

Two sets of retractors must be in use, one holding open the superficial wound from side to side, the other separating the edges of the deeper wound from above downward. A considerable opening is thus formed, through which, in suitable cases, the caput coli can be easily handled, and the appendix removed. The appendix having been taken away, the wound in the peritoneum, which is transverse, is then closed by suture. The similar wound in the fascia transversalis is also sutured. The fibres of the internal oblique and transversalis muscles fall together as soon as the retractors are withdrawn, and with a couple of fine catgut stitches the closure can be made more complete. The wound in the external oblique aponeurosis is sewed with catgut from end to end. When the operation is completed it will be seen that the gridiron-like arrangement of the muscular and tendinous fibres, to which the abdominal wall largely owes its strength, is restored almost as completely as if no operation had been done. In performing this operation he has noticed several advantages.

In the first place, muscular and tendinous fibres are

¹² *Annals of Surgery*, July, 1894, p. 38.

separated, but not divided, so that muscular action cannot tend to draw the edges of the wound apart, but rather to actively approximate them. Excepting during the incision of the skin, almost no bleeding occurs. The fascia transversalis not being drawn away by the retraction of the deepest layer of muscular fibres, this fascia is easily completely sutured, and thus greater strength of repair is assured. No muscular fibres or larger nerves having been divided, pain after operation is almost absent. The operation requires rather more time than the usual one, and a larger number of assistants is needed, for four retractors are in use during part of the time. The opening into the peritoneal cavity is not large, but may be made larger if necessary, by continuing the separation of the fibres of the internal oblique and transversalis, and dividing the conjoined aponeurosis in the same line with scissors. In the opposite direction the separation of muscular fibres may be carried as far as the crest of the ilium.

TREATMENT OF ARTIFICIAL ANUS.

Chaput¹³ records 35 cases of artificial anus and stercoral fistulæ which he has treated. After an exhaustive survey of these cases he has formulated the following conclusions concerning the treatment of this class of cases: He says that artificial anus can be treated by four different methods:

(1) By the application of enterotomy, followed by obliteration of the fistula. (a) Enterotomy is indicated when the cases are uncomplicated and the aperture is easily accessible, together with a thin and long partition. When the spur is long and thin it is advisable to adopt Richelot's method, that is, section between two pairs of forceps and immediate suture. If, however, the spur is long and somewhat thickened, it is better to make the suture between two long pairs of forceps, which are allowed to remain in position. Enterotomy is contraindicated when the spur is very thick or inaccessible, or when the aperture is closed by the mechanism of angular wounds. (b) After destruction of the spur, the stercoral fistula is closed. Small fistulæ are closed by lateral enterorrhaphy, during which operation the margins of the fistula are freely separated from their surroundings, and then united with two tiers of sutures, the peritoneum being opened or not according to the requirements of each individual case. In the case of large fistulæ, lateral enterorrhaphy may be employed, but the peritoneum should not be opened.

(2) Resection is as a general rule contraindicated; but when in the course of a lateral enterorrhaphy the intestine is easily friable and is largely lacerated, it is necessary to resect the two ends and reunite them by appropriate sutures.

(3) When enterotomy is for some reason contraindicated, it is sometimes advisable to employ longitudinal enterorrhaphy without resection. This operation is done by making a circular incision in the skin around the artificial anus, and opening the peritoneal cavity. The two ends are drawn out, a longitudinal slit is made in each, and then the margins of the slits of the same side are sewed together with sutures. This operation is indicated when in the course of a lateral enterorrhaphy considerable constriction is met with just below the lower end. When the intestine is very friable it is contraindicated.

(4) Enteroanastomosis, followed by ligature of the two ends between the point of anastomosis and the stercoral aperture, is a simple, easy and benign operation. It is indicated when the intestine is very friable at the seat of the artificial anus, or when there is a considerable constriction of the bowel in the neighborhood of the external aperture, and also when the inferior end is obliterated at the level of the artificial anus.

AMPUTATION AT THE HIP JOINT.

F. T. Paul¹⁴ reports several amputations at the hip-joint. The method he uses for controlling the hemorrhage is very simple. He states that the want of a good method has been severely felt, and is evidenced by the number of suggestions which have been made with a view to overcome this difficulty; and it is only because no method is so satisfactory as to be universally adopted that he mentions the simple plan of fixing an Esmarch's tourniquet adopted in his cases. It has proved reliable and effectual, and in no case was there any more troublesome bleeding than in an ordinary amputation through the thigh. The operation employed was a large anterior flap cut from without inwards, disarticulation, and a shorter posterior flap cut from within outwards. The femoral artery was always tied as soon as the anterior flap had been cut, from fear of accidents; and he thinks this should be the rule, as half a minute's free bleeding from the femoral artery would probably be fatal in one of these exhausted children. The mode of fixing the elastic tourniquet is almost childish simple. Two pieces of calico bandage are placed in position, one crossing the opposite shoulder and the other the opposite hip. The tourniquet is applied over these pieces of bandage round the innominate bone, being hitched above the crest of the ilium in front and the tuberosity of the ischium behind. Then the free ends of the bandages are carried back to the shoulder and hip and tied sufficiently tight to prevent slipping when the limb is removed. This takes off some of the elastic strain over the external iliac artery, so a roller bandage is pushed under the tourniquet at this spot to increase the pressure on the vessel. The plan described is certainly less severe than Wyeth's method with steel mattress needles, and is equally secure; at any rate, he has used it in all his cases, and he feels that he can recommend it with confidence, for he attributes the success obtained almost entirely to the absence of any appreciable loss of blood, due to the satisfactory manner in which the tourniquet controlled the vessels.

(To be continued.)

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting March 9, 1895, the President, DR. JAMES R. CHADWICK, in the chair.

DR. C. M. GREEN read a paper on

PELVIC INFLAMMATIONS.¹

of which the following is an abstract:

Under the general heading of pelvic inflammation

¹ This paper will appear in the Sixth Series of the Boston City Hospital Medical and Surgical Reports.

¹³ Archiv. Gen. de Med., September and October; British Medical Journal, December 15, 1894, p. 94.

¹⁴ Lancet, January 26, 1895, p. 214.

are included the various forms of salpingitis, ovarian abscess, pelvic abscess, and those conditions variously designated under the terms of perimetritis, parametritis, pelvic cellulitis, and pelvic peritonitis: vaginitis and uncomplicated endometritis are excluded. This classification is adopted in accordance with the present views of pelvic pathology and etiology. It is now generally accepted that the various stages of pelvic inflammation are but differing degrees of one and the same morbid process, of which the cause is to be found, in the vast majority of cases, in some form of septic or specific infection. Whether the pathogenic micrococcus effects an entrance by impure sexual contact, by septic instruments or examining fingers, a flame is lighted which may be limited to the Fallopian tube, or which may extend through either the fimbriated extremity or the tube wall, and sweep through the pelvis, involving the ovary, the pelvic peritoneum and cellular tissue, resulting, perhaps, in abscess formation which may destroy not only the uterine appendages, but the life of the patient as well.

The degree to which any pelvic inflammation may attain of course depends chiefly on the nature and the virulence of the infecting virus, and is also influenced, to some extent at least, by the environment of the patient, and by the promptness and intelligence of the treatment.

Most cases of pelvic inflammation can be classified under one of the following five heads:

- (1) Salpingitis.
- (2) Tubo-ovarian inflammation.
- (3) Pelvic inflammation, with exudation preventing accurate diagnosis.
- (4) Pelvic abscess.
- (5) Peritonitis with retro-displacement of the uterus.

[The clinical course of these forms of inflammation was then considered, and methods of treatment outlined.]

DR. J. C. WARREN said that in deciding between laparotomy and opening the vagina in pelvic abscess, he has found by experience that it is better to perform laparotomy than to open the vagina unless the abscess appears to be making a determined effort to get out through the vagina.

DR. G. HAVEN preferred the abdominal route, having used the vaginal only twice. Laparotomy is more exact; you know and see just what you are about, and the results are more speedy.

DR. EDW. REYNOLDS would disagree with the last speaker, for he believed that where the abscess could be opened by the vagina there was far less shock and danger. The ultimate results, too, are very good. He is surprised to find how adhesive conditions of the pelvic organs melt away. When, however, the abscess is confined to the tubes, the abdominal route is the best.

DR. J. G. BLAKE said that for twenty-five years he has been opening these abscesses by the vaginal route, and has been very successful, not exposing the patients to the danger of laparotomy.

DR. EDW. REYNOLDS believed it was important to distinguish the two classes of abscess. The encysted abscesses should be opened vaginally, but those of the tubes should be removed by laparotomy.

DR. M. H. RICHARDSON said there was great danger in draining a large abscess through the abdomen, from streptococcus infection. He had seen many of these cases, and he believed it was dangerous to apply one

rule to them. He would generally operate through the vagina, unless the case was such that it could plainly be reached from above.

DR. J. C. WARREN said that there is now with improved methods of technique much less dread of laparotomy for pus-tubes than formerly. In large specimens he takes the precaution to aspirate the pus first. He thought there was more chance of satisfactory results by laparotomy than by the vaginal method.

DR. GREEN said in closing the discussion, that he believed there was no real difference of opinion, among the best surgeons, as to the treatment of pelvic abscess. When the tumor lies low in the pelvis, with bulging of the pus sac into the rectum and vagina, evacuation of the pus from below, with irrigation and drainage, is attended with good results. But when the tumor is high in the pelvis and does not point on its inferior border, it is certainly not good surgery to approach the pus from below. Such cases are best treated by abdominal section, with a view not only to evacuating pus, but to removing diseased, and perhaps disorganized, appendages.

DR. HORACE E. MARION read, by invitation, on

EARLY CURETTING IN PUERPERAL SEPSIS.²

DR. J. G. BLAKE said he had lately seen two cases of bad puerperal sepsis at the North End. One he curetted; the other he sent to the City Hospital. Both recovered. He believed that many die without appropriate treatment, and that something should be done to protect the community against ignorant and dirty midwives.

DR. E. REYNOLDS said that Dr. Marion's case illustrates the point he had taken in a former paper, that if the curette is used early, life is saved and, moreover, the pelvic organs are left intact. Whereas, if the operation is delayed, although life may be saved the patient is often left a gynecological invalid. If in doubt whether the case is sepsis or not, use the curette. Any risk that may attend its use is infinitesimal compared with the danger from neglect in not using it. He has frequently been called to hopeless cases of sepsis where an early use of the curette would have saved life.

DR. GEORGE HAVEN wished merely to emphasize the remarks of the last speaker, and mentioned a case where he had used peroxide of hydrogen to help in cleaning the uterus.

DR. M. H. RICHARDSON asked about the danger of air embolism from peroxide of hydrogen.

DR. G. HAVEN is not afraid on this account, and thinks there is no danger. In Cæsarean section, air enters freely into the uterus, but air embolism never results.

DR. M. H. RICHARDSON said air embolism is one of those rare accidents that comes when least expected. He himself should be afraid to use the peroxide.

DR. EDW. REYNOLDS said that danger of air embolism exists only before the sinuses are closed by coagula.

DR. C. W. TOWNSEND said he had recently many times in the out-patient department of the Lying-in-Hospital to enforce the rule, "when in doubt consider the case sepsis." There had been a number of cases of grippe among the puerperal patients, but when not sure as to the diagnosis he had treated these cases as sepsis. Grippe untreated generally recovers, which

² See page 538 of the Journal.

is not the case with sepsis; while it does no harm to wash out the uterus of a patient with grippe.

DR. HAVEN said that Dr. Marion had referred to diagnosis by bacterial examinations. He had not found this of value, for in examinations taken from normal cases with normal temperatures about all the kinds of bacteria had been found except the Klebs-Löffler and the colon bacilli.

DR. J. C. WARREN said that there is danger of perforation in curetting the uterus. He had seen a sound passed through without any force. In this case he did laparotomy and sewed up the hole.

DR. E. REYNOLDS said that a sharp curette should be used, with a broad head and a flexible shank that can be bent.

DR. S. L. ABBOT, as one of the oldest members of the Society, said that he believes that septic conditions must have increased of late years. He has never seen a death from puerperal fever, nor even a case of it, and no special precautions were taken in those days. He had had many difficult operative cases without sepsis.

DR. J. R. CHADWICK said that he agreed with the reader as to the use of the curette, but not in every case, for in early cases he has found the inter-uterine douche alone all that was necessary. It is merely a question of getting at it early. He has never lost a case in his own practice, but he has in consultation where he was called too late. He has had such good results from permanganate of potash that he has not changed.

DR. A. K. STONE reported, by invitation,

CASES OF TRANSVERSE SEPTA OF THE VAGINA.³

DR. S. L. ABBOT has seen one case of this anomaly. The septum was half-way up the vagina, with a central opening that admitted only the tip of the forefinger, the patient was in labor. The septum thinned as the head came down and suddenly gave way by tearing.

DR. C. M. GREEN saw a case at the Boston Lying-in Hospital where the septum was close to the cervix. With the finger no opening could be detected. The septum was so thin that it was bored through with the finger and torn.

DR. J. W. ELLIOT thought he had seen two or three cases of transverse septa, but it is possible that some of them were cicatricial.

DR. HAVEN saw a case a short time ago. The septum was close to the cervix.

DR. J. R. CHADWICK had seen one partial case and one where there was only a pin-hole opening.

A case seen by Dr. S. W. TORREY, who was present at the meeting, was afterwards sent to the Secretary for publication.⁴

A TOO RADICAL IMPROVEMENT.—The physician was surprised to find the head of the household at the door with a shotgun. "Why, what's the matter?" stammered the doctor. "That there medicine you gave my wife she says is makin' her feel like a new woman. And I want you to understand that no new woman business goes on in this house. First thing I know, she'll be out makin' speeches."—*Toronto Truth.*

AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD., MAY 7-10, 1895.

(Continued from No. 21, p. 525.)

SECTION IN MEDICINE.—FIRST DAY.

DR. E. W. KELLOGG, Milwaukee, Chairman; DR. W. E. QUINE, Chicago, Secretary. The former delivered an address on

RECENT ADVANCES IN THE PRACTICE OF MEDICINE.

It is extremely fitting that the Association should meet in a city where nearly half a century ago, its first annual gathering was held. From the field first occupied by the Section on Medicine slice after slice has been taken by the growth of the various specialties, yet the growth of the Section while perhaps not as rapid as those of Surgery and Gynecology is nevertheless distinctly apparent.

At the first annual meeting, the question of anesthesia was still a debated one. It had then been introduced as a relief from pain for all surgical procedures, yet the conservatism of the day gave it anything but a cordial reception. The anti-malarial effect of quinine was barely recognized, while its mode of action was of course unknown. The salicylates and antipyretic drugs were then unheard of as therapeutic resources. In 1877 came the promulgation of the germ theory of disease which was very seductive, but which led at first to the drawing of unwarrantable deductions. Of our more recent advances, some are more apparent than real. Our people are prone to follow fads, and the medical profession is no exception to the general rule. The temple of medicine has been building but slowly; and some of the stones set there in the first flush of zeal from some pretended new discovery have had to be removed in the calmer light of further investigation. Antisepsis has reached its topmost height, and already the crest of its wave is scattering into foam. We are learning that it is better to avoid the causes of disease than to remove its effects, and that good hygiene is preferable to therapeutics. The last year has witnessed the advent of the serum-therapy. This is either a tremendous farce, or else the greatest therapeutic advance since the days of Jenner. Noteworthy results have already been reached with diphtheria. Our serum must be pure, our diagnosis based upon bacteriological findings, rigid antisepsis followed, and the remedy be used early. If one-half of its claims be true, it is well worthy of a further trial. The claims of its advocates, however, are met by the denials of its opponents. Its uselessness in secondary infections is already manifest. Our experience with tuberculin and the fact that diphtheria so often recovers under any treatment should lead us to be cautious.

A hopeful sign of the times is the reaction against the use of heart-depressing antipyretics except under very extraordinary circumstances.

Our knowledge of the contagiousness of tuberculosis and the knowledge that travellers go up and down the land scattering bacilli broadcast, should lead the profession to dispel the ignorance of the laity on this most important topic and to their urging the enactment of proper legislation.

DR. JOHN C. HOLLISTER of Chicago, read a paper on

³ See page 533 of the Journal.

⁴ See page 539 of the Journal.

NEW DEPARTURES IN THERAPEUTICS.

He said that to judge of the medical theories of any age we have only to examine its therapeutic system. Medicine has long been compelled to act on the defensive, because we have been so ignorant as to etiology and have been compelled to employ our remedies empirically; but owing to the revelations of the microscope and laboratory, therapeutics has now become aggressive and we are on the verge of an era from which will date the renaissance of medicine.

Twenty years ago the two great theories of pathology were the cellular and humoral. Hence arose two systems of therapeutics, towards which in these last years the tide was again strongly set. We now recognize an organic therapy or the therapy of substitution and a sero-therapy. The former is based upon the view that all vital activity has a cellular genesis, and that an equilibrium of all these activities means perfect health. An impairment of cell integrity means impaired function. Remedial agents are valuable as they affect cell-vitality, and cells themselves have a defensive *vis vitæ*.

Cell-stimulation leads to the production of proteids, albumins and nucleins which oppose toxins. Slight irritation increases cell-antitoxicity. The white cells under such circumstances, do not act as phagocytes, but they throw themselves around invading bacilli, and the latter are thereby subjected to greater antitoxic influence.

Cells, too, seem to have the power of selecting special pabulum. Hence arose the theories of Brown-Séquard as to the value of organic extracts. With two such preparations the reader of the paper has had personal experience during the past two years. The first is red bone-marrow, with which he has had better experience in simple anemia than he had previously had with arsenic, iron and oil. The second is nuclein, which has been shown to possess a certain power to neutralize toxine effects in the animal economy, and which has been derived from the spleen, bone-marrow and thyroid. In the alimentary canal it possesses a distinct antiseptic power. It stimulates the brain and nerves and energizes invalids and the aged. It has been shown to have antidotal power in diphtheria.

The serum-therapy is a logical outgrowth of the germ theory of disease. It has been learned that specific microbes can be isolated, and that they produce specific diseases. More recently it has been found that a germicidal power resides in blood-serum. Artificial immunization, first established for anthrax, has proven a possibility for other maladies, and the potency of antitoxin seems to be increased by repeated inoculations. Hence arises the very important question of dosage and of the necessity of establishing a standard of immunizing power.

In regard to diphtheria, the opinion prevails that sero-therapy has reduced the mortality from 44 per cent. to 21 per cent. One observer had a mortality of 18 per cent. in 525 cases where it had previously been 21 per cent. When, during a certain period, the supply of serum failed, the mortality rose to 51 per cent. Others have failed to report such good results.

The general consensus of opinion in Germany seems to be (1) that the remedy is harmless; (2) that we may see good results from its use; (3) that, as to its immunizing power, results are not yet complete enough to determine its positive value.

On the other hand, it has been shown that serum of one animal when transferred to the circulation of another has a decided globucidal effect on the latter's blood; furthermore, that in the mixed infections so often clinically seen (bacilli and cocci coexisting) the remedy is without decisive power. If the serum shall finally turn out to be injurious, are there any other remedies at our command for use in microbic maladies?

Recently Edinger, of Freiburg, knowing the antiseptic power of mucous secretions and especially of saliva, and that in the latter there is a relatively large percentage of thio-cyanate of potassium, has artificially combined the latter with quinoline to form a new compound that he calls a rhodonate of methyl-pyridine. It has been found that the growth of the Löffler bacillus is inhibited in one hour by a 1-1,000 strength of this solution; that of the staphylococcus aureus, in the same time by a strength of 3-200. It is not caustic like carbolic acid or poisonous as mercuric chloride.

DR. W. E. QUINE, of Chicago, stated that he could unequivocally endorse the claim for good effects of red bone-marrow upon chlor-anemia and also in apparent cases of progressive pernicious anemia. In one case of splenic leucemia treated therewith over a period of several months the increase of red cells had been 17 per cent., and that of hemoglobin 8 per cent., yet the multiplication of white cells went on with even greater rapidity than before, thereby greatly increasing the total blood volume. As to the diphtheria antitoxin, he had observed as deleterious effects, urticaria and one case of transient bloody albuminuria. On the other hand, he had seen a very striking eversion of threatening laryngeal and nasal diphtheria, where it appeared that without the injections death must certainly result in from twenty-four to forty-eight hours. He counselled, however, a cautious attitude toward the serum.

DR. F. B. TURCK, of Chicago, believed that there was a wide field of usefulness for nuclein in the auto-intoxication from gastro-enteric disorders. Nuclein was not a specific but a valuable addition to our therapeutic resources.

The second paper was read by DR. W. BLAIR STEWART, of Atlantic City, N. J., on

CALOMEL: A STUDY OF ITS PHYSIOLOGICAL ACTION AND THERAPY IN 144 CASES OF GASTRO-INTESTINAL DISORDERS. IS IT A DIURETIC, PER SE?

Much of the calomel we buy is impure, or adulterated. Large doses cause griping and pain in the adult. It may be improperly purified in manufacture or may be altered by atmospheric changes. The corrosive chloride is the most common abnormal ingredient. Fatal cases of calomel poisoning are in reality cases of bichloride poisoning. Calomel also may be practically inert from containing barium, calcium or lead. We should always, therefore, test our calomel. It should never be given with chlorides or acids, and not while digestion is going on, owing to the danger of bichloride formation in the stomach. If we will thoroughly triturate (not merely mix) our drug with milk-sugar, our results will be far more gratifying and our dosage greatly reduced.

The remedy is heavy and naturally slow of absorption, owing to the large size of its individual crystals, and the consequent small area of distribution over the alimentary tract. It can be easily detected by the

ammonia test in so small a proportion as 1-1,000. Dr. Stewart gives to an adult one-tenth of a grain (for an ordinary so-called "bilious" state) every half-hour till one grain is taken or until evacuation ensues. In patients previously constive, a small dose of the magnesium citrate is a valuable adjuvant. The combination of soda with calomel is rational, as bichloride formation is prevented and the remedy best absorbed under conditions of alkalinity.

No diuretic effect *per se* has ever been noted. Indirectly it may so act by its general stimulus on all the emunctories. Diuretic effects were not directly observed in one case of scarlatinal nephritis and in one of cardiac mitral dropsy, though both did well on the usual alkaline diuretics.

Calomel is believed to stimulate bile-secretion by its direct action on the liver cells. In diarrhea it is partly absorbed and partly exerts a local antiseptic action. It neutralizes toxines, prevents germ formation and increases peristalsis. It is applicable to diarrhea from improper food, to bilious diarrhea in adults, to dysentery and the bowel flux of typhoid fever. A small dose of podophyllin could be advantageously combined with it in adults and ipecac in children. Valuable results also were found in the diarrhea of alcoholism in so small doses as 1-50 grains combined with 1-100 podophyllin every three or four hours.

Dr. H. D. DIDAMA, of Syracuse, inquired if such small doses were not converted in the system into bichloride, and if the good results were not really due to the latter. If the drug was a direct stimulant to the liver cells larger doses would naturally be the more desirable.

Dr. H. A. HARE, of Philadelphia, maintained that calomel is not converted into the bichloride by the HCl in the stomach, so far as we can judge from laboratory tests, yet clinical experience would seem to indicate that it was so changed. Calomel is a purgative, and the bichloride a cholagogue. There is reason to believe that the calomel is changed in the bowel by the alkaline juices into a gray oxide. As to its pharmaceutical contamination, the testing of a large number of the commercial triturates and powders had not revealed any corrosive sublimate, but some oxide had been found in the soda compounds.

Dr. STEWART, in reply, claimed that laboratory tests in glass vessels with fitted reagents were not comparable with the vital processes in the human body; hence the divergency of results. One is a chemical process, and the other physio-logico-chemical. As to the effect of calomel as a cholagogue, we know that when we give it we get bilious stools. He himself has found bichloride in chemical preparations.

The closing paper of the session was read by Dr. ELMER LEE, of Chicago, on

THE TREATMENT OF ASIATIC CHOLERA.

After an enumeration of symptoms, and of the various remedies which had been found useless in the disease (including Ferran's and Hafkin's inoculations), he declared pure water to be the only remedy of any practical value whatever. In this disease no germs are found outside the canal in any living tissue whatever. We should introduce warm water by the mouth, and so endeavor to flush down the upper end of the small bowel. It was impossible to use too much. From one to ten quarts daily should be taken. The colon should be irrigated from one to four times daily.

If the patient vomits, wait a few minutes and then again give a bulk of water equal to that ejected. Careful attention should be paid to preventing a loss of bodily heat. The writer exhibited a model of an improved fountain syringe and nozzle.

Dr. HOLLISTON had found good effects from tannic acid injections, and in the use by the mouth of freshly prepared infusions of cinnamon. Neither remedy could by experiment be shown to be markedly germicidal on the comma bacillus. The cinnamon infusion was also useful in children, to lessen the gastro-intestinal irritability of summer diarrhea.

SECTION IN MEDICINE. — SECOND DAY.

Dr. FRANK E. PARSONS, of Philadelphia, read a paper on

SOME POINTS CONCERNING THE ETIOLOGY OF TUBERCULOSIS.

He spoke of the pre-tubercular condition, so called, as an abnormal state which was suggestive rather than symptomatic. The tubercle bacillus alone plays only a partial rôle, for unless the favorable soil exists it is unable to produce the disease. The results of autopsies show that many such bacillary invasions occur, but come to nought from the unfavorable intrasystemic environment which the germs encounter. To bring about a development of the disease, suppuration is necessary and this in turn is dependent on stasis.

Tuberculosis seizes upon those parts where lymphoma or lymphangitis have altered the circulatory condition. It is to be regarded, therefore, as a symptom of lymphatic stasis rather than as a disease *per se*. Lymph stasis arises acutely, as from burns, or in a more chronic manner as from the long-continued abuse of alcohol. As a result, waste products accumulate in the system and become poisonous when not removed by lymphatic drainage.

An excessive waste of tissues from any malnutritive condition naturally causes stasis. It is well known that the venous blood in phthisical patients has a brighter hue than the same blood in health, and that this is due to a deficiency of oxydizable phosphorus; for it has been found that if phosphorus be fed to phthisical patients the venous blood soon returns to its normal hue. The sequence of changes from waste accumulation is first stasis, next a nerve-cell paralysis, and finally an increased blood-supply; all of which precede the bacillary entrance. This fact suggests the fallacy of tuberculin injections, for only those animals are affected who would suffer from lymphatic stasis, no matter what the injected material might consist of. The writer would conclude, therefore, that pulmonary tuberculosis was due primarily to lymphatic stasis, and that the tubercle bacillus was a phenomenon expressive of the disease and was hence symptomatic and not etiological. The so-called scrofulous condition was a pre-tubercular state.

The discussion was postponed until after the reading of the next paper by Dr. DeLANCY ROCHESTER of Buffalo, N. Y.

REPORT ON THIRTY-FOUR CASES OF TUBERCULOSIS TREATED BY CARASSO'S METHOD.

The sheet-anchor in this plan of treatment, suggested by Carasso, of Genoa, is the use of menthol supplemented by creosote for general disinfection. A piece of linen ten centimetres square is folded once so as to

make a rectangle, and is secured by proper tapes over the nostrils. The latter are at first greased inside so as to prevent irritation. On this pad are poured a few drops of essence of peppermint. The patient is directed to take every fifteen minutes eight or ten deep inspirations with closed mouth. Internally, one teaspoonful is given (every three hours in half a glass of water) of the following mixture: creosote 8 parts, alcohol 550 parts, glycerine 250 parts, chloroform 20 parts, and essence of peppermint 8 parts. Superalimentation is also resorted to, as the patient is given meat cooked to taste, two or three litres of sterilized milk daily, and 400 grammes of good wine. The sputa are most carefully disposed of so as to prevent auto-reinfection.

Carasso reported 44 cases. Many were well advanced, but none with cavities were included. In all bacilli were found. Of this number six died; and in 38 the morbid process seemed to come to a standstill. The average duration of treatment was sixty days.

Dr. Rochester has given the plan a trial in 34 cases of phthisis in the Erie County Hospital. Of these 28 had cavities of varying size, four, infiltration of the right upper lobe, and two of the left upper lobe. In all the process was active and attended with afternoon fever. They had been on oil and in two instances creosote previously; and all had been doing fairly well. The Carasso plan was tried with the omission of the wine. Whiskey was given if a stimulant seemed necessary. He was sorry to state, however, that in two months all his cases were doing badly. Even the two creosote cases, after one week of treatment, began to fare like the rest. All suffered from gastric disturbances, and some vomited. In one instance the pad over the nostrils was complained of as interfering with the breathing; but all the others breathed better and coughed less, though the daily amount of sputum did not seem to lessen.

There are certain physiological objections to this method. The amount of fluid recommended by Carasso practically means one pint every three hours from 6 A. M. till 9 P. M., with one additional pint during the night. So much meat and milk are incompatible under the circumstances, as the lactic acid ingredient would overcome the natural HCl of the stomach. Moreover, in most phthisical cases the stomach is dilated, and, in short, such a plan if rigorously followed out would upset the majority of healthy stomachs. Furthermore, an analysis of the internal remedies given shows that they are especially liable to disturb the digestive action of the stomach. From his personal experience therefore, the writer would conclude that the internal combination of remedies was unphysiological and upsets the stomach, and that the inhalations of the peppermint seemed of decided value and deserved a further trial.

The discussion was opened by DR. DELANO AMES, of Baltimore, who had treated in this manner some 90 cases at the Johns Hopkins Out-Patient Department. Sixty of them had been under observation for about twelve months. His conclusions tallied exactly with those of Dr. Rochester. Carasso had claimed that the bacilli disappeared in from eighteen to sixty days. In two of Dr. Ames's cases the bacilli disappeared—one a patient who was a while in the Adirondacks, and the other a girl who lived in the most unsanitary environment. He believed that the stomach disturbances were unavoidable. Half of his cases

had gained in weight at first. The amount of liquid given was entirely too large. The solids should be increased and the liquids diminished. Starches, sugars and fats should be added to the diet. In all of Carasso's cases the lungs alone were affected. This was true in three-quarters of his own cases. The treatment did lessen bacilli and night-sweats, and he believed that the peppermint did undoubtedly lessen dyspnea. As to its general antiseptic effect, we must first demonstrate that it is excreted unchanged through the kidney or other emunctory. This we have thus far been unable to do.

DR. CHARLES DENISON of Denver, Col., said that he had tried to secure an immunizing serum by experiments on dogs by the injection of tuberculin, tuberculocidin and anti-phthisin, but had thus far failed. Severe urticaria and constitutional symptoms had arisen. He did not believe it possible to increase the efficiency of a remedy by passing it through animals. Out of over six thousand injections of tuberculin and tuberculocidin he had not had a single abscess, while this accident had happened in two out of twenty cases of serum-injection made by another observer. The only way to cure tuberculosis is to increase the resisting power of the individual. To attain this result climate and high altitude are all-important. We must, if possible, prevent the disease by rendering the blood immune. Experiments have shown that the number of red cells increases in both men and animals as they live in successively higher altitudes, one series showing under these conditions an increase of sixteen per cent. in the course of a single month. Febrile cases are not as a rule suited to high altitudes. Out of 127 cases treated systematically by him 27 are now living. He has had no bad experience with tuberculin, and cannot understand the current prejudice against it.

DR. KARL VON RUCK of Asheville, N. C., took exception to Dr. Parson's pre-tubercular stage. He does not believe that ulceration and suppuration result from stasis alone. The condition which we call tuberculosis is not due to stasis, but to the bacillus. Animal experimentation is far too complete for us to doubt this. He places little faith in peppermint inhalations, while admitting that menthol will relieve cough. When we think of the difficulty the surgeon has to render any patent surface sterile, it is folly to think that by any inhalation methods, we can disinfect the walls of pulmonary cavities. He would endorse the views of Dr. Denison as to the efficiency of high altitudes. Many wrong deductions have been drawn from the results of injecting various substances into animals. We do not establish immunity but merely toleration just as we do with the alkaloids. He has tried the serum of Dr. Paquin, of St. Louis, on guinea-pigs, and they all died within forty-eight hours. On examination the serum was found full of bacilli of various kinds.

DR. PARSONS in closing, dwelt upon the coexistence of gastric catarrh with pulmonary phthisis, naturally the stomach would become upset with any treatment, and this organ needed its own appropriate treatment. He had no faith in the good effects of creosote on this disease, and regarded it of little value internally.

DR. ROCHESTER further stated that he regarded as pre-tubercular anything which reduced the natural powers of resistance. He does not believe in heredity (except in the ten cases or so where bacilli have been

found in the fetus), though of course a weak constitution can be inherited. So-called congenital cases were probably infected at a very early age by the mother's sputa or through her milk. It was noteworthy that the alleged transmission was generally through the maternal and rarely through the paternal line. He is accustomed to give creosote in claret wine or in mucilage of acacia.

TREATMENT OF TUBERCULOSIS; LATEST REPORT OF CASES TREATED WITH BLOOD-SERUM,

by DR. PAUL PAQUIN, of St. Louis, Mo.

In January, 1895, he commenced the treatment of his cases with blood-serum. Their number is now twenty-two, all in either the second or third stage. They have received daily injections for two months, have gained from one and a half to twenty-two pounds, and are now all living. All were originally emaciated, had bacilli, and had suffered from hemorrhages. Two other cases had died in from three to five days before the treatment was commenced, but they were practically *in articulo mortis* when first seen. No other treatment whatever was employed. When the serum was stopped they grew worse, but improved upon its resumption. The effect of treatment was to diminish the activity of the tubercular process, lessen hemorrhage, improve appetite, lessen cough and nervous irritability. Sero-therapy has also a useful application in surgical tuberculosis, as in knee-joint disease.

In regard to the source of the serum, it must be admitted that the horse is not absolutely immune to tuberculosis. The serum seems to change in power after several withdrawals from the same animal. During the recuperation from the debility caused by the blood-letting, the animals seem to develop toxins of some sort, and hence there is a great variation in the effects produced upon the patients by the injections. The fluid is best preserved by the addition of a little camphor, and from ten to thirty minims are injected daily. In a few instances flushing of the face with a subsequent change to a purplish hue has been observed, lasting from four to five minutes, and occasional chills. It is believed that this severe reaction follows from the needle chancing to be inserted directly into a blood-vessel. Arthritic symptoms have also been observed, especially in people previously rheumatic. The urine is considerably diminished, and in one case albumin was found.

In answer to inquiry, Dr. Paquin said that he immunizes the horse by injecting into the jugular vein first of all, culture fluids containing the toxins of bacilli, then dead bacilli, and finally living bacilli; these injections continuing till all constitutional reaction on the part of the animal has ceased.

In the discussion, DR. KARL VON RUCK, of Asheville, N. C., declared that no animal was absolutely immune toward tuberculosis. To decide this question positively as to the horse, we must kill the animal and examine the tissues, both as to pathology and bacteriology. Dr. Paquin's animal experimentation was as yet incomplete, and no proof had yet been brought forward that the serum had any curative value on either animals or men. Dr. von Ruck had injected some of the serum into guinea-pigs, and they had all promptly died in forty-eight hours. Dr. Paquin had spoken of the spores of tubercle bacilli. He himself had never seen any, and it was doubtful whether this variety of bacilli had spores or not.

DR. ROCHESTER remarked that phthisical cases sometimes recur without any treatment whatever. He believed that specific treatment was out of place in the mixed infections which they generally present.

DR. HENRY D. HOLTON, of Vermont, stated that the serum of the ass would probably be superior to that of the horse, for there was very little fatality from phthisis in those countries where the milk of the former animal was used.

A CASE OF PULMONARY HYPERTROPHIC OSTEO-ARTHROPATHY,

by DR. N. S. DAVIS, JR., of Chicago.

As far as is known, but one other case of this nature has been reported in American literature,¹ but some forty cases had appeared in the European literature of the past five years. The condition was first described in 1890 by Marie, and the malady often goes by his name. Its essential forerunner is always a chronic multiple osteitis involving especially the terminal phalanges of the fingers and toes and the ends of the bones of the extremities. It has to be differentiated from acromegalia. The cause is supposed to be the absorption from the lungs or pleuræ of some chemical poison.

His own patient was a boy some six years old, with a cough and purulent sputa. He had had pneumonia in early life, and one year after the ends of the fingers and toes had begun to enlarge. The wrists were also increased in size. The skin and glands seemed normal, and the body well proportioned. There was slight kyphosis and scoliosis. Physical examination of the chest revealed an enlargement and immobility of the left side in respiration, with dulness and cardiac displacement. A diagnosis was made of lung compression from effusion probably, in view of the character of the sputa. Operation was advised, but thus far parental consent has been withheld. A noteworthy feature is the symmetry of the bone and joint lesions.

A differential diagnosis has to be made, as above stated, from acromegalia, where the fingers are uniformly enlarged, and the spinal lesion generally in the cervico-dorsal region, and a lesion of the pituitary body and surrounding brain tissue, with usually visual disturbances. In the arthropathy the spinal lesion is in the dorso-lumbar region.

DR. S. SOLIS-COHEN stated that he had seen two cases of this affection. In it the hands were generally lengthened, while in acromegalia they were broadened. Kyphosis was frequent in tubercular affections, and he was inclined to regard this arthropathy, with its attendant features, merely as an exaggeration of what we so often find in a lesser degree. The wrist and ankle joints were here involved, while in acromegalia they generally escaped. The trophic disturbance in these cases was a development of certain strictures at the expense of others, and was probably the result of a pus toxine.

DR. H. B. SEARS, of Beaver Dam, Wis., read MEASURES CALCULATED TO MODIFY ACUTE INFLAMMATION OF THE RESPIRATORY TRACT.

DR. A. H. BURR of Chicago, read a paper on HYDROTHERAPY IN FEVERS; ITS RATIONALE AND TECHNIQUE.

He gave a general description of the febrile state,

¹ Packard: American Journal of Medical Sciences, June, 1892.

claiming that the pyrexia results from the toxic derangement of neural resistance to and neural control of heat evolution. The coal-tar antipyretic craze was already on the wane. A general review of the history of the cold bath showed that its value depended first, on the physical effect of water as a neural stimulant, and, secondly, on the susceptibility of the sympathetic nervous system with its control over the glandular apparatus of the body, thirdly, on the reflex influence on the respirative circulation, metabolism, elimination and pyrexia.

Winternitz has already shown that the cold bath increases the number of leucocytes in the blood current, increases also hemoglobin and blood-gravity. Thayer's experiments on the blood from the ear gave identical results. Probably there is no actual increase in cell-formation, but the heightened activity of the circulation sweeps out into the stream the various cells which have lodged in the diverse corners of the vascular system.

The writer then described his apparatus for giving cold baths. It consists essentially of a rectangular frame which can be laid on the bed. To its sides are fastened tapes from a large rubber sheet, which is sloped down inside the frame and is under the patient. Thereby is formed an improvised tub which will easily hold twenty gallons and which can be syphoned out when the bath is ended. He bathes according to the full Brandt method.

The discussion was opened by DR. DAVIS, JR., of Chicago, who gave his adherence to all the views expressed in the paper. The bath did not shorten the duration of the disease, but it did lessen the danger and make the patient more comfortable.

DR. CHAS. G. STOCKTON of Buffalo made an earnest plea for the introduction of the Brandt method into small communities. He thought that the apparatus devised by Dr. Burr would contribute greatly to this end.

DR. COHEN thought that sponging on a rubber sheet had the disadvantage of merely collecting small pools of water about the patient. Immersion of the whole body is better. He would consider Dr. Burr's apparatus as next useful to a tub.

DR. ROCHESTER, of Buffalo, called attention to the friction-massage as an essential part of the Brandt method.

DR. JAMES TYSON, of Philadelphia, was an advocate of the bath. He had, however, lost some cases where it had been used, death resulting from hemorrhage and perforation.

DR. J. M. ANDERS, of Philadelphia, thought there were well-recognized limitations to the use of the bath. It was contraindicated where hemorrhages occurred. It ought then to be stopped for a while at least.

The closing paper of the session was read by DR. JAMES TYSON, of Philadelphia, on

THE SYMPTOMATOLOGY OF IRREGULAR OR ATYPICAL GOUT.

He alluded to the recent work of Roberts, who had shown that the uric acid circulated in the blood in the form of a quadriurate of soda. Local symptoms were probably produced by local deposits, though we might not be able to detect the latter.

The symptoms of irregular gout were of the most diverse variety. We might have dyspepsia, lithate deposits in the urine, eczema, muscular pains, deep-

seated pains in the tongue, a feeling of crackling about the cervical spine, knotting about the small joints, pain in the back (especially the lumbar regions, in the femoral adductors and gastrocnemii), articular pains and nodosities; not uncommon also were headaches, pain in the palms of the hands, folliculitis about the nose, scleritis, corneitis and conjunctivitis, pharyngitis, tonsillitis, bronchitis and asthma, dryness of the tongue and skin; also hemorrhages into the bladder; in the nervous system were change of temper, capriciousness, melancholia and insomnia. He would lay special stress upon vesical hemorrhage, the frequent uric acid cause of which was not generally known.

He would lay down, therefore, the following rules to assist in diagnosis of atypical or irregular gout:

(1) Uric acidemia, though it was rarely possible to detect uric acid in the urine with the means at the disposal of the general practitioner.

(2) The supervention of an attack of typical gout on the subsidence of other ailments or in alternation therewith.

(3) The history of a previous regular attack.

(4) Heredity.

(5) History of exposure to lead-poisoning.

(6) History of the mode of life.

(7) High colored and scanty urine; the relation of gout to lithemia was a vexed question but there were no urinary deposits in pure lithemia.

(8) Glycosuria.

(9) Chronic interstitial nephritis, the unfortunate result toward which gouty tendencies inevitably lead.

(10) The results of therapeutics.

DR. STOCKTON remarked that gout did not necessarily lead to lithemia at all.

SECTION IN MEDICINE. — THIRD DAY.

DR. J. M. ANDERS, of Philadelphia, read the first paper, entitled

THE COMPLICATIONS OF MALARIA, WITH STATISTICS.

The cases studied were all taken from Philadelphia hospitals during the past twenty-one years, and numbered 2,122. Of this number only 1,780 were for various reasons available for study; and of the available number complications were noted in 189, or nearly 11 per cent. The types of malarias were as follows: Intermittent 1,434, remittent 75, malarial cachexia 27, chronic and irregular forms 22, unclassified 222. All doubtful cases were excluded. The relative frequency of complications is seen by the following statement: Heart disease 21, enteric 21, neuralgia 18 (4 being supra-orbital), pleurisy 13, rheumatism 13, phthisis 12, typhoid fever 8, pneumonia 6, edema 7, jaundice 5, and nephritis 5. In addition some 30 other maladies were listed, each occurring from one to four times. Dr. Anders was inclined to believe that certain clinical states regarded as complicating malaria should be rather regarded as symptomatic of that condition.

With regard to some of the chronic complications, as heart disease, tuberculosis and nephritis, it might be said that they predisposed to miasmatic poisoning. He himself believed that malaria promoted phthisis. Pleurisy may occur in paludal cases, but is probably of secondary occurrence.

It has been a matter of dispute as to the relation of pneumonia to malaria. We do know, however, that there is an intermittent type of broncho-pulmonic symptoms influenced by quinine. Of the six pneumo-

nia cases mentioned by Dr. Anders only one died, and all were in connection with the intermittent type of the disease. Five were lobar and one lobular. This complication seemed to be less common in temperate climates than in the tropics.

As to typhoid fever, it was possible for both poisons to coexist in the system but this was rare. Nor was there probably such a thing as a compound causative agent.

The next paper, by DR. ROBERT H. BABCOCK, of Chicago, on

THE RELATIVE CONDITION OF THE TWO VENTRICLES WITH REFERENCE TO THE ADMINISTRATION OF DIGITALIS,

was read by Dr. Holliston.

The writer said that according to current text-books the indications for digitalis have been a weak and rapid heart; low vascular tension, with or without a mitral murmur; a dilated right ventricle, and dropsy. Cardiac dilatation implied more or less arterial anemia, with venous hyperemia. In many instances all the indications might exist for the use of foxglove, and yet the remedy did harm. Often far better results would be secured by the use of nitroglycerine and strychnine, the nitrate of the latter being in the writer's judgment the preferable salt. It was also necessary to distinguish between the action of digitalis on the two ventricles, and this divergence is probably produced by the varying conditions of the two coronary arteries.

Dr. Babcock did not believe that the remedy had much effect on the right heart. It was contraindicated in excessive dilatation of the heart. There the preferable thing to do was to first remove eight or ten ounces of blood from the circulation, though free purgation might answer.

DR. W. T. ENGLISH, of Pittsburg, Pa., read the next paper on

CARDIAC INSTABILITY DUE TO ACID AUTO-INTOXICATION.

An explanation of many of the so-called diathetic conditions is to be sought in abnormal chemical processes occurring in the body. Many abnormal heart phenomena were due to acid accumulation within the system and acid excretion was contemporaneous with cardiac irritability and vascular weakness because the heart grew weary from the effect of disturbed nutritive processes upon the myocardium. It became dilated, and thence ensued valvular incompetency.

In dyspepsia we saw an illustration of this fact in the effect of the acid blood on the heart, first on the myocardium and the nervous ganglia contained therein, and second through the coronary arteries on the myocardium and the deeper ganglia. As a result, the heart became temporarily exhilarated, so to speak; the systole shorter and less powerful; and finally the organ would stop in diastole; though it often happened that if the auto-intoxication was gradual and slight a marked degree of tolerance could be induced. Reduced alkalinity would lead to capillary spasm. These considerations were all proven by the effect of administering acid. The important deduction to be drawn from all these facts was that in conditions of heart debility, acid food should be carefully avoided.

DR. A. F. PATTEE, of Boston, followed with a paper on

THE THERAPEUTICS OF THE SENILE HEART.

In treating the cardiac condition of senility, reference must be had to the decrepitude of the individual rather than to the mere number of his years. Some men die of old age at forty-five while others may live on, and die from a mere accident at ninety. In infancy, the vessels are thin and elastic while in senility they have undergone morbid changes and are more or less rigid or unyielding, and the striated muscle of the heart itself fails to respond because of general malnutrition to the automatic demands made upon it.

In the treatment of this condition, reference must be had to three main indications — diet, rest and medicines. The amount of food consumed should be cut down after middle life. Stimulants ought to be omitted, and the amount of liquid ingesta carefully regulated. Most harm is done to senile hearts by allowing the patients to drink fluids *ad libitum*. Dinner must be taken at mid-day and longer intervals allowed to pass between meal times than in earlier years.

DR. STOCKTON did not believe that cardiac disease was often caused by acid auto-intoxication.

DR. G. W. WEBSTER, of Chicago, stated that in Dr. English's paper no distinction had been made between vegetable and mineral acids. The former are split up in the body and excreted as alkaline carbonates, and cannot, therefore, possibly increase systemic acidity.

DR. ALBERT E. STERNE, of Indianapolis, read a paper on the

TOXIC ORIGIN OF NERVOUS DISEASES.

The writer believed that inflammations of both the central and peripheral nervous organs were due in a great measure to the effect which certain discovered and undiscovered toxins exert upon them. In some the result is acute and speedy, as in anterior poliomyelitis; in some, the toxine is the product of micro-organisms as in diphtheria and typhoid affections, while in others the poison is of an inorganic character as in lead, arsenic, mercury and alcohol cases.

THE EFFECTS OF PURE OXYGEN INTRODUCED INTO THE BODY IN VARIOUS WAYS UPON THE HEMOGLOBIN,

by DR. GEORGE J. PRESTON, of Baltimore, Md., who first gave a *résumé* of the results of various experiments as to the effect of oxygen upon the body. It has been found that for the first few minutes there is but little rise in pulse-rate or vascular tension, but the respiration is lessened. It has been a mooted question as to whether inhalations of oxygen give more oxygen to the red cells than does ordinary air.

Dr. Preston has placed rabbits in glass jars into which the washed gas was led from a receiver. The results of four experiments are as follows, caustic potash being used in the chambers to absorb the expired $C O_2$:

1. Time, 5 min.	H. before, 58%.	Respiration before, 100
	after, 58%.	" after, 200
2. Time, 15 min.	H. before, 52%.	" before, 100
	after, 80%.	" after, 80
3. Time, 30 min.	H. before, 58%.	" before, 100
	after, 62%.	" after, 60
4. Time, 60 min.	H. before, 52%.	" before, 100
	after, 67%.	" after, 35

The rectal injections of the gas in dogs gave the same general results.

He has also noted the following results where men have been given oxygen inhalations:

1. Weight, 140 lbs. Time, 7 min. H. before, 82%; after, 92%
2. Weight, 160 lbs. Time, 5 min. H. before, 77%; after, 87%
3. Weight, 150 lbs. Time, 6 min. H. before, 76%; after, 83%
4. Weight, 190 lbs. Time, 5 min. H. before, 80%; after, 95%

No special symptoms of exhilaration or quickened pulse were noted. The inhalations do not increase the oxygen in the plasma but with it the red cells all get their normal complement of oxygen. It has also been found that in chloroform anesthesia the H runs down from 80 per cent. to 68 per cent. in the course of fifteen minutes. Da Costa has shown that the same thing is true in ether narcosis.

The final paper of the Session was read by Dr. A. E. ROUSSEL, of Philadelphia, on

LEAD ENCEPHALOPATHY, WITH REPORT OF A CASE.

This patient was a male artist, about thirty-five, who gradually became anemic and debilitated. H. 85 per cent.; C. 2,500,000. The second sound of the heart was accentuated; and the urine concentrated, but free from albumin or sugar. Three days after being first seen he suffered from an excruciating attack of colic, with constipation; and lead was found in the urine. It was learned on inquiry that he was in the habit of washing his brushes in water and then wiping them on his lips. A lead line was found on the gums; and on the insides of the cheeks were bluish patches, which grew white on being washed with oxygenated water. After the colicky attack his general condition gradually grew worse until one day, while walking in the street, he felt a sudden malaise fell down, and developed violent convulsions and delirium. He was removed to the hospital, where the same symptoms persisted and the straight jacket became necessary. Temperature 101.6°. The convulsions were finally relieved by ether, and the patient fell into a deep sleep lasting seven hours, from which he awoke perfectly conscious and made a quick recovery.

The great indication in the cerebral cases is to induce sleep. In lead colic and constipation better results, in the writer's hands, have followed the use of large doses of olive oil than any other remedy both for the pain and the constipation.

(To be continued.)

Recent Literature.

Transactions of the American Orthopedic Association. Eighth Session held at Washington, D. C., May 29, 30 and 31, 1894. Volume VII. Philadelphia: Published by the Association, 1895.

This handsomely bound volume of 358 pages contains a number of progressive articles of great interest to the specialists in the subject to which they relate as well as to general surgeons. Among them may be mentioned: "The Radical Treatment of Severe Talipes Equino-varus in Children," by Edmund Owen, M.B., F.R.C.P., London, England; "The Treatment of Congenital Dislocation of the Hip," by E. H. Bradford, M.D., Boston; "Tubercular Disease of the Shoulder-Joint," by W. R. Townsend, M.D., New York; "The Correction of the Deformity of Hip-Disease," by V. P. Gibney, M.D., New York.

THE BOSTON

Medical and Surgical Journal.

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THE KEELEY CURE VERSUS THE RATIONAL TREATMENT OF INEBRIETY.

THE superintendent of the Hartford Retreat for the Insane, Dr. Henry P. Stearns, in the seventy-first annual report of that institution, just received, makes public facts and statistics of the greatest interest in view of the recent attempts made in various States to influence legislation in favor of the Keeley Cure, with the object of making its use compulsory in public inebriate asylums.

Dr. Stearns has examined the records of the Retreat for the last twenty years, and finds that of 95 patients treated during that period for inebriety, 70 were discharged as "recovered." The word "cured" is not used, and the word recovered means simply recovered from the acute effects of alcohol, and free from any special craving for it. All the patients so classed, claimed that they had no desire for alcohol and were confident that they never should have such a desire. The superintendent justly states that a "cure" cannot be claimed from a treatment of a few weeks or months only, such as these patients had. If permanent cures are effected in such cases, they are secured after discharge, through the influence of a favorable environment, force of will, and a strong determination on the part of the patient, combined with such medicines and food as will conduce to secure this result. These favorable conditions must necessarily be continued for some length of time in order to restore the nutrition of the brain tissues, impaired by chronic alcoholism, and establish their normal action.

The theory upon which Keeleyism is founded, namely, that these elements of the nervous system can be suddenly forced back into normal action by the influence or shock of a violent stimulant or poison of another character, introduced into the system for a few days or weeks, is at variance with medical experience in this and all other forms of disease of long duration.

The claim of Dr. Keeley and the syndicate representing him that 90 or 95 per cent. of cases of inebriety

can be cured in a space of four weeks has not been substantiated by facts, and efforts to secure legislation making the employment of this treatment compulsory in State institutions — especially when we consider the fact that the nature of their remedies is kept secret — are as absurd as if the proprietors of any secret remedy should endeavor to compel the use of their nostrum in public hospitals.

The claim that the Keeley patients who have been discharged as cured are in reality so, is far from proven. There are no reliable statistics with regard to the percentage of cures in Keeley patients, as the patients are received and treated by thousands, and little or nothing is usually known of their subsequent history. A slight contribution to the record of these patients is made by Dr. Stearns, since of the 52 patients affected with toxic insanity admitted to the Retreat within the last four years, 18 have been graduates of Keeley institutes. Several of them have been suicidal when admitted, and two of them committed suicide after they were prematurely removed from the Retreat by their friends.

Dr. B. D. Evans, Medical Director of the Asylum at Morris Plains, N. J., in an article published in the *Medical News*, May 18, 1893, presented a table of 88 cases of insanity, all of which had been treated in Keeley institutes and graduated as cured.

Dr. R. M. Griswold, of Derby, Conn., in his statement before the committee of the present legislature of Connecticut on humane institutions, presented the following figures in reference to the results of "Keeley Cures": Of 34 cases from Danbury, Conn., which have been treated by Keeley methods within the last three years, he has found 13 relapses. Of 17 cases from the towns of Derby, Ansonia, and Seymour, he has found seven relapses. Of 94 cases from Norwich, New London, Rockville, Willimantic, Putnam, Windsor Locks, and Providence, R. I., he has found 42 relapses.

Several other reports of a similar nature from physicians who have had Keeley graduates under their treatment are presented.

The statement of Dr. B, who was a patient at the Retreat and a graduate of a Keeley institute is extremely interesting.

He says that during the four weeks while he was under treatment, there was no time when he could not take liquor, and that several of the 35 patients who received treatment with him did take liquor every day, procuring it in the village. Patients were marshaled together in a line and given the "shot" four times a day, and "a tonic mixture" every two hours, except at night. The physician who was in charge at the time was himself a graduate of one of the institutes. He afterwards abandoned the Keeley Cure business, and resumed the practice of general medicine, but within a year began again to take alcohol and became "a mental and physical wreck."

He further states that of 38 patients who were treated with him, 14 relapsed within a year, and of these three died of Bright's disease. He knows nothing of the subsequent history of the others, the larger portion of whom came from other sections of the country.

A letter from another physician who had also received the Keeley treatment is of similar tenor, and contains the statement that of the 33 patients whom

he knew, and who were taking the cure when he did, 20 had relapsed into their old habits, some of them after taking the cure twice and even three times. The concluding paragraphs of the report contain a refutation of the Keeley methods and statistics so fair and forcible that we cannot refrain from quoting them in full.

"It should, however, be stated that the above statistics are of very little value as accurately presenting the whole per cent. of relapses of the so-called cures. The conditions are such that this cannot be ascertained. Neither those who have relapsed nor their friends are forward or, indeed, willing to advertise this fact. They rather desire as far as possible to conceal it, while only those cases which have become notorious are reported. Imperfect as they are, however, they serve to indicate that the claim that 90 per cent. of drunkards are cured by Keeley methods is without foundation; and also how preposterous is the petition that the legislature should become responsible for the treatment of inebriety by secret remedies.

"The course pursued by Dr. Keeley in keeping the nature of the supposed cure a secret, proves very conclusively that he has little confidence in it himself. He does not dare to make it public, but rather prefers to trade upon the desires and hopes of credulous families and legislatures and the unfortunate weaknesses of inebriate brains. If he or any other person should discover a remedy for chronic inebriety which would effect a cure in 90 per cent. of all cases in four weeks, and make its nature public for use by all physicians, he would be hailed by men everywhere as one of the great benefactors of the race, and both wealth and honors would be showered upon him."

A DANGEROUS POPULAR ANTISEPTIC.

LEDERMANN publishes in the *New York Medical Journal* for May 18th, an account of a case of diffuse external otitis, of an extremely severe and resistant type, due to taking a friend's advice and treating a slight itching of the ears with carbolic acid. The strength employed is not known: "some pure carbolic acid was poured into a glass of water and syringed into the ears." Ocular symptoms and carboloria, showed the systemic poisoning, and the patient was in great danger of atresia of one of her auditory canals.

The popular knowledge that carbolic acid is an antiseptic is productive of a great deal of harm. The fact that it was the first antiseptic employed by Sir Joseph Lister in wound treatment, has been in many ways unfortunate for the human race. Surgeons have until recently regarded it as indispensable to have their instruments in a tray of carbolic solution, which if strong enough to sterilize the instruments, destroyed the surgeon's hands for practical purposes; and if, as was usually the case, it was so weak as not to actually burn the hands did no good as an antiseptic — circumstances which were bad for the patient, the surgeon, and all concerned. The disadvantages of carbolic acid, however, can be best seen in out-patient clinics, whither patients continually come with the skin of their hands parboiled and peeling off, exposing the raw subcutaneous tissue more or less eroded by the carbolic acid which a kind friend has advised them to use for a slight cut, or burn or abrasion. The desirability of ascertaining the strength of what they are using does not occur to them. They are the victims of popular "Listerism" in its most primitive

form. If the lay mind could only be made to appreciate that carbolic acid is always dangerous and seldom efficient as an antiseptic, a great deal of unnecessary suffering would be prevented.

MEDICAL NOTES.

THE ILLNESS OF PROFESSOR HUXLEY.—The *British Medical Journal* reports that Professor Huxley's condition has of late markedly improved. His temperature is normal, and he is eating and sleeping well. We feel sure that our readers will be gratified to know of this improvement in his condition.

ALARMING SPREAD OF SYPHILIS IN RUSSIA.—Syphilis in Russia is reported to be rapidly on the increase. The great extent of the disease in 1890, when there were ascertained to be a million syphilitics in the various Russian hospitals, gives some slight idea of the prevalence of the disease in that country. Professor Pospeloff, of Moscow, has begun the organization of a section for the discussion of prophylactic measures against syphilis at the Twelfth International Medical Congress.

THE DUKE OF CAMBRIDGE AND THE INDIAN MEDICAL SERVICE.—The Duke of Cambridge is severely and justly criticised in an editorial in the *British Medical Journal* of May 11th for alluding in his response to the toast of "The Army" at the Royal Academy Dinner to Surgeon-Major Robertson as "that brave civilian." The military medical services of the crown are said to be already dissatisfied, and all ready to resent such a matter as their commander-in-chief forgetting to give them their titles. The English military medical service is apparently held under a ban in much the same way that the medical staff of the United States navy is held by the officers of the line—a state of things which renders it difficult to secure the better class of candidates for both services. The importance of securing first-rate men for military medical positions is not sufficiently recognized by the officers of the line here or in England. Within a very short period it has been found necessary to make certain changes in the examinations for the British army and Indian medical services, with a view to securing better candidates for the positions. The effect of such a slight from the commander-in-chief of the royal forces cannot help causing discontent in Indian medical service, and tending to lower the estimation in which the army medical service is held, and to keep off the better class of candidates for the service.

BOSTON AND NEW ENGLAND.

ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION.—The American Neurological Association will meet next week in Boston for the first time in its history. As will be seen in another column, the programme is full of interest. The Association is one of the oldest of the societies that go to

make up the Congress of Physicians and Surgeons, having just completed its twentieth year of life. We can assure it a hearty welcome in Boston, and we hope that its meetings, which are open to the profession, will be fully attended.

THE ANTITOXIN SUPPLY FOR THE CITY OF BOSTON.—The Board of Health of the City of Boston is now able to supply antitoxin from the horses which have been undergoing immunization at Gallup's Island, under the care of Professor Ernst. The State Board of Health will thus be relieved of the tax upon its resources of furnishing a supply to the City Hospital, which has been found rather difficult owing to the extent of the demand from more remote parts of the Commonwealth. There are now four horses at the Bussey Institution, belonging to the State Board of Health, and four at Gallup's Island under the care of the City Board of Health, which are in condition to supply antitoxin.

THE MAINE GENERAL HOSPITAL.—Drs. S. C. Gordon, S. H. Weeks and L. W. Pendleton have resigned from the staff of the Maine General Hospital.

DR. COLVIN'S RECORD OUTDONE.—With regard to the *JOURNAL* note on May 9th on Dr. Colvin's having practised for fifty years in the same office, the *Newport Herald* of May 20th calls our attention to the fact that one of our own subscribers can present a record which is even better. "Newport can certainly beat this noble record by presenting our esteemed citizen Dr. Henry Edward Turner, the city physician, now in active practice, who graduated at the University of Pennsylvania, in March, 1836, and who has practised for fifty-nine years. He celebrated his golden wedding on July 18, 1894, having a reception in the same room in which his wedding reception was held, fifty years ago, and in the same house always occupied by the doctor and his wife during their married life. On May 18, 1895, he had been continuously a subscriber to the *Boston Medical and Surgical Journal* since he entered upon his professional life." It is a great satisfaction that this incident has called our attention to the fact that we have such constant and faithful readers, and we haven't the least doubt that the subscription to the *JOURNAL* has much to do with Dr. Turner's remarkable record.

NEW YORK.

JANITOR'S CHILDREN AND DIPHTHERIA.—The evil effects of janitors having their residence in the public school buildings is again illustrated. The nine-year-old son of the janitor of School No. 89, at 134th Street and Lenox Avenue, has been attacked with diphtheria, the school building has been closed by order of the Board of Health, and as a result, 2,300 children will be deprived for some weeks of their school privileges.

DEATH OF DR. MORRIS HENRY.—Dr. Morris Henry, for many years prominent as a surgeon and dermatologist, died May 19th in the 60th year of his

age. He was born in London, England, and pursued his studies in London and at the Polytechnic at Brussels. He was graduated in medicine at the University of Vermont, and during the late war served as assistant surgeon in the navy. After the war he settled in New York and became a member of the Board of Police surgeons. For a number of years Dr. Henry was very active in society and literary work, and he originated and edited the *American Journal of Dermatology*.

DEATH OF COUNT VON KESSLER.—The death is announced in Paris of Count Adolph William von Kessler, who for some years past has resided principally in New York. At the time of the Franco-Prussian war he was living in a magnificent mansion in Paris. Herr von Kessler, as he was then known, was an officer of the Society of the Geneva Cross, which did such admirable work among the wounded of both armies, and when the Prussians entered Paris he turned his home into a hospital for the soldiers. For this act the Emperor Frederick gave him the patent of nobility. He also did material service in introducing the ambulance service in New York and several foreign capitals. Count von Kessler was born in Hamburg and was fifty-five years old at the time of his death.

DIPHTHERIA AND ANTITOXIN IN NEWARK, N. J. Dr. Herman C. Hale has been re-elected President of the Board of Health of Newark, N. J. On May 21st he made the first report of the bacteriological laboratory recently established under the auspices of the board. The laboratory was started in February and on March 25th the first of the horses purchased by the city was injected with diphtheria toxine. Since January 1st there have been reported 288 cases of diphtheria in Newark. Of these, 90 were treated with antitoxin and 198 were not. Of the former 23 died, and of the latter, 60; the percentage of deaths being respectively 25 and 32. The result, therefore, shows a decrease of 7 per cent. in the mortality under the use of antitoxin.

A BAD RECORD.—Frederick Waring, who was recently arrested on the charge of practising medicine without a license, preferred by the Health Board of the City of Yonkers, was found guilty before Judge J. X. Donohue in the City Court on May 25th. He was fined \$50, and sentenced to six months' imprisonment in the Kings County Penitentiary. The man has a very bad record. He was sentenced to one year's imprisonment in the Kings County Penitentiary for practising without a license. Two years later he was again sentenced to five years' imprisonment in Sing Sing prison for the same offence. There are also two indictments pending against him in New York for manslaughter. He was twice placed on trial charged with causing the death of a woman named Clinton by criminal malpractice in 1886, but as both juries disagreed, he was paroled upon his own recognition.

Miscellaneous.

TWENTY-FOURTH CONGRESS OF THE GERMAN SOCIETY OF SURGERY.

THE Twenty-fourth Annual Congress of the German Society of Surgery was held at Berlin, April 17–20, 1895. A large number of eminent representatives of German surgery were present.

Von Bergmann spoke of cerebral surgery, which, despite all the light brought by modern localization-doctrines and the aid of antiseptics, must always have a limited field, by reason of inherent difficulties, and especially the difficulty of diagnosis. Thus, of tumors of the brain, only twenty-nine per cent. of cases are suitable for operation, and surgical intervention is really practicable in a much smaller percentage. Progress in the future will be made in the attainment of certainty in diagnosis and in improvement in the technique of operations. Even now, the method of osteoplastic resections enables us to remove quite large growths. Bergmann exhibited to the Congress an instrument of his own invention, a small circular saw, made to work with great speed by means of an electric motor, which had enabled him to operate with great celerity; a large bone-flap is circumscribed, and the section begun with the saw is finished with fine scissors.

Attempts have been made to cure epilepsy by operation; success has attended only those cases where the epilepsy was due to motor-cortical lesion. Abscesses, though presenting great difficulties of diagnosis, have in many instances been opened after trephining. Surgeons have even dared to attack thrombosis of the sinuses. The transverse sinus has been reached through the mastoid bone, incised, and clots have been turned out; the patient has got well after antiseptic dressings, tamponading and ligature of the internal jugular vein. Out of thirteen cases, Bergmann has had six recoveries.

Von Bramann, of Halle, exhibited a patient from whom a voluminous sarcomatous tumor of the cerebrum had been extirpated. This tumor had caused a paralysis of the left arm. It was as large as the closed fist; occupied the motor region of the right hemisphere, and had invaded the dura mater and inner wall of the cranium. The gap in the bone resulting from the operation measured twelve centimetres. The patient made a good recovery, and though three years have elapsed, there has been no return of the sarcoma. The paralysis has completely disappeared, and the patient is able to work.

Mikulicz, of Breslau, spoke of the results of surgical intervention in Basedow's disease. He has operated eleven times; the characteristic symptoms, and especially the tachycardia were well marked in all; five patients presented a grave dyspnea. All the patients survived the operation which consisted twice in simple ligature of the thyroid arteries; in all the other cases the thyroid gland (hyperplastic or cystic) was extirpated. Six of these patients have got completely well; four have been considerably benefited; one has experienced but slight improvement. In the latter case, however, the operation consisted in tying the thyroid arteries on one side only.

In cases where the thyroid is removed, the cardiac troubles and the exophthalmia are long in disappearing. He would refer the pathogeny of the disease to

auto-intoxication by the products of the hypertrophied thyroid; the disease may, however, begin as a neuritis.

Kocher, of Berne, reported the results of one thousand thyroidectomies, a review of which was given in our editorial of last week.

Schuchardt, of Stetten, showed a patient, a young girl, on whom he had operated for suppurative peritonitis due to perforation of a round ulcer of the stomach. He did not excise the ulcer, but simply closed the perforation by buried sutures. Heuser, of Barmen, who was the first to save a patient by this operation (sixteen hours after the perforation and when the peritonitis was well advanced), stated at the meeting that he had lately had three unsuccessful operations.

Körte, of Berlin, reported the results of nine extirpations of tumors of the cecum. Four of these were carcinomatous, four tuberculous, and one was a case of actinomycosis. All these patients survived the operation, though the patient affected with actinomycosis died shortly after owing to the progress of the disease. After making these resections, Körte always practises the lateral implantation of the ileum in the colon, the end of which is invaginated and sutured.

Kölliker, of Leipzig, communicated an interesting case of rupture of the left kidney with hematuria, due to a fall. On the fourth day, the symptoms being alarming, he made a vertical incision in the left lumbar region; "the upper pole of the kidney was in great part detached from the rest of the organ by a laceration extending to the hilum." He put in a drainage-tube and plugged the wound. "The temperature became normal that day, the anuria disappeared, and the patient was well at the end of six weeks."

Mikulicz, of Breslau, made an interesting report on the "Surgery of the Stomach." He had performed 103 operations on the stomach; 23 were fatal. The most frequent causes of death were collapse and pneumonia. A preliminary exploratory incision in the middle line, above the umbilicus, should always be made for diagnostic purposes. It is then easy to tell if the case is suitable for operation. If the patient is very feeble, he should have the evening before the operation "a large subcutaneous injection of artificial serum." It is in gastrotomies, gastro-enterostomies, and resections for carcinomatous growths and their results that these operations have been attended with the greatest mortality; but even if a survival of only a few months can be hoped for, the operation should be performed.

Rydygier, of Hamburg, spoke of the treatment of intestinal invagination. The mortality of operations for the relief of this accident is still very high, because the operation is almost invariably done too late, the surgeon being called in only at the last extremity. In the acute forms, an early operation is just as imperatively demanded as in strangulated hernia. In all recent cases where the invaginated cylinder presents no signs of gangrene, it is to disinvagination that one should have recourse. Out of 24 cases which he has thus treated, eight have been saved. In all the other cases, where disinvagination is impossible or contraindicated, resection is the only procedure offering any chances of success. Of twelve patients thus operated on, three have survived. He advises König's operation which consists in resecting the invaginated cylinder after incision of the invaginating cylinder; however, the procedure in question is not applicable to

cases of gangrene extending to this latter portion of intestine.

In the chronic forms of invagination, operative intervention is not so imperative as in the acute forms. Nevertheless it is important to interfere before a new aggravation of the symptoms renders the operation more difficult and more dangerous. The patient, as long as the invagination persists, is menaced with peritonitis by perforation. Disinvagination may be attempted with success several months after the onset, if there are no serious adhesions. If disinvagination is impossible, it is to resection that the surgeon should have recourse, and not to entero-anastomosis.

Alsberg, of Hamburg, stated that in three cases of acute invagination he had succeeded in obtaining disinvagination by laparotomy. In one of these cases, the operation was not performed till the sixteenth day. All three patients got well.

Correspondence.

A LONG PERIOD OF FECUNDITY.

PLATTSBURGH, N. Y., May 23, 1895.

MR. EDITOR:—Last evening I attended a woman in her thirteenth confinement. The child weighed four pounds when dressed. The mother is forty-six years old. Her oldest child is a little more than twenty-eight years of age. This makes a continuous period of actual child-bearing of about twenty-nine years, the mother having been married at the age of seventeen. The point of interest in this case is the long time of actual fecundity. Both father and mother seem to think this time may yet be extended.

D. S. KELLOGG, M.D.

NEW SURGICAL SPLINTING.

SOUTH BOSTON, May 24, 1895.

MR. EDITOR:—Kindly permit me to correct an error which your correspondent apparently makes in his otherwise admirable report of the American Medical Association meeting in Baltimore. I refer to his report of my paper read there. He writes: "The edges of the splint must be covered with chamois skin." As a matter of fact, none of the splints shown there by me were so treated except one—my splint for hip-joint fixation; all the others, comprising splints moulded directly upon the patients, and employed to produce efficient fixation of the ankle, wrist, knee, elbow, shoulder, finger and toe joints, having no chamois skin, because in such splinting it is unnecessary.

I write this letter because I earnestly desire as accurate notions of my work in surgical splinting to prevail in Boston as elsewhere.

A matter of less importance is that the title of my Baltimore paper should have read, "The New Surgical Splinting: Report of Cases Exemplifying It."

Truly yours,

EDWARD A. TRACY, M.D.

ANOTHER CASE OF "FRACTURE OF THE HUMERUS FROM AN UNUSUAL CAUSE."

PHILADELPHIA, May 25, 1895.

MR. EDITOR:—I note in your issue of March 21st, a case reported of fracture of the humerus from an unusual cause. Just such an one occurred to a friend of mine, himself a physician of very large reputation now and flourishing mightily, whose name I might quote, as he gave me

leave to report the matter fifteen years ago. At that time he was acting as surgeon to a trans-Atlantic liner, and was (and is) a man of great muscular strength, chiefly of a nervous explosive kind, however, but of great vitality and endurance. This accident resulted from the attempted feat of two men sitting opposite at a small table and each using the same hand, right to right or left to left, elbows resting on the table and thus trying who could push the opponent's hand backward till the knuckles touched the level. As in the case described by Dr. Monks, the break made so loud a noise that it was heard at a great distance, and was probably greatly assisted by the motion of the ship producing some collateral strain. This fracture was at the junction of the upper and mid thirds, and was followed by very little pain. He, being the only medical man on board, adjusted the parts himself and applied an original splint. The result was most satisfactory, except that a few days later a fall on the deck refractured the arm at the same place, yet the deformity was almost *nil*, attributable to his own skill or will or vigor.

It is of interest to mention also that a couple of months or so afterwards, while throwing an apple to a friend at a considerable distance, and presumably with his utmost force, the arm was broken again, but not in the same locality, about the junction of the lower and mid thirds, in no way disturbing the old seat of damage. The arm is now free from any recognizable deformity or lack of power or skill (as the statistics of one of the most celebrated gynecologists in the world will testify). Moreover, though subjected to many and various opportunities for damage in many lands and vicissitudes, he has enjoyed in the main excellent health and no evidence of fragilitas ossium other than those curious casualties within so brief a time, and while living a life of unusual healthfulness.

Very truly yours,
J. MADISON TAYLOR, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 18, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal Diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	771	329	10.80	12.87	2.47	5.46	2.60	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	372	115	11.34	14.04	2.97	3.51	1.35	
Brooklyn	1,043,000	355	126	19.60	12.04	1.96	5.88	1.96	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	194	60	9.69	19.38	.51	5.10	—	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	91	29	9.90	15.40	1.10	—	2.20	
Cincinnati	325,000	102	30	4.90	18.62	.98	—	—	
Cleveland	325,000	—	—	—	—	—	—	—	
Pittsburg	272,000	73	29	16.44	5.48	5.48	4.11	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	34	4	5.98	23.52	2.94	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	39	12	10.24	12.80	—	5.12	—	
Fall River	92,233	24	6	10.35	6.90	6.90	—	—	
Lowell	90,613	29	4	3.45	—	—	3.45	—	
Cambridge	79,607	15	6	—	20.20	—	—	—	
Lynn	65,123	13	—	7.69	7.69	—	—	—	
Springfield	50,284	15	5	20.00	6.66	—	—	13.33	
Lawrence	49,900	8	2	—	25.00	—	—	—	
New Bedford	47,741	25	9	8.10	12.00	4.00	4.00	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	33,939	6	0	33.33	16.66	—	—	—	
Salem	33,155	9	2	—	—	—	—	—	
Haverhill	32,925	11	2	9.09	9.09	—	—	9.09	
Malden	30,209	10	2	—	—	—	—	—	
Chelsea	29,806	10	1	10.00	20.00	—	10.00	—	
Fitchburg	29,383	5	1	—	20.00	—	—	—	
Newton	28,837	8	2	—	12.50	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	—	—	—	—	—	—	—	
Waltham	22,058	7	1	—	—	—	—	—	
Quincy	19,642	7	1	28.56	—	—	14.28	—	
Pittsfield	18,802	6	0	16.66	16.66	—	—	—	
Everett	16,585	2	1	50.00	—	—	50.00	—	
Northampton	16,331	5	1	20.00	—	20.00	—	—	
Newburyport	14,073	8	3	12.50	12.50	—	—	—	
Amesbury	10,920	2	0	—	—	—	—	—	

Deaths reported 2,352; under five years of age 816; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 292, acute lung diseases 295, consumption 321, diphtheria and croup 97, diarrheal diseases 53, measles 37, scarlet fever 26, whooping-cough 17, typhoid fever 23, cerebro-spinal meningitis 20, erysipelas 9, malarial fever 7, small-pox 3.

From scarlet fever New York 13, Boston 3, Brooklyn and Pittsburg 2 each. Washington, Fall River, Lynn, Brockton, Quincy and Newburyport 1 each. From typhoid fever Philadelphia 8, Brooklyn and Washington 3 each. New York, Boston and Pittsburg 2 each. Providence, Nashville and Worcester 1 each. From cerebro-spinal meningitis Brooklyn 11, New York 3, Philadelphia, Boston, Chelsea, Quincy, North Adams and Pittsfield 1 each. From whooping-cough New York 7, Philadelphia and Brooklyn 4 each. Cincinnati and Brockton 1 each. From erysipelas New York, Brooklyn and Boston 1 each. From malarial fever Brooklyn 3, New York and Washington 2 each. From small-pox Cincinnati 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 11th, the death-rate was 17.7. Deaths reported 3,585; acute diseases of the respiratory organs (London) 247, whooping-cough 81, measles 83, diphtheria 65, diarrhea 60, fever 31, scarlet fever 31.

The death-rates ranged from 13.5 in Brighton to 25.8 in Plymouth, Birmingham 19.5, Bolton 22.7, Cardiff 14.4, Gateshead 14.1, Huddersfield 15.2, Leeds 18.1, Leicester 17.2, Liverpool 23.0, London 16.6, Manchester 22.3, Newcastle-on-Tyne 21.7, Nottingham 14.5, Sheffield 16.3, Sunderland 13.6.

METEOROLOGICAL RECORD.

For the week ending May 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		Wet'h'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.		Daily mean.	8.00 A. M.		8.00 P. M.		8.00 A. M.		
					8.00 P. M.	8.00 P. M.		8.00 P. M.	8.00 P. M.	8.00 P. M.	8.00 P. M.			
S..12	29.66	64	74	54	81	78	77	S.	N.W.	14	18	O.	O.	.98
M..13	29.93	50	57	44	66	50	58	N.W.	N.W.	12	12	O.	F.	.14
T..14	30.04	44	50	37	66	79	73	N.E.	E.	8	12	O.	O.	
W..15	29.82	49	56	42	86	71	78	N.	N.E.	15	7	R.	O.	.59
T..16	29.95	52	61	43	48	43	46	W.	N.W.	14	8	C.	C.	
F..17	30.11	54	66	41	35	49	42	W.	S.W.	8	12	C.	F.	
S...18	30.14	44	47	42	77	76	76	S.	N.E.	12	6	R.	O.	.24

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 18, 1895, TO MAY 24, 1895.

CAPTAIN ROBERT J. GIBSON, assistant surgeon, will be relieved from duty at Fort Sam. Houston, Texas, by the Commanding Officer of that post, and will report in person to the commanding officer Fort Thomas, Kentucky, for duty at that post.

MAJOR WILLIAM H. GARDNER, surgeon, is relieved from duty as attending surgeon and examiner of recruits at Headquarters Department of Dakota, and ordered to Fort Reno, Oklahoma Territory, for duty at that post, relieving MAJOR HENRY M. CRONKHITE, surgeon.

Leave of absence for four (4) months, on surgeon's certificate of disability, with permission to leave the Department of the Missouri, to take effect on being relieved from duty at Fort Reno, Oklahoma Territory, is granted MAJOR HENRY M. CRONKHITE, surgeon.

Leave of absence for ten days to take effect from the date of the conclusion of his examination for promotion, is granted CAPTAIN LOUIS W. CRAMPTON, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 18, 1895.

L. L. YOUNG, assistant surgeon, to examination for promotion. F. W. Olcott, passed assistant surgeon, from the "Constellation" and to the "Enterprise."

MAINE MEDICAL ASSOCIATION.

The Forty-third Annual Meeting will be held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 5, 6 and 7, 1895.

WEDNESDAY, JUNE 5th.

Morning Session, at 10 A. M.—Prayer. Reading of the Records of the last meeting. Business. Report of Treasurer. A Unique Case of Apoplexy, by R. D. Bibber, M.D., Bath. Cerebral Embolism, by John F. Hilton, M.D., Lewiston. Neurasthenia, by W. F. Hart, M.D., Camden. Report of Visitors to the Portland School for Medical Instruction. Report of Visitors to the Maine Insane Hospital. Report of Visitors to the Medical School of Maine. Voluntary Papers or Reports of Cases.

Afternoon Session, at 3 P. M.—Reception of Delegates from other Societies. President's Address. Business. White's Operation for Hypertrophied Prostate, by F. C. Thayer, M.D., of Waterville. Vaginal Hysterectomy, by W. K. Oakes, M.D., Auburn. Pyosalpinx, by J. F. Thompson, M.D., Portland. Voluntary Papers or Reports of Cases. Reports of Delegates to other Societies.

Evening Session, at 8 P. M.—Hennequin's Method of Treating Fractures of the Thigh and both Bones of the Leg, by Alfred King, M.D., Portland. A Case of Myxodema Successfully Treated with Thyroid Extract, by J. K. P. Rogers, M.D., South Portland.

THURSDAY, JUNE 6th.

Morning Session, at 10 A. M.—Business. Tuberculosis of the Knee-Joint, by S. H. Weeks, M.D., Portland. Report of the Committee on Revision of Code and By-Laws. Radical Cure of Inguinal Hernia, by C. E. Williams, M.D., Auburn.

Afternoon Session, at 3 P. M.—Reception of Delegates from other Societies. Election of Officers for the ensuing year. Treatment of Pulmonary Tuberculosis, by C. A. Peaslee, M.D., Wiscasset. Dietetic Treatment of the First Stages of Phthisis, by J. F. DeCosta, M.D., Buckfield. A Clinical Study in Typhoid Fever, by D. E. Parsons, M.D., Oakland.

Evening Session, at 8 P. M.—Annual Oration, by A. K. P. Meserve, M.D., Portland. Sequelæ of Diphtheria, by J. A. Spalding, M.D., Portland. Cases in Practice, by B. F. Bradbury, M.D., Norway.

FRIDAY, JUNE 7th.

Morning Session, at 9 A. M.—Business. Reports of Delegates to other Medical Societies. Voluntary Papers or Reports of Cases. Report of the Board of Censors. Unfinished Business. CHAS. D. SMITH, M.D., Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION.

WEDNESDAY, JUNE 5th.

Morning Session, at 10 A. M.—Address by the President, Dr. Philip Coombs Knapp, of Boston. 1. Dr. J. A. Booth of New York, Hysterical Amblyopia and Amaurosis. Report of five Cases treated by Hypnotism. 2. Dr. George J. Preston, of Baltimore, A Case of Total Hysterical Anesthesia in the Male. 3. Dr. F. X. Dercum, of Philadelphia, Two Cases of Railway Spine, with Autopsy. 4. Dr. C. L. Dana, of New York, A Case of Hereditary Chorea, with Autopsy. 5. Dr. Chas. K. Mills, of Philadelphia, The Localization of Lesions in the Pons. 6. Dr. Geo. L. Walton, of Boston, Exhibition of a Specimen showing Fracture of the Cervical Vertebra.

Afternoon Session, at 2 P. M., at the Harvard Medical School. 7. Dr. M. Allen Starr, of New York, A Lantern Exhibition of Photo-micrographs of Nervous Histology; Golgi Stains. 8. Dr. Edward Wyllys Taylor, of Boston, A Lantern Exhibition of the Medulla Oblongata of a Chimpanzee, with other Specimens. 9. Dr. William Townsend Porter, of Boston, The Part of Inhibition in the Physiology of Respiration. 10. Dr. Thomas Dwight, of Boston, Exhibition of the Brain of a Chimpanzee. 11. Dr. Burt G. Wilder, of Ithaca, Fissural Studies (a) Two Philosophers; (b) An Apparent Duplication of the Central Fissures. 12. Dr. Wm. N. Bullard, of Boston, The Diagnosis of Hemorrhagic Cerebral Pachymeningitis.

THURSDAY, JUNE 6th.

Morning Session, at 9 A. M.—13. Dr. James J. Putnam, of Boston, Hyperostosis Cranii, with Illustrations. 14. Dr. Charles K. Mills, of Philadelphia, Cortical Localization in the Light of Recent Investigations in Minute Anatomy. 15. Dr. C. E. Riggs, of St. Paul, Injury to the left Angular Gyrus. 16. Dr. E. D. Fisher, of New York, Report of a Case of Tumor of the Cerebellum, with Autopsy, Operation by Dr. John F. Erdmann. 17. Dr. Geo. J. Preston, of Baltimore, Cases of Brain Tumor. 18. Dr. Geo. L. Walton, of Boston, Presentation of a Brain Tumor.

Afternoon Session, at 2 P. M. at the new McLean Asylum, Waverley.—19. Dr. H. A. Tomlinson, of St. Peter, Insanity and Phthisis, their Concurrence, Co-existence, and Transmutation.

20. Dr. Theodore Diller, of Pittsburg, The Association of Tabes and Paralytic Dementia. 21. Dr. Theodore H. Kellogg, of Wilard, The Pulse in Insanity, Original Study of Cases. 22. Dr. H. M. Bannister, of Chicago, The Home Treatment of Insanity. 23. Dr. Wm. Noyes, of Foxboro, Must Acute Paranoia be admitted into our Nomenclature? 24. Dr. C. E. Riggs, of St. Paul, The Criminal Insane Abroad. 25. Dr. Irving C. Rosse, of Washington, The Conservative Value of the Play Impulse.

FRIDAY, JUNE 7th.

Morning Session, at 10 A. M. 26. Dr. Joseph Collins, of New York, a Contribution to the Pathology and Morbid Anatomy of Amyotrophic Lateral Sclerosis. 27. Dr. Wm. C. Krauss, of Buffalo, Report of a Case of Peroneal Muscular Atrophy, with Autopsy. 28. Dr. James Hendric Lloyd, of Philadelphia, Telegrapher's Paralysis. 29. Dr. James Wright Putnam, of Buffalo, Writer's Cramp. 30. Dr. G. M. Hammond, of New York, Report of a Case of Multiple Neuritis in an Infant. 31. Dr. Geo. L. Walton, of Boston, The Etiology of Obstetrical Paralysis.

Afternoon Session, at 2 P. M.—32. Dr. Smith Baker, of Utica, Auto-mimesis. 33. Dr. Morton Prince, of Boston, Pseudo-neurasthenia. 34. Dr. C. H. Hughes, of St. Louis, Adiaonia, the true Paranoia. 25. Dr. J. T. Eskridge, of Denver, Subject to be announced.

DR. G. M. HAMMOND, Secretary.

The profession are cordially invited to attend the meetings of the Association, which, with the exceptions above noted, will be held in the hall of the Boston Society of Natural History.

THE ASSOCIATION OF AMERICAN PHYSICIANS.

The Tenth Annual Meeting will be held in Washington, D.C., May 30th and 31st, and June 1st, Dr. William Osler, Baltimore, President.

The programme presents the following papers: The President's Address, by Dr. William Osler, Baltimore; Leucomaine Poisoning, Dr. B. K. Rachford, Cincinnati; Some Toxicogenic Germs found in Poisonous Foods, Dr. V. C. Vaughan and Dr. George D. Perkins, Ann Arbor; Effects of the Gaseous Products of Decomposition upon the Health of Animals that are Compelled to Breathe them, Dr. A. C. Abbott, Philadelphia; Renal Affections following Influenza, by Dr. G. Baumgarten, St. Louis; A Contribution to the Study of Thoracic Tumors, Drs. William Pepper and Alfred Steugel, Philadelphia; The Etiology of Idiopathic Hypertrophy of the Heart, Dr. James T. Whitaker, Cincinnati; The Transmission of Mitral Diastolic Murmurs, Dr. J. P. C. Griffith, Philadelphia; The Use of the Differential Stethoscope in the Study of Cardiac Murmurs, Dr. A. H. Smith, New York; The Cause of the Exaggeration of Sounds over the Right Upper Chest, both in Health and Disease, Dr. Charles Cary, Buffalo; The Preparation of Antitoxin, Dr. H. C. Ernst, Jamaica Plain, Mass.; A Case of Madura Foot (Mycetoma Pedis), Dr. J. G. Adams, Montreal; Gonorrheal Arthritis—Clinical Observations, Dr. W. P. Northrup, New York; Hyperthermy up to 66.5° C. (148° F.), Dr. A. Jacobi, New York; A Comfortable Way of Using Cold in Fevers, Dr. F. H. Williams, Boston; Some Observations on the Spleen and Marrow in Leucemia, Dr. J. Guiteras, Philadelphia; Goitre in Michigan, Dr. George Dock, Ann Arbor; Displacements of the Liver, Dr. J. E. Graham, Toronto; Carcinoma of the Liver with Cirrhosis, Dr. M. H. Fussell, Philadelphia; Epidemics of Typhoid Fever, Scarlet Fever, and Diphtheria Due to Milk Infection, Dr. S. C. Busey, Washington; Forceful Artificial Respiration—the Fell-O'Dwyer Apparatus—Cases, Dr. W. P. Northrup, New York; Carosso's Treatment of Pulmonary Tuberculosis, Dr. H. C. Ernst, Jamaica Plain, Mass.; On the Direct Faradization of the Mucous Membranes of the Stomach and the Intestines of Animals (Dogs, Cats, and Rabbits), Dr. S. J. Meltzer, New York; Two Cases of Fat Necrosis, Dr. C. G. Stockton, Buffalo.

RECENT DEATHS

PROF. CARL VOGT, the distinguished German biologist, died at Geneva on May 6th, at the age of seventy-eight years.

J. D. ROBINSON, M.D., of Wooster, O., died May 9th, aged seventy-five. He is said to have performed the first amputation in the War of the Rebellion.

BOOKS AND PAMPHLETS RECEIVED.

Nouvelle Méthode de Traitement de la Tuberculose Pulmonaire, du Lieutenant Colonel G. M. Carasso, Docteur en médecine, Directeur de l'Hôpital Militaire de Gènes.

List of Surgical Splints Exhibited at the Columbian Exposition, Chicago, 1893. By Edward A. Tracy, M.D., Boston, Fellow of the Massachusetts Medical Society. 1894.

Report of a Surgical Clinic (Illustrated), Complimentary to the Visiting Members of the Mississippi Valley Medical Association. By Prof. Augustus C. Bornays, M.D. 1895.

Address.**PRESIDENT'S ADDRESS,**

DELIVERED AT THE TWENTY-FIRST ANNUAL MEETING
OF THE AMERICAN NEUROLOGICAL ASSOCIATION,
BOSTON, JUNE 5, 1895.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

GENTLEMEN:—Our programme is long, and contains much that is more interesting than anything I can offer. One or two duties, however, must be performed before I can invite you to listen to it. First of all, I must thank you for the honor conferred upon me in choosing me to preside on this occasion; next, I must offer to you, in the name of the medical profession of Boston, a most hearty welcome on this your first visit as an Association to our city, with a wish that you may pay us many more such visits; and, finally, I must present to you greetings and regrets from our honorary and associate members abroad, Erb, Hughlings Jackson, Ferrier, Horsley, and others, whose letters will be read later. Having done this, it might be more fitting to begin upon our programme without delay; but, in view of the fact that the Association has just completed its twentieth year of life, I may perhaps be pardoned for detaining you for a few words of retrospection and of suggestion for the future.

On the fifteenth of December, 1874, a letter was sent out, signed by seven men, three of whom are still active members of this society. Its opening sentence was as follows: "It is contemplated to institute a Society, to be called The American Neurological Association, to be devoted, as its name imports, to the cultivation of Neurological Science, in its normal and pathological relations." Five and thirty men, including the signers, accepted the invitation, and on the 2d, 3d and 4th of June, 1875, the first meeting of the new Association was held in New York. Twenty members were present, and Dr. Weir Mitchell was elected as the first president, but, on his withdrawal, the late Dr. Jewell was chosen to fill his place. The new society was something of an experiment; there were but two similar associations in this country, the Ophthalmological and the Otological, where there are to-day thirteen or more. Few neurological societies existed abroad, and it was not until eleven years later that the Neurological Society of London was organized. Up to that time, in most parts of the world, the neurologist had had to content himself with the crumbs that fell from the alienist's table, and those, apparently, had been so scanty that at first we declined to share our own feasts with the alienists. We have grown more liberal with years, so that we have even offered them of our abundance of late, although the food was not wholly to their relishing. With that exception, which was but temporary, we have pursued no exclusive policy. Although dealing with the highest and most difficult problem of medicine, the study of the brain of man, ours is not the specialty of a single organ; we must search every part of the body to make our diagnosis, and be general physicians first and neurologists afterwards. We went out with our first invitation into ophthalmological highways and hedges, and we have ever welcomed the physiologist, the general physician, and the surgeon into our ranks.

I must leave it for others to speak of those early and, if tradition be correct, somewhat stormy days of

the Association's life. A number of the founders of the society are happily with us, who have taken honorable part in the transactions during the whole twenty years; we regret the absence of the rest who are still on our rolls—Bartholow, Bannister, Mitchell and Seguin. Others, too, can speak from better knowledge of those who met twenty years ago and who have now finished their work: Jewell, Hun, Clarke, McBride and Van Bibber. A word of tribute, however, is due to one of our late members who has died this year, that genial comrade Matthew Dudley Field, who sent, only a week before his death, a cheering message, full of hope that with restored health he might be here to-day.

Of the work which we have done during the last twenty years little need be said. We have flourished as a society, our membership has increased from thirty-five to eighty-five, our meetings have steadily grown in interest and in profit, and we have done our share in the establishment and the success of the most important medical body in this country, the Congress of Physicians and Surgeons. Of the scientific work which has been done under the auspices of the Association it can honestly be said that if, both in neurology and psychiatry, the work done by our members in the last twenty years were to be deducted, America's claim to consideration in the scientific world in those branches would be poor indeed. We have done something to add to the enormous mass of knowledge concerning the nervous system that has been accumulated during the last twenty years. What the advance in that knowledge has been we all know, and time is lacking to review it here.

Although on such an occasion as this a little self-gratulation is pardonable, it is the part of wise men not to indulge in the vain-glorious boastings of the Fourth of July orator, but to ask ourselves not what we have done, but rather what we have left undone. As we look over not only the more complete bibliographies, but also the various references in the works of our colleagues abroad,—where, by the way, we find much more frequent notice of American work than there was twenty years ago,—we may observe that American names are far less frequently quoted in the sections on anatomy and experimental physiology than in those on symptomatology, pathology and therapeutics. Our programme to-day shows that we are doing some work in these directions, but the amount that has been done is still below the mark. We have as yet produced no work on anatomy to set beside even the elemental work of Edinger, much less the exhaustive treatise of Dejerine, to cite only one or two examples; nor have we produced any work on the experimental physiology of the nervous system to rank with those of Munk, Ferrier, Luciani or Goltz. In these branches we have done too little, but, in extenuation, it must be said that it is only within a few years that the facilities for experimental research have been at all adequate, even in our larger cities, and we are still in great need of endowments sufficient to carry on such research. The beginnings that we have now made show that when it shall become possible for a young man to make a living, though but a plain one, from purely scientific work in the field of neurology, we may expect results which will put us more nearly on an equality with our foreign brethren.

We need make less apology for the clinical and pathological work that we have done in the last

twenty years. It has perhaps been given to but few of us to attain the grisly immortality which links our names to some new form of disease, but we have added a few new titles to the list of diseases and their symptoms, and we have done much to define more accurately and to describe more in detail the affections discovered by others. As might be expected from the eminently practical nature of the American mind, our greatest additions to the world's knowledge have been made in the domain of therapeutics. The contributions of American neurologists and surgeons have done much to teach us the all too narrow limitations of the operative therapeutics of the nervous system. But for an oversight, we should have been first in the field in the operative treatment of cerebral tumors, and we can claim second place on account of the character and amount of the work that has been done in that field in this country. We have done something, perhaps enough, to prove that neither hypnotism nor treatment by the animal extracts is likely to prove a panacea for the affections of the nervous system. Important, too, as it may be to discover a new stain or to define a new tract of fibres in the pons, our chief aim, after all, is to heal the sick, and, in spite of the promise or lack of promise of brain surgery, animal extracts, electricity and hypnotism, there has been no discovery as yet in these twenty years in the domain of the nervous system, that has brought comfort and healing to so many people as that of the rest cure by one of our active, and soon, I hope, to be honorary, members, Dr. Weir Mitchell, of Philadelphia.

So much for our past. We need in the future a journal of neurology under our own control, with a sufficient financial support to enable us to publish fitting illustrations with the reports of our anatomical and pathological work. We need, too, in most of our cities, that recognition in our large hospitals which our President urged last year, a recognition which will come when we have taught the public the necessity and importance of our special field of work. While we are teaching, too, let us do something toward making the general physician realize that the ignorance of neurology, which he too often professes, is far from creditable, and that it would render him ridiculous in any country but this.

The problems before us which demand our attention are too numerous to be rehearsed. Much of the brain cortex still resembles the map of Africa as it used to be in our boyhood—an unexplored blank. We must apply the Golgi methods in disease, and define, if possible, the pathology of the neuron. We must banish the word functional, by demonstrating the pathology of the so-called functional diseases. We must study still more precisely the symptoms of disease, and put our knowledge of electrical diagnosis and the sensory disturbances on a more exact basis. We must differentiate the various clinical forms of insanity, and bring some order out of the chaos labelled neurasthenia. Above all we must remember, as has just been said, that our chief aim is to heal the sick. What shall it profit our patients, if we know the course of the axis cylinder of every neuron in their spinal cords, and the exact percentage which each factor has in the etiology of tabes or general paresis, or the finest points in differential diagnosis, or the minutest pathological changes, if the end of it all is to be a Weigert stain?

It is too much to hope that in the future we can

remove sclerosed tissue and substitute healthy nerve cells or fibres in its place, or that we can do more than alleviate for a time the symptoms which such sclerosis causes. Our hope, therefore, must be in prevention.

The discussion which we held last year at the Congress in Washington indicated the importance of infection in the etiology of many disorders of the nervous system. In the work of the bacteriologist and the boards of public health lies much hope for the future. When we can deal with syphilis and tuberculosis as we can with small-pox, and as we seem likely to do with diphtheria, we shall have done much toward the prevention of some of the most hopeless affections of the nervous system.

For those affections dependent upon a defective nervous organization, an unstable and invalid brain, much has already been done and still more can be done in the future when the public is ready to admit the unpleasant fact that such persons are mental cripples, and must have their lives ordered for them as the surgeon now orders life for the hunchback or the cripple. They need a definitely prescribed existence, as to their food and drink, their stimulants and sedatives, their work and play, their study and exercise, their reading and society. This is done now in a few cases, but we see daily many other cases where it is in some degree advisable, and where, if it were done, many morbid nervous and mental conditions might be prevented, or at least materially benefited. For such people and for many who call themselves well, the conditions of our social life are injurious, but we are none of us young enough to hope to change the entire social fabric. There is very much in the world that does no harm to a well man, which these people cannot bear; we cannot alter the world to suit them, but, when we are permitted, we can shield them from the special things of the world that prove injurious.

In yet another way we can protect the unstable and those who are not sufficiently developed mentally to act absolutely as their own rulers, and thus we can prevent a certain amount of nervous disease. As our boards of health strive to protect the public from infection by specific germs, so it should become our province to guard the public against mental contamination from the degenerates of whom we are just now hearing so much. We restrain the lunatic who has homicidal impulses; we should also strive to counteract the evil influences of the fanatical, neurotic and degenerate, in the fields of sociology, politics, morals, religion, art and literature, and point out their morbid tendencies.

We have heard something too much for a number of years of the increased nervousness of our age. The neurotic and the degenerate, like Job, speak in the anguish of their spirit, and complain in the bitterness of their souls. They tell us that the world is sick with their disease, and with damnable iteration, they analyze, not only for their physicians but for the public at large, all the mental, moral, physical and sexual aberrations of their diseased minds. It is a matter of doubt, however, how much harm has been done to the nervous system of the healthy man by the penny-post, or the telegraph, or the railway train, or even the daily paper. Let us admit, however, that in the struggle for existence as manifest in our day, the weaker brain must succumb, that social and mental unrest are great; yet, if we look back a little, we find throughout history the same struggle, perhaps under different conditions, the same unrest, the same doubt,

the same *tedium vite*. The Preacher, two thousand years ago, held that all was vanity and vexation of spirit, yet, even then, he found no new thing under the sun. With the diminution of infectious diseases, better food, more rational standards of living, and greater security for life and property, it is more than probable that there has been an actual diminution in the total amount of nervous disease, even though greater knowledge permits us to detect the less marked manifestations of such disease. Greater or less though the amount may be, there is still much that is distinctly preventable; let it be our aim in the future to aid in its prevention.

Original Articles.

AN EXAMINATION OF SOME RECENT STATISTICS IN REGARD TO ETHER, AND A CONSIDERATION OF SOME PRESENT METHODS OF ITS ADMINISTRATION.¹

BY JOHN B. BLAKE, M.D.,

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ONE of the most astonishing facts in the history of anesthesia, is the rapidity and completeness with which chloroform supplanted ether throughout the whole of Europe and a considerable portion of the United States. Within ten months after its first public administration in the Massachusetts General Hospital, ether was being used throughout almost the entire civilized world. Within two and one-half years after its discovery, there were not more than half-a-dozen large clinics on the Continent which had not discarded ether for its rival, chloroform. For so general an action as this, there must have been reasons, and reasons readily apparent; and if there were arguments against such action, they must either have been disregarded or else were essentially less apparent upon a short examination of the qualities of both anesthetics, and until a sufficient number of reliable statistics were collected upon which a final judgment might be based.

The advantages which chloroform possessed over ether and which were immediately apparent to the surgeons using anesthetics were in effect:

(a) The smaller amount of chloroform necessary to produce complete anesthesia;

(b) The fact that the patient becomes unconscious under the influence of chloroform more quickly, and perhaps, more quietly;

(c) That chloroform is non-inflammatory and non-explosive;

(d) That there is less irritation of the respiratory tract with chloroform;

(e) That the recovery from chloroform is more prompt and the after-effects less marked.

That these advantages were at once obvious to the observers of that time, and that in a considerable measure they hold good to the present day, must be admitted by any impartial investigator.

They were naturally just that class of phenomena which would be demonstrable upon a short and rather superficial examination. That they were not the most essential attributes of anesthesia required time to prove.

The one final and absolutely decisive test by which

any anesthetic is to be judged, must be, of course, its effect on human life. Compared to this, all other inconveniences or discomforts are of small moment. The ideal anesthetic and the ideal method of its administration must be, first, that which while producing complete anesthesia, in no degree imperils life; second, that which is rapid and effectual in its action, and which in its careful administration is not unpleasant to the patient; and third, which is free from undesirable after-effects, and from the accidents of inflammability, explosiveness, or great bulk. That we shall ever possess such an agent is very doubtful, but that we shall always try to discover it, is simple duty.

Since the final test, therefore, which is to decide the choice of an anesthetic is the safety of its action, a large amount of trustworthy and accurate statistics bearing upon this point must be gathered as a basis for such a choice. Statistics have been at hand for many years, but for some reason have failed until recently to convince many of the European surgeons. Perhaps the wide-spread belief that disasters following chloroform were exaggerated, and those following ether overlooked, may in part account for this. At all events, the writer has been unable to discover any other sufficient reason; and it seems hardly fair to believe for a moment that eminent disciples of the English, German, French, Italian and other European schools, should so unanimously favor the use of chloroform, unless upon firm conviction after thorough examination.

A student who attended the Harvard Medical School a half-a-dozen or more years ago was told that statistics showed one death in 20,000 ether cases, and one death in 2,000 chloroform cases; and accepting these statistics as the average of those attainable at that time, it was beyond the comprehension of the average student that chloroform could be used in any civilized country, except perhaps in those rare cases in which all authorities agree that ether is contraindicated. And yet, even at that time, Boston, Lyons (France), and to a lesser extent Geneva and New York, Berne, and perhaps Dresden, were the only great cities of the world in which ether was being used to the complete or even comparative exclusion of chloroform.

The crusade which some of the English medical journals, notably the *Lancet*, began some half-dozen years ago against the indiscriminate use of chloroform, is well known.

About four years ago, Juillard in Geneva, and Gurlt in Berlin, offered almost simultaneously fresh statistics upon this subject, which had been almost overlooked for many years. These statistics, collected in different countries, but mainly Continental, agree on the whole so nearly, and emphasize so strongly the greater safety of ether, that they have seemed worthy of close examination. They are characterized by the same modern scientific spirit that is manifest in other branches of learning; they come from different races and from various countries; they are rich in details. Besides those of Juillard and Gurlt, several other extensive articles have appeared within the past two years, notably the papers of Vallas of Lyons, Garre of Tübingen, and Vogel of Berlin. Finally, one noteworthy and very interesting communication has been published by Professor Miculicz, of Breslau, which though shorter than some of the others, attracts attention to itself as being one of the very few which does not accept the superiority of ether as proven.

¹ Being one of two papers receiving the second Lyman Prize for 1894.

For four years past, Gurlt has presented at the annual meeting of the Deutschen Gesellschaft für Chirurgie the statistics of chloroform and ether narcosis which he has been able to collect in each preceding year. From the first these figures have shown a decisive and unvarying proportion in favor of ether. As a result, the number of etherizations in Germany for 1893-94 was practically double that of the previous year, while the number of chloroform cases was diminished; a pleasant comment upon the confidence of the German surgeons in the investigator, and upon the spirit which prompts them to use the method which careful statistics and practice proves to be the best, even though to them personally the less attractive—though it must be confessed that it has taken several years for the spirit to move them in the latter direction.

Gurlt's final statistics, given to the Gesellschaft für Chirurgie at Berlin in April, 1894, included the observations for four years. The figures are:

166,812 chloroform cases . . .	63 deaths, or 1- 2,647
26,320 ether cases . . .	2 deaths, or 1-13,160
8,011 ether and chloroform cases . .	1 death, or 1- 8,011

All observers report increased secretion, saliva and mucus, and the occasional development of bronchitis and pneumonia after the use of ether.

Other German observers are:

Zeigler, 600 ether cases . . .	no deaths
Vogel, 1,200 ether cases . . .	no deaths or serious complications
Körte, 600 ether cases . . .	no deaths or serious complications
Tschmarke, 500 ether cases . .	no deaths or serious complications

Some late French statistics are as follows:

Vallas recalls the fact that in 1867 a commission at Lyons, appointed to investigate the question of anesthesia, reported that "in twenty years there were but six deaths from all ether cases, and that though ether certainly may kill, it is much less dangerous than chloroform."

Ollier recorded 40,000 ether cases without a single death; and no death ensued in 730 recorded by Chalot, in 6,500 recorded by Tillier, or in 15,000 recorded by Poucet.

The writer has not been able to collect many statistics of English surgeons. Those found, are given here, together with the comparative French figures.

Williams (English), 14,581 ether, 3 deaths, 1 to 4,860; 12,368 chloroform, 10 deaths, 1 to 1,236.

Middlesex (see Vallas), 1,050 ether, 1 death; 208 chloroform, 1 death.

Jaillard, 314,738 ether, 21 deaths, 1 to 14,987; 524,507 chloroform, 161 deaths, 1 to 3,258.

Attention is called, not only to the enormous figures of Jaillard, but to the large number of observers who offer statistics upon small numbers of cases, in which all essential and controverted points have been carefully noted. Such statistics necessarily must be most valuable and the desirability of obtaining them from all parts of the world is too obvious to need more than a passing comment. It is precisely this class of statistics which is most difficult to find in the United States.

According to these observers, vomiting would seem to be less frequent on the Continent than in America. The estimates of the various writers vary from "vomiting slight and rarely observed," to "vomiting present in about half the cases." Subcutaneous injections of morphine, before the ether, is the means most widely suggested as a preventive. Occasionally a small amount of atropine is combined with the morphine. Irritation of the lungs and trachea, secretion

of mucus, cough, and an initial period of excitement are unanimously declared to be more frequent with ether than with chloroform. The German authorities believe that chloroform irritates the kidneys more than ether, and agree that ether, rather than chloroform, is unquestionably indicated when it becomes necessary to anesthetize old persons, young persons, very weak persons, and those suffering from heart disease. There is a marked difference of opinion as to the preferable anesthetic for brain surgery. Narcosis with the A C E mixture is universally regarded as dangerous, though it was used by Billroth as late as 1892. It seems to be a fact that the so-called ether nephritis was first described by American writers, and has never been found to exist in any considerable degree, except by Americans (see Garre). This is rather remarkable, when we compare it with other statistics in regard to ether.

Fueter and Roux report that they did not find a single instance of albuminuria among several hundred ether cases which they investigated.

Bütter discovered albumin once, after ether, in 500 cases.

Körte found it in 600 ether cases; seven contained albumin before ether, not increased after it; six had albumin after ether, which was absent before it.

Wunderlich finds six cases out of 72 etherizations in which albumin was found after and not before; six cases in 52 chloroform anesthesia, with albumin after, not before; nine cases of albuminuria, five increased, four not increased.

The writer has examined 50 cases, before and after ether. (Urine filtered and nitric acid test applied; the presence of a whitish precipitate or cloud at junction of acid and urine, visible against a dark background, was considered to be evidence of an appreciable and abnormal amount of albumin.)

Of these 50 cases, 33 did not contain albumin before ether; eight of these did not contain albumin after ether; 25 of these did contain albumin after ether. Seventeen contained albumin before ether; in 11 of these 17, albumin was increased after ether; in four it was not increased after ether; and in two it diminished after ether.

In 36 cases out of 50, ether either produced albumin, or increased that already existing.

In 25 cases which contained albumin after ether and none before, two presented a moderate amount (large trace), four a slight amount (trace), and 19 an extremely slight amount (slightest possible trace).

In 11 cases in which pre-existing albuminuria was increased after the ether, it was moderately increased in five cases, and very slightly increased in six cases.

No explanation was found in the two cases in which pre-existing albuminuria was decreased considerably after ether.

Attention is called to the extremely slight amount of albumin found in the majority of the cases. No thorough examination was undertaken in regard to the duration of the albuminuria. From occasional detached observations, it seemed, as would naturally be expected, to be of very short duration. Examination for casts was not made.

The striking contrast which these figures present to those of Wunderlich and the other writers cited above, is, of course, immediately apparent. The writer realizes that these results must be confirmed by careful and more extended observations before they can be ac-

cepted as final. No fixed relation between the amount of ether and the amount of albumin was observed. In some cases where the patient was under ether an hour or more, but a very slight trace of albumin was found; and in one or two, in which the amount of ether given was small, the albumin was found in moderately large quantities. The urine examined was that passed on the night following the operation. The condition of the kidneys occasioning such an albuminuria, would probably be simply a slight congestion. In this connection, it is interesting to note the temporary albuminuria found by MacFarlane in the urine of healthy young men, after severe football games. Further investigations, it is hoped, will shed more light upon this question, and perhaps explain the ether nephritis of the early American observers on anesthesia. The results, however, would suggest a contraindication to ether in advanced renal disease, especially when accompanied by pulmonary complications.

Before leaving the subject of renal complications, it must be mentioned that Becker, in 188 cases, found acetoneuria in about two-thirds; the anesthetic and the duration of anesthesia apparently did not bear any fixed relation to it. Baxer reports a case in which a diabetic patient sank steadily, and died after a short chloroform anesthesia.

The foregoing authors and statistics are all manifestly in favor of ether. The single article which the writer has been able to find which does not champion ether is that of Miculicz, mentioned above, a careful operator and a good observer; it demands closer scrutiny. Like many others, Miculicz abandoned chloroform for ether, at least partially, in 1893, as a result of Gurlt's statistics. In 1894, after less than 100 etherizations (the actual number was about 65), he abandoned ether and returned to chloroform. The mask of Juillard, to be described later, was used in administering the ether, and possibly accounts for the result obtained. Miculicz points out that anesthesia, of whatever origin, is more dangerous than had formerly been believed, and protests strongly against its indiscriminate use, when it can be avoided; especially in cases for diagnosis only, or where local anesthesia is possible, it should not be induced. He goes so far as to doubt that it is an important aid in making a diagnosis. He then mentions the undoubted fact that chloroform is very often of poor quantity and poorly given, and finally, that other conditions complicate or actually cause many cases of so-called chloroform death. He calls attention to the cyanotic redness of face and neck and the impossibility of judging the depth of the narcosis from the eyes or expression; and finally, among his 65 cases, he found three cases of collapse during ether, two cases of collapse after ether, four cases of acute bronchitis, and two cases of edema and pneumonia.

The cyanosis of face and neck, and the impossibility of seeing the eyes (which seems to be what Miculicz means), American surgeons would unquestionably attribute to the ether mask employed — a tight, hemispherical basket, covered with material impervious to air, and held down snugly over the face during the whole period of anesthesia, save for the very short period it is lifted to receive more ether. And indeed one cannot help thinking that the slight temporary collapse which occurred in three cases during the ether, and perhaps also the more serious collapse in two cases after the ether, were also due to this most

undesirable method of combining CO₂ with ether to produce unconsciousness. Whether or not ether can produce true pneumonia, properly so-called, is a very doubtful question. Prescott believes that it cannot; and the fact that it once appeared after ether in a case of Miculicz, does not by any means prove that it was anything more than a coincidence. It is certainly possible for the fumes of ether to cause a slight bronchitis, and not only possible, but probable, when the Juillard mask is used. And, finally, until another method of producing anesthesia is tried, and upon a much larger number of patients, the overwhelming statistics of so many other trustworthy observers pointing to the undoubted greater degree of safety to life under ether than under chloroform narcosis, must be accepted as proving that ether is, as Vallas concludes, just as effective and certain in its action as chloroform, and that it is less fatal.

The suggestion which Miculicz makes in regard to careful notes to be recorded, both of the anesthesia itself, and the conduct of the patient after it, is certainly most appropriate, and will undoubtedly coincide with the wishes of most surgeons; and if an examination of the statistics leads him to think that too many deaths have been attributed to chloroform, when really arising from other causes² surely a similar examination of so-called ether deaths would reveal the same thing, and in at least an equal degree.

Several deaths have occurred, either during ether or shortly after it, in Boston, within the past twenty years. In every case, one or more disturbing influences have existed, in the presence of which it is not possible to say that ether has caused death. They have all been, apparently, deaths during ether, not deaths due to ether. If they emphasize anything, however, it is that ether is dangerous in all cases of operation on the trachea or larynx, particularly when there is coexisting acute inflammation of the air passages, or the immediately surrounding tissues. This is a fact which Dr. Gay of Boston has repeatedly emphasized. One of these cases, which occurred under the observation of the writer, is described in some detail in the following pages.

The writer has given ether, to primary or complete anesthesia, between 300 and 400 times. In these cases there has never been a death traceable to the ether alone. In two cases there have been alarming symptoms apparently due to the ether, one of which required immediate tracheotomy. This case was one of deep cellulitis of the neck in a man who was a steady drinker. Induration and swelling of the brawny cervical tissues increased gradually for two days, and the temperature rose steadily. There was no indication of the location of the pus. The swelling finally encroached upon the esophagus, preventing the ingestion of everything except small quantities of liquids, and began to cause embarrassment of respiration. The patient was carefully etherized by the writer, the attending surgeon having resolved to make multiple incisions in the neck. Patient took the ether fairly easily, though the mucus in mouth and throat immediately began to increase. After a very short period of moderate excitement, the breathing became stertorous, and suddenly stopped — face cyanotic, pulse not affected; ether was taken off immediately, and patient pushed directly into adjacent operating-room. As respiration did not recommence, surgeon did im-

² See Casale, *Centralblatt für Chirurgie*, No. 22, 1894.

mediate tracheotomy, and, the tube being in position, with a little artificial respiration, breathing began again. Patient rallied well and seemed on a fair way to recovery; but temperature rose again on third day, and he died with symptoms of septic poisoning. It is possible that if chloroform had been used, tracheotomy might not have been necessary; it is probable that the patient would have died in any event. This cannot be considered a death due directly to ether, though it compares rather closely to those cases which Miculicz calls "late collapse," and which he would cite as a form of ether death. In a similar case, chloroform would be the anesthetic of choice.

The second case was a serious operation for a presumable malignant growth near the spine. The patient, a man of forty years and of excellent habits, had some years previously contracted a double pleurisy, as a result of which, his attending physician declared, his respiration had since been more or less diaphragmatic. He took the ether easily, pulse and respiration being good, though there was a slight sighing noise at the end of each expiration; in seven minutes the anesthesia was complete; but before the end of this time, the color began to darken and the respiration became labored and almost entirely diaphragmatic. When removed to the operating-table, the color was livid, and soon became a very deep slaty blue (the heart was normal). The rate of respiration was very low, about ten to the minute, but the pulse remained fairly good. There was a considerable secretion of mucus in mouth and throat. The patient was placed in the Sims position to facilitate the operation, and in this position the breathing became still worse, and the color darker, if possible; ether removed, and upper shoulder lifted, and breathing became rather better. The operation was commenced with the understanding that if the etherizer thought the condition of patient demanded it, he should request the surgeon to discontinue. Early in the operation, it was found that the position and extent of the growth rendered relief by operative means impossible, and the operation was abandoned. With the removal of the ether, color at once improved, and was normal before patient regained consciousness. Time from beginning of anesthesia, forty minutes; amount of ether used, six ounces. Before ether, one-sixteenth of a grain of atropia by stomach. In spite of various gloomy prophecies at the time of operation, there was, as a sequel, neither vomiting, edema of lungs, bronchitis nor pneumonia; the patient never developed a symptom traceable to or explanatory of his unusual condition under ether. Whether the old pleurisy had caused adhesions of both lungs, which prevented a proper action of the lungs and oxidation of the blood, or whether the malignant growth had involved the pneumogastric, or perforated the chest wall or whether all of these conditions combined to produce the result, is impossible to decide with certainty. In external appearances, the case was undoubtedly the worst that has ever come under the writer's observation. In a similar case, the choice of anesthetic might still be open.

It is, of course, undeniable that the shock produced by etherization sometimes adds the straw necessary to turn the scale in the wrong direction. In these cases, however, it is impossible to say how much is due to the operation, how much to the hemorrhage and how much to the ether; and the result would perhaps be worse with chloroform. In any event, with the pres-

ent absence of notes or statistics on these points, reliable conclusions are impossible. It may be well to recall the fact, however, that laparotomies and external urethrotomies, as well as lesser operations, may be done under cocaine, and that thus the shock of general anesthesia may be avoided in just those cases where it is particularly unwelcome.

There are certain contraindications to ether upon which all authorities agree, and which, though they do not absolutely forbid ether, make chloroform the anesthetic of choice.

(1) Operations within the mouth, and upon or close to the air-passages, particularly if there be accompanying inflammations, or conditions causing irritation of the air-passages, such as foreign bodies, tumors exerting pressure, etc.

(2) Certain conditions of the lungs, particularly acute bronchitis, asthma, double empyema.

(3) Advanced renal disease, and diabetes.

(4) Operations demanding the use of the actual or thermocautery upon or close to the face.

The third indication is sometimes omitted; but the writer is convinced that it is real enough to be insisted upon with equal emphasis with the others.

Beyond the above, there are no considerable contraindications to the use of ether as an anesthetic.

(To be continued.)

THE EDUCATIONAL ASPECTS OF PHYSICAL TRAINING.¹

BY W. A. BROOKS, JR., M.D.

MANY of the best minds of the intellectual world are devoting their energies to promoting the advancement of educational demands. It might well be asked, what bearing has this upon the subject of physical training? The answer to that question is embodied in another: What is going to determine the limit of educational demands? Obviously they are limited by the ability of the individual to grasp and to understand, and the amount of time which can be devoted to study. Ability is a personal equation. Time is limited by the duration of life.

What is it which enables a man to do his work properly if it is not physical condition? And what is it, barring accidents, which determines whether a man lives to be seventy or dies at forty, if it is not his surroundings and the care which he takes of himself? The standard of higher education can be raised until the limit of mental and physical endurance is reached. As a greater demand is made, it can only be met by carrying with it a provision for the building up of endurance.

But as yet, physical training, the only means of building up endurance, has never received more than a passing notice from the majority of the learned men who stand at the head of our institutions, and who map out and direct the work of those who are under their immediate control. While they carefully direct mental exercises, they utterly ignore physical demands. They compel students to come up to a certain intellectual standard, taking it for granted that they are in a sufficiently good physical condition and know how to keep so. To be sure they may provide a gymnasium and instructors in physical culture, but whether the in-

¹ Read before the Boston Society for Medical Improvement, March 18, 1895.

dividual takes advantage of these opportunities concerns them little and interests them less.

At the expense of the government a chosen few are educated to fill positions in the army and navy. The government does not propose to have its money wasted, and so in order that the students at these institutions may be physically able to do their work, both before and after graduation, there is a fixed standard of physical condition and an ample provision made for physical training.

At some other institutions of learning, the students upon entering are required to bring a certificate of good health. After entering there are generally no further requirements either as to condition or training, except that by some means or other they must be able to do the work given them. The institutions are generally in need of funds. It would never do to demand too perfect an individual. On the standard of health too many might be debarred.

Granting that physical training is an important adjunct to mental work, the question arises, to whom must students of health turn for instruction in this branch. Obviously the men who should be best fitted to direct such work are the men who are devoting their lives to the welfare of mankind—the medical profession. But while they devote years of study to pathological conditions and their relief, very few hours are devoted to the consideration of the healthy body and how to keep it so.

It is not that its importance is underestimated, but rather because, through tradition, physical training in the minds of most physicians is associated with athletes and athletic sports.

Physical training has not yet acquired the dignity of being incorporated in the curriculum of medical study, but is supposed to lie within the province of the gymnasium instructor or the professional athlete. And yet it is to the physician that the man worn out with business cares, the student nervously exhausted, the parent anxious that his children should grow up strong and healthy, all come and demand relief and advice, for he is supposed to as thoroughly understand the laws of health as he does the symptoms and treatment of disease. And he should. Why then, is not more attention paid to the subject of physical training in our medical schools? Is it not because a physician's reputation is made not from his attempts to keep his patients in good health, but from his success in treating them after they are ill?

Unless a physician has of his own accord looked into the subject and carefully considered it, he is apt to do as much harm as good when he recommends exercise to a patient. For exercise, to the average practitioner, simply means something, anything, which calls for muscular exertion. It is not necessary that a graduate in medicine should be a skilled gymnast or a competent instructor in gymnastics, but he most certainly should have some idea of the amount of exercise which an individual needs, the best means of his obtaining it, and the proper manner of beginning it.

I take the liberty, therefore, of presenting to you this evening, a few ideas upon the subject of physical training.

The healthy, vigorous boys or girls need no special instruction in this branch. Their natural instinct is to romp, to enjoy life and to join in various sports and pastimes. They simply need a word of caution against too severe or too prolonged exertion, and a

few directions how to guard against getting chilled or overheated.

But it is different with the children of delicate physique. Their natural instinct is to stay within doors. The pleasantest day seldom tempts them into the open air; and even when they do go, the inherent sense of their own weakness keeps them from joining in the sports of their playmates. Their parents generally help them in this tendency. Because they are known to be delicate they are kept from the very things which might enable them to grow strong. The majority of them could be greatly helped by being made to join in certain games and forced to follow a systematic course of training. Through the lack of systematic and regular exercise, many a child has been prevented from growing strong and healthy.

As most of what I have to say can be applied to both sexes, I shall for the sake of simplicity, confine my remarks to the male sex.

The line between health and disease is never widely separated, but the change from one to the other is in the inverse ratio, for it is much easier to lose one's health than it is to regain it. There is no system of training which can prevent a child from becoming ill, but a systematic life will strengthen a child's power of resistance. You cannot by exercise, remove from a child his inherited weakness; but you can build him up and give him greater power, so as to establish a balance of health in his favor. According to the age and natural strength of the child you should map out the line of his early life. If he is strong, see that he does not develop one portion of his body at the expense of another. If his chest is weak, encourage him in those games which call for lung power and good chest muscles. Have him taught to stand and sit properly and to use his lungs voluntarily, by breathing slowly and deeply.

You cannot apply one system to all, for each individual body has its own peculiar characteristics.

When the boy becomes a youth, he becomes more of a creature of impulse. If he enjoys exercise he takes it. If he is fonder of his studies he abandons it. The one needs restraint, the other encouragement. An excess in either direction leads to permanent injury: either to too great muscular development or to a loss of physical condition.

Accordingly, when the youth takes up his life's work, he brings into it either the energy of good health or the millstone of an impaired constitution.

Proper food, good air, sufficient rest and exercise, are the demands for physical training.

The laws of physiology tell a man when he must eat, and what the character of his food must be. It is not within the means of every man to always get what is best for him, but it is within his power to learn how to breathe properly and to take a sufficient amount of exercise.

The natural tendency of most men is to breathe superficially; for as breathing is largely an involuntary action, it is only when the will power is invoked, that men slowly and thoroughly inflate their lungs. By muscular exertion the same object can be attained. Accordingly it becomes necessary that, during exercise, a proper attention should be paid to the manner of breathing. When you advise a man to exercise, call his attention to the value of his holding himself erect with chin, chest and toes in nearly the same line as possible; with shoulders well settled, not falling

forward, and with the mouth closed. Tell him to breathe as slowly and deeply as possible, but to avoid straining his lungs by too full or too forcible inspiration.

In regard to the amount of exercise which he should take, that must depend upon his strength. The question of how his exercise is to be taken, largely depends upon his occupation, and the amount of time which he can devote to it.

Certain points must be remembered. He should begin gently, increase gradually, exercise with regularity, and always avoid too excessive or too prolonged exertion.

The men who most need exercise are those whose occupations keep them within doors, and who labor especially with their brains. This is the class which finds difficulty in getting what they need, for their time is limited and their work never finished. They can, however, always take a sufficient amount, if they feel so disposed. For instance, if a man lives in town, he can take a fifteen or twenty minutes walk to and from his business. Upon rising in the morning he can devote the same length of time to exercising in his room, either with chest-weights or dumb-bells, or by going through exercises and motions without any apparatus. These exercises he can repeat at night, either just before dinner or before retiring. It is surprising how much benefit can be obtained from two short walks in the open air and a half-hour's exercise during each day.

If he goes to a gymnasium, he should thoroughly understand how to begin his exercise. The latter part of the afternoon is the best time. He should wear the proper amount of clothing, and do his work quickly and systematically. The work at first should be light, and never carried to the point of fatigue. He can begin with the chest-weights. With a light weight in each hand he should go through the various movements, ten times for the first day is sufficient. Then a few moments with the wooden dumb-bells, a dip or two between the slanting parallel bars, a short exercise of throwing the so-called medicine ball (a large leather ball stuffed with hair or tow), ending up with a slow run around the track, for a distance equal to a quarter of a mile. This will be found to be enough and not too much for most beginners, and there will be no resulting stiffness or soreness the next day.

After this exercise he should take a moderately cool bath, a brisk rub, and then dress slowly. On each succeeding day he should increase by one the number of times which he performs each movement, and perhaps add a lap to the length of his run.

By the end of three weeks he is doing each movement twenty-five or thirty times, he moves more quickly, and already the effect is seen and appreciated. He is now in a condition to bring more variety into his work, and can either join one of the regular classes or with a friend indulge in a game of hand-ball, court-tennis or rackets. He has not made the mistake of beginning his exercise too violently, and there is no reason why he should ever have felt the slightest lameness.

A man who has once got himself into fairly good physical condition is ready, whenever the opportunity offers, to indulge in any of the out-door sports. He can row, play tennis or golf, or enjoy a bicycle ride. There is one chief objection to the bicycle. As yet I have not seen what I consider a proper saddle. Nature

intends when we are in a sitting position that the tuberosities of the ischii should receive the weight. The modern bicycle saddle allows the greater part of the weight to fall upon the perineum. This is especially disadvantageous for lady riders. The ease with which a bicycle can be driven tempts one to ride too fast and too recklessly. Steep hills should be avoided as they call for too great a strain upon the heart.

Whatever the form in which exercise is taken, over-exertion should always be avoided. But over-exertion should not be confounded with the natural fatigue which one feels after a long walk, row or ride. That is but the natural result of a well-regulated and healthy exercise, and it demands but one treatment, namely, rest.

Rest is one of the important parts of physical training. The hard-working man, who can or will take his hour's rest at noon, does better and more satisfactory work during the remainder of the day. The man who gets his seven or eight hours of sleep during the night, wakes up ready and eager for his day's work to begin.

But in the face of all these facts and suggestions, one is constantly confronted by the statement that there is Mr. "So and So," who is perfectly healthy, and yet he has never taken any exercise in his life. All that can be said in reply is that a man who has been blessed with a good constitution can apparently abuse it with impunity. The effect of his life, however, can generally be seen in the constitution of his children.

Looking at physical training from a selfish standpoint, it does not always appear to be a necessity to an individual blessed by nature with a good constitution; but looking at it from the standpoint for the welfare of mankind, it becomes not only a necessity, but also an obligation.

I have purposely omitted the consideration of the practical application of physical training to the students in our schools and colleges, for I consider it of too great importance to be hurriedly passed over in a general paper of this kind.

In conclusion, allow me to add that while I know that physical training cannot do everything for the human body, I do believe that it will greatly assist in youth the acquirement of health, and later in life will so aid the preservation of strength as to give greater power for the postponement of the inevitable end, which according to the laws of nature must sooner or later come to us all.

Clinical Department.

A REPORT OF CASES IN WHICH THERE WAS OBLITERATION OF THE ANTERIOR TRANSVERSE ARCH OF THE FOOT.¹

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

ONE year ago the writer presented a paper to the Society for Medical Observation, upon the subject of the anterior transverse arch of the foot and the relation of the obliteration of this arch to certain conditions and symptoms which had previously received very little if any attention. Particular emphasis was put upon its relation to that condition which is known

¹ Read before the Boston Society for Medical Improvement, March 18, 1895.

by the name of metatarsalgia. This paper was afterwards presented at the meeting of the American Orthopedic Association, which was held in Washington in May of last year, and was published in the *Boston Medical and Surgical Journal*, September 6, 1894.

The presence of this arch was proven anatomically by a series of dissections and frozen sections, which were made through the kindness of Professor Dwight of the Harvard Medical School, and clinically by the study of impressions of normal and abnormal feet.

The variations and changes which occur in the transverse arch and the symptoms which are associated with these changes were described at some length, but because of the limited number of cases which had been studied and from which the deductions were made, the conclusions were in part theoretical. It is partly for this latter reason, and also with the desire to give added emphasis to the opinions which were offered at that time that this series of cases is reported.

In all there are 14 cases, most of which have been seen by the writer during the past year. In each of the cases the anterior arch was obliterated, and the symptoms were entirely relieved (and that almost immediately) by restoring the normal relations of the bones which form this arch. Four of the cases were men, while the remaining ten were women. In eight of the cases the anterior arch alone was affected, while in the other six there was flattening of the longitudinal arch as well. In ten cases the chief symptom was pain referred to the anterior portion of the foot. In about half of this number the pain was of the sharp paroxysmal type, while in the remainder it was less acute, but as a rule more constant. The paroxysmal pain was usually developed by walking or standing, and was at times so severe as to prevent locomotion. In one case the pain was worse when the foot was at rest, relief being obtained by motion. The seat of the pain varied considerably; but in the majority of the cases it was located about the head of the second or third metatarsal bones. In two cases it was referred to the toe; in one to the extreme end of the toe, at the corner of the nail. In but one case was the pain assigned to the head of the fourth metatarsal bone.

In six of the cases a well-marked callus had formed in the middle of the ball of the foot, due to the increased pressure at that point; and it was chiefly because of the difficulty in walking due to the sensitiveness of this callus that these patients desired treatment.

In two cases the foot had become so wide from the giving way of this anterior arch that the pressure of the shoe against the first and fifth metatarso-phalangeal articulations had caused marked redness and sensitiveness at these points.

The age of the patients has no special significance, other than showing that it is essentially a disease of adult life. The youngest patient was about twenty years of age, while the oldest was nearly seventy.

The treatment of this condition has been most satisfactory; and the relief that is obtained, at times almost instantaneous, has been as much of a surprise to the physician as to the patient. The treatment naturally consists in restoring the bones to their normal relations, that is, the re-formation of the arch. This has been accomplished in several ways; the simplest method, and that which has been adequate in the majority of the cases, is the use of a felt pad that is

incorporated into a leather inner sole and which can easily be slipped in or out of the shoe. The position of the pad varies but little, and it should be placed under the second and third metatarsal bones just back of their articulation with the phalanges. The thickness of the pad, however, does vary; and it may have to be changed several times before the correct thickness is determined. A very thin piece of felt should be used at first, to which more can be added from time to time if necessary. In placing the pad care should be taken to avoid pressure directly upon the heads of the metatarsal bones, as the discomfort in walking with the pad in this position is very great; and if the callus is present, the pain will be aggravated.

This simple procedure has proved to be enough in the majority of the cases; the pain is relieved and the callus, from the change in the point of pressure, rapidly disappears.

Occasionally some lateral support is needed, particularly in the cases in which there is irritation or sensitiveness about the great or small toe joint. For this purpose a circular bandage applied very tightly so that the pressure comes wholly behind these joints has given the greatest satisfaction. At times the pad and bandage have been used together.

Besides this mechanical treatment special attention should be given to the muscular development of the part affected. Exercises should be given to strengthen practically all of the muscles of the feet, more special attention being paid to those which have to do with the maintenance of the transverse arch. Beside this, stimulating bathing and massage are of value, not so much with reference to the immediate as to the permanent relief of the condition.

If with the obliteration of the transverse arch the longitudinal arch also has given way, this should be corrected, the plate being attached to the same inner sole with the anterior pad.

The diagnosis, to briefly recapitulate from the paper of a year ago, is to be made from the subjective symptoms; pain in the anterior portion of the foot, with the callus under the centre of the ball of the foot; from the tracings which are more or less characteristic; and from the widening of the anterior portion of the foot.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Concluded from No. 22, p. 541.)

LAMINECTOMY FOR THE RELIEF OF PARAPLEGIA.

J. A. WYETH,¹⁵ reports six cases, all of which recovered from the operation. The technique he preters is a free incision just over the spines, division of the attachments close to the bones with dull scissors or the elevator, strong retraction, and iodoform-gauze packing to control and arrest bleeding. When well exposed, the laminæ are gnawed away in bits first by the round rongeur, and when an opening is effected, by the more rapid cutting fenestrated rongeur. When exposed in full length of the injured region, and all bleeding stopped, the dura is carefully punctured with a scalpel, and as the first few drops of

¹⁵ *Annals of Surgery*, August, 1894.

cerebro-spinal fluid escape, the grooved director is inserted and the dura split open in the middle line. This membrane should be closed by a careful continuous catgut suture. The muscles are sutured by subcutaneous catgut sutures, and the skin incision closed by silkworm, leaving a wick of iodoform gauze running from the dura out of the lower angle of the wound for drainage. Dry dressing over all. Each of his cases healed without suppuration. The outflow of cerebro-spinal fluid continued from two to four days in all but one case, in which it leaked out for several weeks. From his experience he concludes:

(1) The operation offers no great difficulty or danger.

(2) Paraplegia justifies exploration, and this should be done early in all cases where no improvement is marked. The degenerative changes, which occur from compression which has not divided the cord, add to the urgency of early interference.

SACRAL OPERATION TECHNIQUE.

Borelius has by clinical experience formulated the conclusion that the Rydygier method requires modification on account of its interference with the innervation of the bladder.¹⁶ Incidentally he found it difficult to remove the upper part of the vagina when involved by carcinomatous infiltration by extension from the uterus. He devised a modified operation—a posterior sacral operation for exposure and resection of high-seated rectal growths, and an anterior sacral or para-rectal operation for exposure of the female genital organs.

The posterior operation consists of a skin incision in the median line from the middle of the sacrum to the tip of the coccyx and obliquely outward, to the right, along the border of the gluteus maximus muscle. The tendinous origin of this muscle is divided, and this skin-muscle flap reflected to the right. The left side of the sacrum is now exposed, and with a broad chisel is cut through obliquely from the fourth sacral foramen on the right to the third sacral foramen on the left. The right border of the coccyx and this bony flap are reflected to the left with the whole anal area. Then the rectal resection and suture is made in the usual way. The wound cavity is tamponed with gauze. The bone flap is replaced and fastened by a few sutures through the periosteum. The upper part of the skin wound is sutured; the lower, along the edge of the gluteus, is left open for the end of the gauze tampon. By this method the paralysis of the bladder which occurred when the third and fourth sacral nerves on both sides were cut was avoided. In three patients the Borelius method resulted in immediate union of the bone flap. In no case did paralysis of the sphincter ani or bladder occur. The great ligaments of the sacrum are preserved on both sides. In two cases a fecal fistula remained.

The anterior sacral or para-sacral operation consists of a skin incision from a point in the median line about two centimetres above the sacro-coccygeal articulation, forward and somewhat to the left, past the tip of the coccyx, and across the ischio-rectal fossa to a point three to four centimetres anterior to the anterior margin of the anus; then towards the median line near the posterior vaginal commissure. The left border of the coccyx is exposed. The sacro-coccygeal joint is cut or chiselled through. The anterior part of

the incision is deepened into the ischio-rectal fossa till the flap with the coccyx and anus can be reflected to the right. The vagina is now separated from the rectum and opened. It is divided horizontally below the tumor which with the uterus is freed from below upward in the usual way, and removed. The peritoneum is sutured and the remaining portion of the vagina. The wound cavity is tamponed (iodoform gauze), and the coccyx sutured in position; the tampon is brought out behind for drainage, and the rest of the wound closed by deep and superficial sutures.

The above method has been used in four cases. The coccyx has always united. The preservation of the coccyx preserves the muscular attachment between it and the anus in which this method is superior to the latest Hochenegg method. There has been no death.

A ureter was once included in a suture, but it was noticed and freed. Borelius, on account of the sacral nerves, would never resect the sacrum higher than the lower border of the third foramen on one side and the fourth on the other.

INFLUENCE OF CICATRIX IN THE PRODUCTION OF ATROPHY, AND ITS UTILITY IN SURGERY.

In an opening address to the Nottingham Medico-Chirurgical Society, T. Pridgin Teale,¹⁷ reiterates a proposition that he made some years ago, which is of interest. It is, "that tissues which depend for their nutrition upon vessels passing through a cicatrix have a tendency to waste, a tendency which often does not become evident until some time has elapsed from the completion of cicatrization, and may continue for months, or even years, until in some instances the dependent tissue fades away completely."

He illustrates this proposition by a number of cases, and speaks of the influences of cicatrices upon nevi, thyroids and prostates. It is a suggestive address.

THE TREATMENT OF IMPACTED EXTRA-CAPSULAR FRACTURE OF THE NECK OF THE FEMUR.

F. A. Southam,¹⁸ in an interesting article, states that the treatment usually adopted in cases of impacted extra-capsular fracture of the neck of the femur consists in simply keeping the leg at rest, without making any attempt to overcome the characteristic deformity, namely, the shortening and eversion of the limb, always present in a greater or less degree. As might be expected, the result in most cases is very unsatisfactory, for the leg remains permanently more or less shortened and everted.

With a view to preventing, if possible, this result in a case recently under his care in the Manchester Royal Infirmary, the impaction was at once broken down under anesthesia, and, the eversion and shortening by this means having been overcome, the fracture was then treated in the ordinary way, extension being maintained by means of a weight attached to the leg, a long straight splint being applied to the outside of the limb. The consequence was that the fracture readily united with the limb in the corrected position, no deformity remaining.

The satisfactory result obtained by Southam by breaking down the impaction, would lead him to again adopt this treatment under similar circumstances, provided that the patient was of good constitution and not advanced in years.

¹⁶ *Centbl. f. Chir.*, 1895, Bd. xxii, 57.

¹⁷ *Lancet*, October 27, 1894.

¹⁸ *Ibid.*, November 17, 1894.

STERILIZATION OF CATGUT BY BOILING IN OLIVE OIL.

B. L. Eastman,¹⁹ of Kansas, U. S. A., has tested the above method, and states that as the result of his investigation catgut can be rendered sterile by heating in olive oil at 212° F. for three hours. The method is cheap, reliable and rapid. The quality of the gut is not impaired. For some reason the oil thus boiled becomes turbid, but is clear again after two or three days. The boiling is done over a water bath. The gut is wound on a glass spool which is placed in a bottle containing the oil. The bottle is sealed and placed in a water bath, which is then covered. It is exposed to the temperature of the boiling water in this way for three hours. The boiling point of the oil is stated as about 400° F.

THE USE OF SULPHUR IN SURGERY.

Mr. W. Arbuthot Lane²⁰ summarizes a year's experience, and comes to the following conclusions: (1) Neither sulphur nor the products generated by its decomposition acted prejudicially upon the life or health of the individual into whose body it was introduced. (2) If placed in contact with recently incised healthy tissues, twenty-four hours sufficed to render the parts sterile as far as organisms are concerned. (3) If the recently incised or scraped surface were but poorly supplied with blood, as, for example, the brawny edge of a carbuncle or a spreading gangrene of a limb, sulphur might be left in contact with the tissues advantageously for a considerably longer period. This also applies to a granulating surface. (4) The entry of other organisms into a tuberculous cavity did not influence the action of the drug, since it destroyed all organisms, whether free in the cavity or intruding into the surrounding living tissues forming its wall.

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Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, March 18, 1895, Dr. C. J. BLAKE in the chair.

DR. W. A. BROOKS, JR., read a paper on

THE EDUCATIONAL ASPECTS OF PHYSICAL TRAINING.¹

DR. E. N. HARTWELL: I have been very much interested in Dr. Brooks's paper. He has pointed out some things with regard to what seem to me the privileges of the medical profession that may help the cause of physical training very much. It is to the physicians rather than the school committees and legislatures, it seems to me, that we should look to instruct the public as to their duties in this matter of physical training. I should not include under the term physical training quite so much as I understand Dr. Brooks to do. It seems to me that many of the procedures of which he speaks are only indirectly connected with physical training in its proper sense and would be more properly classed under the head which the "Index Medicus" terms personal hygiene or individual hygiene. I should not quarrel with him on that ground. It does seem to me though that the conception of physical training which has been borne in upon me is sufficiently inclusive. I should prefer to define physical training as the more or less systematized employment of muscular exercise for general or special ends. If we appreciate what that includes, we see that physical training enters not only into what may be called the two great departments of physical education, athletics and gymnastics, but also into all technical training, like the training of the hand, training of the body in the military drill, training of the hand in violin playing, writing, etc., the use of the vocal organs and so on. The teachers and exponents of such specialties might well understand the physical training element in them and the means by which they can best secure their particular ends.

It seems to me rather desirable, in the interests of the more formal physical training which Dr. Brooks especially disclaims the intention of covering by his paper, that those who are most especially interested in

¹⁹ *Annals of Surgery*, 1894, vol. xx, 56.

²⁰ *Lancet*, December 1, 1894, p. 1280.

¹ See page 562 of the Journal.

having the legitimate claims of physical training recognized and its spurious claims disallowed—I mean those of us who are called upon to teach and apply the principles of physical training in general education—should strive to have it kept separate in thought and practice from particular forms like vocal culture, military drill, Sloyd, and the like. It would be hard to estimate the loss which physical training has undergone in this community from the fact that the school committee after it established physical training in the early sixties combined it with vocal culture, and placed it under the control of a man who was a very successful voice-trainer, but not in any proper sense a physical educator. The department fell to pieces, expeditiously and naturally. We have not yet recovered from the ill effects of that ill-advised experiment, it seems to me.

Again, it is better to confine it in this way, because then those who are the practitioners of it, the drill-sergeants and leaders of companies and regiments, can be the more readily and distinctly kept within the limits of their special and particular province. It is not the province of gymnasts properly speaking, Swedish or other, laymen or laywomen, to practise medicine in the way that many of them strive to undertake it now. To a certain extent I think that is due to the fact that their field has not been sufficiently mapped out and control over it assumed by the medical profession.

So far as I can learn, in the earliest expression of an interest in physical education made by a Bostonian the term was used in a very broad sense, broader than I should say that Dr. Brooks would be willing to attribute to it. The expression occurs in "A Discourse on Cold and Warm Bathing," by Dr. J. G. Coffin, published in 1818. "Let us remember," he says, "that the great purposes of physical education are to superintend the infant body, to favour its development and progress in childhood and youth, till it is completed in the man,—and then to preserve in health this complicated machine fitted and prepared for all the duties, labours and enjoyments of the animal, intellectual, and moral life." In the *Boston Medical Intelligencer*, which was devoted expressly to "The Cause of Physical Education and the Means of Preventing and Curing Disease," and belonged to Dr. Coffin, the nature of the baby's bath, whether or not pins should be used in the baby's shifts and such matters were discussed by Dr. Coffin under the head of physical education. His journal started in 1826, I think. In two or three years it was combined with another medical journal, resulting in the establishment of the *Boston Medical and Surgical Journal*, by which title it has been known ever since.

Some of the colleges have a professorship of Hygiene and Physical Education. Dr. E. Hitchcock has served Amherst in that capacity since 1860. He has charge of the gymnasium and lectures to the Freshman class upon the general rules of right living. This is supplemented later on by lessons in physiology and hygiene; and practical and pointed talks in regard to various departments of life, including the married and unmarried states, are given to the students in the Senior year. Since the establishment of departments of physical training (so-called) in many of the colleges under the charge of physicians, customs similar to the Amherst custom have doubtless increased. For instance at the Leland Stanford Uni-

versity, the head of this department is a regularly constituted member of the faculty, and has charge of a rather enlarged department of general hygiene. But so far as I know, the kind of course which Dr. Brooks favors in medical schools has not been provided in that class of institutions. I think we have but one hygienic institute worthy of the name connected with a medical school. It is in Philadelphia, and it is devoted to general hygiene. A thorough-going and genuine course in school hygiene or in personal hygiene is nowhere provided, I believe. Indeed, I do not know that there is a professorship of personal hygiene in any of the European medical schools.

The health of the school population seems to me to be worth considering from Dr. Brooks's point of view. According to Dr. Harris, the United States Commissioner of Education, in 1890 about 23.5 per cent. of the total population of the United States was found in schools of some sort; 96.5 per cent. of the school population was in elementary schools, only 2.5 per cent. was in secondary schools, and less than one per cent. was in institutions of superior instruction, including professional schools, colleges and the universities. Now to this great mass of children who never reach the secondary schools, who terminate their school life before established adolescence has set in, we, as believers in preventive medicine and general hygiene, ought to pay more attention than we do, it seems to me.

Not many years ago after some wrestling with certain legal questions, an instructor of hygiene was appointed for the Boston schools. It was the opinion of the law officers of the city that a sanitary inspector could not be employed except by the City Board of Health. It seems to me that the experiment was a very instructive one. The duties of the instructor in hygiene were laid down in a way; at the same time they were quite mixed and indefinite. He was practically tied hand and foot as to power and initiative. The result was that there arose a gust of the odium theologicum, and the office was abolished.

Owing to the impression made by an extensive epidemic of diphtheria, Dr. Durgin, President of the Board of Health, has been enabled to appoint fifty medical inspectors to visit the schools daily. It seems to me that this is a move in the right direction. No one man picked out of the ranks of the medical profession can oversee and attend to the multifarious and diverse duties of a medical, sanitary and hygienic Poobah. We have in the first place this enormous mass of population which constitutes the largest contingent of the industrial army of the United States. Schooling is certainly sedentary in its nature, and it lasts so many years that you may call it a sedentary occupation. The State owes it to itself that this population shall not constitute a menace to the public health. If the public health is to be properly guarded, we should have public health officers rather than State police to see that school-house sites are well chosen, that drainage is all right, that heating, ventilating and other apparatus is of a proper sort, and properly used. No ordinary physician is competent, as a rule, to pass upon questions of sanitary engineering which come up in planning, erection and furnishing of school-houses; hence, I think, that public health officers and sanitary and architectural experts have their duties to perform in the matter of preserving the health of the children after they are in

the schools. Even then there is room for a special inspector or director of school hygiene—call him what you choose—whose business it should be to see that the teachers carry out such reasonable rules as may be laid down by the public health officers, sanitary experts and school officials acting together; because the practices and procedures of the school-room which affect the eyes, ears, brains and muscles of the pupils, constitute a special branch of school-hygiene and should be recognized as such. These three classes of experts working together could regulate the gymnastics, the plays, the games and the school-life of the children in the interest of public health and their own health, and in the interest of school-work at the same time.

Opportunities for the thorough training of such experts are not easy to find. I do not think they are found anywhere in the United States at present.

I have had the curiosity this afternoon to look through the "*Zeitschrift für Schulgesundheitspflege*" to see how far this matter of hygiene and school hygiene plays a part in the training of European teachers, and to see how far, if at all, the universities have taken measures to provide genuine and adequate facilities for instruction in this branch. I have been rather surprised to find that a good deal has been undertaken in this direction. In 1888, in the hygienic institute in Berlin the head of which is Dr. Koch, two courses were given in hygiene, one for government officials and another for school officers; and Dr. Koch, Dr. Esmarch and others took part in the instruction given in that year, and the courses have been pretty regularly repeated since then, I think. The university of Bern, in Switzerland, instituted a special extraordinary professorship in school hygiene alone in 1890. The Hygienic Institute at Naples, a government affair, in 1889 was resorted to by 34 physicians, 8 apothecaries and 4 engineers. A notable requirement regarding the study of hygiene is that which was ordained in Sweden in 1889, to the effect that after April, 1890, all aspirants for a licentiate's diploma, with which most Swedish medical men are content, would be required to take a two months' course at the Caroline Institute at Stockholm. It became an obligatory part of the State examination requisite to the practice of medicine, and to make room for it the clinical courses on the diseases of the nervous system and the eye were cut down from eight to six months.

Within the last few years much activity has been shown in improving the opportunities for teaching teachers the principles of hygiene in general, and of school hygiene in particular, in various parts of Europe. For instance, in Austria in 1891 and 1892 instruction in hygiene, in the training-schools for teachers, was authoritatively and definitely put in the hands of educated physicians, instead of being left to the ordinary teachers. These are some of the subjects included in the line of study laid down for normal pupils: air, earth, water, food, clothing, explanation of the structure and functions of the human and animal body, infectious diseases, disinfection, first aid to the injured. The following special topics indicate the meaning given to school hygiene: the school-house and the school-room, school-desk and school-table, faulty methods of sitting, the duration of instruction, intermissions, school games, various school diseases, their causes and remedies. In 1893 the Prussian Minister of Education issued certain regulations with regard to the con-

duct of courses in hygiene for public officials of various sorts, whose duties would be better performed if they were well informed in that subject; these regulations relate to the course given in the hygienic institutions of the universities of Berlin, Kiel, Königsberg and Marburg. In Bern, Giersen and Leipzig university courses were delivered, and in other places lectures were given, to the candidates for teachers' positions in 1893.

It seems to me vain to look for very much help at present from the purely philosophical faculties of our universities and the colleges. Such faculties have been so taken up and overcome by the rank growth of certain branches of physical training, notably in the athletic field that they are rather paralyzed even were they quick and willing to see what should and might be done both in the way of providing scientific instruction in the different branches of hygiene of which we have spoken and towards regulating and improving the departments of athletics and of gymnastics. It would seem that our humanists and classicists have scarcely apprehended the old Roman notion which underlaid the custom of placing S.V.B.E. "if you are well, it is well" at the beginning of every letter. If those who control our colleges would take to heart the meaning of the saying of Seneca, "Non est vivere, sed valere vita," we might look to them in a way we may not now to help forward this cause of personal hygiene and physical training. As one generation after another of athletes leaves college and enters adult life, they should be clear-sighted enough to see how much needs to be done and how much can be done for the health and strength of the rising generation. Their help is needed. I welcome Dr. Brooks's contribution very much because of his standing as an athlete. Hitherto those who have been most interested in school hygiene and in the work of the directors of physical training in such colleges as have attempted to organize such departments have not received much sympathy or aid from athletes as a class. I have thought sometimes they have not received nearly all the help they were entitled to from those who devote themselves so vigorously to boating and baseball and football. I venture to hope that Dr. Brooks will have many followers.

DR. H. P. BOWDITCH: Dr. Brooks in his paper has emphasized particularly one side of the question of physical training, namely, the importance of the training of the individual, which Dr. Hartwell calls the question of personal hygiene, and there is no doubt that every one who has listened to him has felt convinced that a course of exercises such as he has described would be a very desirable thing for almost all of us, and yet I should like to ask whether he does not think that sometimes there are cases in which those forms of gymnastic training are objectionable on account of the lack of interest which the individual takes in them. I have had persons say to me: "I do not doubt I should be better, in a way, for going to the gymnasium and taking physical exercise, but it is so repulsive, I bore myself so for the sake of the exercise, that I find it very difficult to overcome that feeling." In such a case a brisk walk in the open air is perhaps quite as good for the general health.

Another question is: How are we going to limit the amount of exercise which may be profitably taken? Is it possible in any way to lay down a rule for different people to follow? It seems to me that we all of

us have got to be more or less a law unto ourselves in that respect. A certain amount of development of the physique is, of course, essential to every well-regulated body. There is no question that the mind works better in a vigorous body. The close relation of the development of the physique and the development of the mind has been proved in many ways, perhaps in no way more clearly than by Dr. Porter's investigations in the St. Louis schools, where he showed clearly that the children best developed physically were also more advanced in their school work. There was a parallelism in the mental and physical development evident in that way. But at the same time what is a reasonable development for one person would be an excessive development for another, and the question of early habit becomes very important in this respect. I should like to ask Dr. Brooks if he does not feel it is quite possible in early youth to devote so much time to athletic training that much of the subsequent life has to be spent in keeping up the physique one has built, whereas the general health and capacity for doing work might be as good with less physical development, and this large physique secured by training may be a source, not of weakness, but of loss of time which could be better spent in some other way.

There is another subdivision of the subject which has attracted my attention perhaps more than any other, and that is the duties of those who have charge of universities and schools with regard to securing proper training and development of the classes which come under their control. Here certain rules must be established. The children are in classes. Certain definite rules must be laid down, and the responsibility becomes very great upon the officers of instruction. They cannot afford to neglect the physical training of their pupils, and the question is, What general rules can be adopted to enable them to be developed in the proper manner. And here it seems to me the first thing to be borne in mind is that in the healthy child the opportunity for exercise is about all he needs. If you give him a chance to exercise his body, he will exercise it as much as is good for him, and he only needs to be restrained. This fact has been lost sight of in a nation which has set us an example in so many branches of education, namely, the German. I have spent a number of years in Germany and have had occasion to observe the school children in that country; and if you examine the children between eight and twelve, they are very far from presenting that degree of physical development which the children of a corresponding age have in this country or in England. It has seemed to me that, in consequence of the demands of the school curriculum, most of the German children have very little vitality left after those demands are satisfied. When the school hours are over they wander home listlessly with none of that freedom and desire to exercise their bodies which is so conspicuous in school children let out from school with us. This impressed me so much that I spoke of it to a German friend, and asked him whether I was wrong in thinking that the curriculum made too much demand upon the German school children. He said: "No; you are right, I have young children of my own now, and I am looking round for a school where they teach just as little as possible." When I hear the German schools lauded and held up for examples for us to follow, I say to myself: There is no ques-

tion that these schools have carried book-learning to a much greater extent than we have: a German child at fourteen knows a great deal more that is contained in books than our children do, but he has lost something which our children have—that vigor of physique which comes from the opportunity to exercise, and furthermore with it has come a capacity for applying knowledge, I think, in a way which the German child does not possess. A German well-trained school boy will know a great deal more that his books have told him, but will not compare with the American school boy in power to apply his knowledge in unforeseen circumstances. I think that knowledge of life in the child of fourteen is vastly greater in the case of the American child; and this is largely due in my opinion to the fact that our school-children's brains are not overtaxed. No doubt they might do more than they do, but we must beware of pushing the requirements of the preparatory schools too far. The Germans are becoming conscious of this defect themselves, for the opinion of my German friend was not an isolated one; and now it is not an uncommon thing to see the German school children marched out twice a week in the afternoon to a field in the neighborhood of the city where they live and allowed several hours for play, but all is done as part of the school curriculum. They do not know how to play. It is rather pitiable to see the little children take off their eyeglasses and wipe them and wonder what they shall do next. We can learn a lesson of how not to do it, I think, from our German friends.

When we come to the higher schools and universities, it seems to me that there we should take for our guide the fundamental fact that the training of the body is just as important and should be placed upon the same basis as the training of the mind. If we recognize as part of the university education the proper training of the body, the teacher in that department should be a member of the faculty, should have his work recognized as part of the curriculum, and should be able to encourage pupils to come to him with the idea that their attendance upon his instruction will be regarded just as much to their credit as time spent with any other instructor in the university. It might not be possible to shape a series of required courses and electives and honors in gymnastics as in mathematics and the classics; but something of that sort should be attempted. There is no question that if a boy who comes to college with a poor physique, perhaps with some defect in his physical development, goes through college and by strict attention to the rules laid down by his teacher in gymnastics develops into a strong man, he deserves credit for the good qualities he shows just as much as the boy who obtains honors in mathematics. He must show fine moral traits, determination, self-sacrifice and persistency in accomplishing his object to attain this. If we get physical training put on that basis we shall be in a fair way to solve the problem, which each year presents itself with more and more force, controlling the growing tendency of students to devote too much attention to athletics. From the point of view of the university authorities, success in athletics ought to be a matter of absolute indifference. There is no reason why the university authorities should care whether Harvard or Yale wins: it is their business to give their pupils as good physical development as is desirable to enable them to accomplish the results for

which they come to the university, namely, the development of the mind in the best possible way, not training their physique to an excessive point, for we must remember that we have only one nervous system and if we devote all our nervous energy to the development of the muscles we shall not have it to develop the brain: When the authorities recognize this, and put the matter of gymnastics on a level with the other branches of the curriculum, it seems to me we shall be in a fair way to answer a great many of the questions which now present themselves with very little hope of a speedy solution.

DR. SARGENT: I have been greatly interested in listening to Dr. Brooks's paper, also the discussions that have followed it. Dr. Brooks took me back to the time when I had to decide in my own mind whether to engage in the practice of medicine or to take my studies in medicine preliminary to the work to which I have devoted my life; and it is certainly gratifying to me, in recalling the experiences which I have undergone in the last fifteen years, fighting the questionable tendencies of athletics at first almost single-handed, to hear the comments I have listened to this evening. For a long time I have thought the medical profession was a little bit benighted on this question. To me physical training is nothing but applied physical hygiene. I have given suggestions and hints to that end to the young men who have come under my observation. Unfortunately for the cause of physical training, this subject of athletics has assumed undue importance. No doubt our colleges have allowed this subject to assume a bias in the wrong direction. They have encouraged the spectacular and sporting side of the subject and almost ignored the hygienic and educational aspect. They have nursed and fostered the highest grade of scholarship and extreme athleticism. These are incompatible in the same individuals; therefore the athletes and scholars are contending for fame in opposite directions, one class is striving for distinction by the supreme efforts of the mind and the other class by the supreme efforts of the body; and in my opinion neither class is doing what it ought for the advancement of education in its broadest and noblest sense.

It seems to me time to return to the old Greek idea of unity in development, unity in education, and to take a rational view of the claims of both body and mind, and educate them both together. I see no way of doing this but by recognizing physical training, and putting it on the same footing as any other department in college. When we consider one or two phases of this whole movement, to me it is simply shameful. Harvard and Yale to-day are each spending over \$50,000 a year, and employing thirty men, to bring fifty stalwart fellows into condition to meet their foremost rival. On the other hand, the departments of physical training in each institution are spending one-fifth of that sum, and have one-fifth that number of men, to look after the physical training of the remaining students — 98 per cent., or about 3,000, at Harvard University. Now the absurdity of this position is only paralleled by assuming that some few well-chosen speakers should be selected and trained for the rhetorical contests, and the rest of the students be excused in order that they might attend the rehearsals and applaud the progress of their companions. It seems to me that this is radically wrong. In making this assertion I want to remove from your minds, how-

ever, the idea that there is any institution in this country that is carrying physical training to excess. If you could have an opportunity of meeting all of these men as they come to the college from the preparatory schools, see them in a state of nature, how impoverished they are — with poorly developed chests, crooked spines and emaciated limbs — you certainly would not consider that physical training was being carried to excess. In fact, I invite you to come to Harvard and look over the photographs of these men, and I think you will be prepared to meet the argument that physical training is being carried to excess in any of our institutions. On the other hand, our scholarly men are suffering for the need of systematic physical exercises, and the majority of our students at the present time do not show permanent signs of gain. Until our scholarly men are encouraged to attend the gymnasium in view of aiding their mental development, and not consider it, as many do, something detrimental to the best intellectual efforts, and when the majority of students can show improvement in their physique, it seems to me it will be time to talk about an excess of physical training. It is a misfortune to have an athletic question and a physical-training question coupled together in the minds of our people. It seems to me the thing for us to do who are interested in the physical welfare of students is to use our utmost effort in the direction of staying the tide of this concentrated athleticism, and try to give to the masses something of the time and the energy now devoted to the special training of the favored few.

DR. CHANNING: In regard to the amount of physical training in the female colleges; at Wellesley there are 800 girls, and out of that number about 250 in the Freshman class, and for those girls physical training is compulsory. This year a movement has been made to have the training continued into the Sophomore class; but that is at present all the compulsory physical training that there is at Wellesley. The girl has a start, and then it is stopped and the balance of the time is passed without anything done in that direction. At another college in this State where there are 200 girls, practically nothing whatever is done. There is such a tremendous difference in the amount of attention that is paid to the girls in their colleges and to young men in theirs, very little or nothing being done in some of the former. I am told that in the English colleges for women they spend on the average about five hours a day on their studies; the rest of their time they can devote to out-of-door sports, recreation and exercise, whereas in one of these colleges here in our State the girls devote nine hours a day to their studies, and practically have very little or no time for out-of-door exercise or sports or gymnastics. It seems to me the subject in the end is very much broader than perhaps we usually consider it. Physical training is simply a means to an end and such discussions as these are an assistance in helping to illustrate what can be done; but the great difficulty is that we are constantly talking about it, but do not know how to practically apply it. That is the case in these colleges for girls. I recently talked with the head of one of them where nothing is done, and she asked what should be the first step. Everything must eventually go back to the physical education of the child. That has got to be the starting-point of our efforts. The child starts in a fairly healthy way in the beginning of life, and we must incorporate into our system of education some

plan by which the child can be continued along the course in which he begins. After he gets to be two or three years of age, he is put under intellectual pressure which he is unable to bear, and then he begins to show signs of possible degeneracy; and although we are told that nervous diseases are not practically increasing much at the present time, yet we have this tendency that I speak of in children. The lesson for us to learn is that they are made of plastic material, and are not pieces of machinery. Let our physical training be used to develop this material along simple and natural lines.

DR. WHITE: It seems to me the medical profession can do something in this direction. I do not think we have done our duty by any means. We are constantly in our daily practice making inquiries of individuals as to how much exercise they take, and find how little they do take. Both the university, which is nearest to us, and the school committees which govern our children here, have very slight professional representation upon them. It seems to me the medical profession should attempt in some systematic way to exercise an advisory influence upon these non-professional persons who control the minds and bodies of growing children and younger adults of both sexes. I asked the president of our university not long ago why it was that proper physical training could not be made a part of the regular required routine at Cambridge. He could not give an answer satisfactory to me or, I think, to himself, and he said he did not see how it was possible to do it. Why is it not possible? When I was in college I was aroused at 6 o'clock for six months in the year and at 6.30 the other six months, and taken into a stone building and there spent twenty minutes. That was repeated in the afternoon. They have learned to abolish that requisite, but I think if they had required twenty minutes morning and evening of proper physical training of every student up to the present time there would be better persons living in this community now. I know if I do not give one half-hour of sharp exercise to myself twice a day I am not in proper condition to do my work, nor do I believe any one is. I do not see why the medical profession cannot insist on the governing bodies of our universities putting such a compulsory plan in operation. I do not see the slightest reason why it cannot be introduced into the training of Harvard College next year. I hope some time to see that done.

DR. HARTWELL: I would like to call attention to the Woman's College of Baltimore, which since its opening in 1890 has made it obligatory on all its students to practise daily in the gymnasium under proper supervision and instruction throughout their course. This they must do in order to get their degrees. A word upon the organization of the department may be in place. It was put in charge of a competent woman physician who had studied the best systems of European gymnastics. Her assistants in conducting the department have always been well-trained Swedish women, because the gymnasium was originally fitted with Swedish apparatus.

As to what the medical profession might do in aid of school hygiene I should like to allude to another point. It may not be generally known that it is practically a rule in the Boston schools, laid down by the department of public buildings, that the school-rooms shall not be washed, the reason being that it injures

the life of the floors. There are many school-houses in the city of Boston that have not been washed in twenty years. We have had many doctors on the committee, but they have done but little and that unsuccessfully towards changing this. I hope Dr. Durgin will take the matter up, and that the members of this and other societies will back him if he does. It seems to me that having saved the sum necessary to keep the floors clean for so many years, we can afford to keep them clean for the next five, at least.

DR. BROOKS: Dr. Bowditch makes the statement that some object to going through these exercises. All I can say in reply is, that many people object to taking any drug or following any course of treatment, notwithstanding the fact that that they may be benefited by it. All that the physician can do in such cases is to try to prescribe his medicine in as pleasant a form as possible. His exercise must be arranged with the same object. If the patient then refuses to follow his advice the responsibility of his health rests with himself.

Dr. Bowditch asked if I did not think the time devoted to exercise might be more profitably spent? In my opinion one hour a day devoted to exercise which makes a man feel better and gives him greater energy, could not possibly be spent more profitably. In regard to the early great development I think Dr. Bowditch is perfectly right, but I did not touch, as I remember, upon the subject of over-development among athletic young men. I do not think a moderate amount of early development compels a man to take any more exercise in the latter part of his life.

DR. BOWDITCH: I think I did not make my meaning quite understood. Dr. Brooks's last remark has partly answered the first question. The question was whether it was not possible for a man to develop himself so much in his early life that he will require, in order to feel in good condition during the rest of his life, to take an amount of physical exercise which does not do him any harm, of course, but might, perhaps, if he did not have this big physique to take care of, be spent more profitably in other ways. I did not mean that any amount of time could be better spent than in securing one's healthful condition, but whether it was not possible to have a physique which required an undue amount of time, and in that way might involve themselves by a great development of the physique in youth in the employment of their time the rest of their life which might better be put in some other way.

DR. BROOKS: I can only reply to that from my own experience. I played football eight years and rowed seven years, and it was pretty heavy exercise. Two years after I left the medical school I took practically no exercise, and I think I suffered accordingly. During the past year I have taken exercise of a very light character, and I find that it requires a very slight amount to keep me in fairly good condition.

DR. VICKERY: Mayor Bancroft of Cambridge, a prominent athlete, said his exercise seems to keep him going now that he cannot take any.

DR. J. E. GOLDTHWAIT read a

REPORT OF CASES IN WHICH THERE WAS OBLITERATION OF THE TRANSVERSE ARCH OF THE FOOT.¹

DR. BRADFORD: When Dr. Goldthwait a year ago called attention to this subject, I think he added more than he realized, more certainly than I did, to

¹ See page 564 of the Journal.

what is an important subject. Since his paper I have had my attention called to a number of cases; and I think any one who has examined the matter will say that he is not only correct in his generalizations, but will recognize the value of this contribution to orthopedic surgery. I have here some impressions of feet from patients whom I have examined for various reasons, and these have been taken with the feet resting without pressure. I have also taken casts where the full pressure has been on, and it is evident that the transverse arch is practically a spring; when much weight is thrown the transverse arch is obliterated. These casts will show that the transverse arch varies in different feet. This one may be considered a normal foot. The other three are pathological, all showing the obliteration of the transverse arch. Now as to symptoms I should agree entirely with what Dr. Goldthwait has said, but I think I would take exception to his statement that the pain is so rarely over the fourth metatarsal. It seems to me he has confounded in his last two cases two affections, one the obliteration of the transverse arch, and the other Morton's affection, which is the pinching of the nerve through the dropping of the fourth metatarsal. The head of the fifth metatarsal being shorter than the fourth, when the fourth drops the head of the fifth pinches the nerve causing an intense pain. It has been my fortune to see ten of these cases besides cases where the pain was not localized but was more in the middle of the foot. To demonstrate this still more clearly I will pass around this specimen comparing it with this. Here is a case with a normal transverse arch. Here is a case where the head of the fourth metatarsal has dropped down and there is intense spasmodic neuralgic pain. Furthermore I cannot force the head of the fourth metatarsal up by pads or whatever means, and I am preparing to do Morton's operation of removing the head of the fourth metatarsal. If we compare this case with that case, and then compare this where there is dropping of the second metatarsal, I think you will see that although they can all be placed under the head of obliteration of the transverse arch, yet at the same time it is a different affection from the wedging of the fourth metatarsal downwards. Here is another specimen where the third and fourth are both lower.

DR. LOVETT: I have been very much interested in the question of the transverse arch since Dr. Goldthwait's paper, and I looked through a day or two ago some fifty or sixty tracings I have had taken of some nurses, and I found that the presence of the transverse arch could not be shown in more than one-fourth or one-third of the cases, and in the majority of the cases where it was absent, it did not give rise to any especial symptoms of discomfort. I presume that an abnormal foot exists in a larger proportion among nurses than among almost any other class in the community; and certainly the longitudinal arch in many of the cases was broken down, too, but the common absence of a transverse arch was very noticeable. With regard to Morton's disease, I could not help feeling as Dr. Bradford did, that that was perfectly well characterized by a definite pain located at the end of the fourth metatarsal; nor do I believe that in all cases it is caused by any breaking down of the transverse arch. The last two cases I have seen have had contraction of the plantar fascia and abnormally high transverse arch. A tracing I meant to bring showed a very well-marked

transverse arch in a perfectly typical case of the disease.

The cases of painful affection of the foot where the pain is wandering round in various places associated with breaking down of the transverse arch, have seemed to me more akin to the condition of flat-foot than to Morton's disease proper, which it seems to me has a perfectly definite symptomatology and which is associated with two definite conditions, as I have seen it aside from any change in the transverse arch — one, contraction of the plantar fascia, the other, breaking down of the longitudinal arch of the foot; and it seems to me the term Morton's disease should be confined definitely to cases showing pain at that one place at the end of the fourth metatarsal, because the pathology, as he described it, rested on that, as Dr. Bradford has explained, and in a certain number of those cases I feel sure that the pain is entirely independent of any breaking down of the transverse arch.

DR. DANE: I have been interested in Dr. Lovett's speaking of the cases in which the pain was located sharply at the point Morton had spoken of and yet showed a distinct transverse arch. Last winter I had two cases, both of women about forty, in which there was very excruciating pain, so much so, that one was obliged to sit down on the steps of a public building and remove the shoe. The treatment for broken-down transverse arch relieved the pain entirely, so that the woman has not had any since; and yet tracing showed almost an abnormally high transverse arch. Blocking it up with a pad in that way completely and immediately relieved the pain.

The method of taking the tracing which I employed was this: I smoked a sheet of paper with camphor, had the patient step on it with the entire weight. Another method was to smear the surface of the foot with Day & Martin's blacking, and have them bear the weight again.

DR. GOLDTHWAIT: Dr. Dane's case is, I think, similar to the cases of so-called acute flat-foot, in which the arch is still present, but with whom the pain is relieved by some support. I do not think the tracings of the transverse arch are invariably satisfactory. They are very suggestive, and to be developed most satisfactorily by having the foot rest lightly upon the paper. I have a series of tracings in which different degrees of weight were borne, which show the transverse arch gradually becoming obliterated as the weight was increased.

I seem to have caused some misunderstanding in using the term metatarsalgia. If Morton's disease is confined purely to the localization of neuralgic pain over the head of the fourth metatarsal bone, no one would take exception, but the term metatarsalgia has been used to describe neuralgic pain in the front part of the foot without more definite localization, for that reason I used the term. The one case in which the pain was located at the head of the fourth metatarsal bone, was entirely relieved and on the first application of the pad, similar to the one passed around; and the patient who had suffered a great many years and to whom the breaking in of a new pair of shoes was perfect torture, and dreaded as much as anything could be dreaded, is entirely relieved and has had no further trouble. I have no doubt there is a certain number of cases in which the nerve is pinched between the heads of the fourth and fifth metatarsal bones which may require operation.

AMERICAN MEDICAL ASSOCIATION.

FORTY-SIXTH ANNUAL MEETING, BALTIMORE, MD.,
MAY 7-10, 1895.

(Concluded from No. 22, p. 550.)

SECTION IN MEDICINE. — THIRD DAY (CONTINUED).

A PAPER having the title of

REPORTS ON TYPHOID FEVER — CONTINUED,

was presented by DR. J. E. WOODBRIDGE, Youngstown, O.

The writer has previously expressed his views as to this disease in the *Journal of the American Medical Association*, March 20, 1894, and there gives in full the remedies employed by him and their mode of application. He believes it is possible to avert death in every case and that if the treatment is commenced before the eighth day, the disease can surely be aborted. He does not believe there is in the cases he has reported any doubt as to the correctness of diagnosis, and he has the recorded testimony of a large number of physicians who have adopted his views. Out of 600 cases so treated by others nine have died; and of all the others the average duration of the disease has been only twelve days. He believes that the plan of intestinal antiseptics which he advocates eliminates the danger of perforation and hemorrhage and removes all the other dangers of the later stages of the disease. He believes that the latter results from a specific poison which may possibly be of a microbic origin.

As is known, his initial remedy is a combination of small doses of calomel, podophyllin, carbonate of guaiacol, eucalyptus and menthol in capsule. These he gives frequently so as to produce five or six characteristic passages in the first twenty-four hours. Diarrhea does not contraindicate their use. After the fever curve is brought down, the guaiacol is increased in amount and thymol added. Later the calomel and podophyllin are discontinued and the guaiacol still further increased. Full details are given in the article above referred to.

Several participated in the discussion, the general trend of which was one of scepticism as to the correctness of Dr. Woodbridge's views. Some had tried his remedies with good results, and noted that where the typhoid fever did not abort, it seemed to change its type to a purely intermittent or remittent form.

DR. W. E. QUINE, of Chicago, made the special point that in the light of our present knowledge no diagnosis could be regarded as accurate which was not guarded by the results of the examination of the blood and urine.

DR. WOODBRIDGE, in closing, made the still more remarkable statement that he did not confine his patients to bed but allowed them to walk about and come to his office for treatment (?). He allowed them steak and beef if they desired it.

The next paper was by DR. GEO. W. WEBSTER, of Chicago, on

THE DIFFERENTIAL DIAGNOSIS OF CHOLELITHIASIS.

Ten per cent. of all men, twenty-five per cent. of all women, and thirty-six per cent. of all the insane have gall-stones, but of all those so affected but one per cent. have any symptoms therefrom. Medicines are absolutely useless to dissolve these stones, and the

early diagnosis is a necessity as the cases should be sent to a surgical clinic rather than to Carlsbad.

All cases practically fall into two classes, first, those with the stone in the cystic duct, and second those with the stone in the common bile duct. Jaundice is the invariable accompaniment of the latter variety, and may or may not be present in the former.

In the first variety colic is the initial symptom. It is referred to the duodenal region, is sudden, of varying intensity, accompanied by nausea, vomiting, chill, fever, sweating and rarely convulsions. The pulse is frequent, small and soft. Collapse often ensues, with cramps in the voluntary muscles. Physical examination reveals a dilated gall-bladder, while in the second variety we regularly have an atrophy of this organ. The tumor dullness is continuous with that of the liver, and the mass moves with respiration. On auscultation the sound of the stones moving on each other can be heard.

Differential diagnosis of the variety lies between gall-stone, lead colic, malarial poisoning, renal colic, peritonitis, gastralgia and other abdominal tumors. The only positive evidence of gall-stones is to find them in the feces; but it must be remembered that after leaving the biliary passages they may dissolve in the bowel.

In the second variety, operation is more dangerous, though the reasons for the removal of the stones are more imperative. Persistent jaundice of varying severity signifies a movable stone. We have, as before, colic; bile in the urine, with evidences of cholemia due to the degeneration of the hepatic cells; diminution of urine and of urea; slight albuminuria; melancholia. The stools are scanty and clay-colored. The pulse is slow. We may have septic endocarditis, with blood disintegration. Vascular tension is low. The appetite poor and the tongue coated.

It is useless to make an anastomosis between the gall-bladder and the gut, leaving the stones *in situ* in the common duct. Moreover, the irritation from the latter may lead to malignant disease of the head of the pancreas.

DR. J. H. MUSSER, of Philadelphia, said he could not rely on the statements of the text-books as to the age at which cholelithiatic symptoms manifested themselves. While they were rare before thirty, he believed that they might occur as early as the fifteenth year, and related the clinical history of a case to substantiate this view. Attacks of abdominal pain coming on in early life were often misunderstood, but their continuance in later years, with additional symptoms, might show their real nature as to their origin from biliary disturbances. It should be remembered that pain was not constant in biliary obstruction. As to gastralgia, he believed that many cases supposed to be such were really of hepatic origin, though, of course, there could be a true gastralgia in neuropathic persons and in the form of a crisis in certain nervous diseases, as tabes.

The indications for operation he would find in renal inadequacy and the state of the red cells of the blood. After the latter had once fallen below 3,000,000 per cubic millimetre, subsequent disappearance was startlingly rapid. In one instance under his observation, the fall from 2,500,000 to 800,000 had occurred in a very few days. Cases of pneumonia and biliary colic were often confounded in their incipency; and in the latter the fever often assumed an intermittent type.

SECTION IN MEDICINE. — FOURTH DAY.

The session opened with the reading of a paper on
NEW METHODS OF PRECISION IN THE INVESTIGATION
OF FUNCTIONAL DISORDERS OF DIGESTION,

by DR. J. H. KELLOGG, Battle Creek, Mich.

In his methods, the writer follows the general rules laid down by Hayem and Winter, but has modified them in certain respects. The main problem is to estimate the abnormal conditions of the stomach. In the study of over four thousand stomach fluids he has found it possible to include all cases of disorder of the chemico vital processes of the stomach as regards proteid digestions into four general classes, hyperpepsia, hypopepsia, apepsia and dyspepsia. In hyperpepsia, the calculated acidity is above the normal. The significance of this is that the free HCl and combined chlorine are found in quantities sufficient to produce normal hyperacidity, there being excess of stomach work not regarding quality.

In hypopepsia free HCl and combined chlorides are not found in sufficient quantities to produce a normal degree of acidity. Here we may have a typical condition, or H without deficiency of HCl. In either the proteid digestion may be normal in quality or neutral chlor-organic compounds may be present and each of the latter types may or may not show fermentation.

In apepsia there is no normal proteid digestion. The characteristics are a neutral or a very slightly acid stomach fluid with or without fermentation.

In dyspepsia HCl and combined chlorides are present in sufficient quantities to produce a normal degree of acidity, with the same subdivisions as the foregoing.

Some curious results have come to light in the course of his study of stomach fluids. The old teaching of the physiologists is that not much sugar is present in the stomach during gastric digestion but he has found it present in the proportion of seven or eight grammes to one hundred cubic centimetres of stomach fluid. Soluble and unconverted starch often accounts for fermentation where there is hyperacidity.

DR. WEBSTER opened the discussion by stating that there was a want of knowledge as to what occurs in health and that in any given case we should try to determine first, the locality and second, the extent of the departure from health.

DR. KELLOGG stated, in closing, that he had found the chewing of dry food the best method of promoting the salivary flow. Stimulants of all kinds, however, would after awhile lose their power. A 1-4,000 strength of HCl would greatly lessen the salivary digestion in the stomach, would in fact practically stop it.

DR. I. E. ATKINSON, of Baltimore, Md., followed with a paper on

A CASE OF SUPPURATIVE PANCREATITIS, WITH
NECROPSY.

The patient was a woman aged thirty-five, the mother of two children, the one twelve years and the other six months old. She was first seen on December 2, 1894. Though still quite stout she had lost over forty pounds. Fifteen months previously she had an attack of hepatic colic with a secondary jaundice lasting over three weeks. No stones were found in the stools, the pain was constant but ceased abruptly. In September, another attack of colic occurred with secondary jaundice. The urine was dark and the

stools clay-colored. The pain gradually wore away and the jaundice also, but she gradually grew weaker and finally took to bed. Pain returned, though milder in character, with jaundice and the vomiting of stomach contents occasionally streaked with blood.

She was examined on the sixty-second day of her confinement to bed. She had vomited several days, almost without pause, a greenish fluid and the bowels were slightly loose. Singultus was annoying. In the epigastrium was an area of induration not movable or fluctuating. Its diameter was three inches in the median line and four-and-one-half laterally toward the left mammary line. Percussion gave a relatively dull note but it was not tympanitic in character. The lower abdomen was normal. The urine showed a gravity of 1.020 and a little sugar, but no albumin. Severe lancinating pains were felt with a point of greatest intensity under the xiphoid cartilage extending in the back between the shoulders. Respiration was rapid and of a purely costal type. There was a slight febrile movement but no chill and no sweating except about the head. All evidence of intestinal obstruction was wanting, in fact the bowels were rather loose.

A diagnosis was made of hepatic colic with impaction of the stone at the orifice of the common duct and pancreatic duct, producing incomplete obstruction, inflammation and hyperemia.

She grew steadily worse and the indurated area extended down to the navel. Diarrhea continued but there was no free fat in the stools. Vomiting of green mucus with blood and ingesta was persistent. All treatment was useless and in view of her low condition, surgical interference was deemed out of the question. Crepitation became evident over the lobar lungs posteriorly. A discharge of bloody pus from the bowels occurred, the mass grew smaller and the patient died in collapse.

The autopsy revealed considerable foul gas in the abdomen which escaped with an explosive sound; multiple peritoneal adhesions easily broken up; no fluid in cavity; areas of fat necrosis in omentum on left side over abscess cavity; obliteration of the head of the pancreas, the remainder of which formed the posterior wall of the abscess cavity, the walls of which extended up behind the stomach. The pus collection seemed to have occupied the usual site of the pancreas and of the lesser omental cavity. A small bit of pancreas tissue attached by a sort of pedicle lay free in the abscess cavity. The opening of the cavity into the bowel was at the normal site of the entrance of the pancreatic duct. The source of the gas could not be learned.

Dr. Atkinson said that with the light thrown on diseases of the pancreas by the classical writings of Fitz, we ought to be able to recognize these cases. Fitz has divided them into three classes: the hemorrhagic, gangrenous and suppurative. The first variety is to be recognized by its sudden onset and the presence of a tumor, tympanitic from the superjacent bowel. It proves fatal in a very few days or may pass into the gangrenous form and last from a few days to six or eight weeks. The patients die from asthenia or from sepsis. The suppurative variety may extend even over one year. As a rule, there is no fat necrosis. Dr. Atkinson believes that this case was undoubtedly originally one of the hemorrhagic variety.

The paper was discussed by Dr. STOCKTON, who said he had never seen a suppurative case, and he regarded it difficult to diagnose this class of maladies. The case reported showed less depression and shock than usual. He had never seen free fat in the stools in these malignant cases under his observation. In one instance the pancreas had been large and hard, like the condition found in an interstitial nephritis. This case did not appear to be one of malignant growth and there had been no hemorrhage or evidence of previous trouble. He would ask Dr. Atkinson if he had found fat necrosis more common in the interstitial forms of the disease.

The latter, in reply, stated that no gall-stones had been found at autopsy. As to fat in the stools, he believed it to be the rule except in acute cases. Sugar in the urine was by no means common, and when it occurred, it generally came late. If we found on abdominal section at autopsy fat necrosis, it was at once an indication of the nature of the trouble.

The closing paper of the session was read by Dr. T. O. SUMMERS, of New York, on

LEUCOCYTES AND PROTONUCLEIN.

After stating certain general propositions with reference to the successive steps taken towards the establishment of protonuclein as a therapeutic agent, and its method of preparation, the writer concluded with the following statements as to its administration and the indications for its use:

Protonuclein is prepared in tablets, powders, and may be used hypodermically. It is a powerful prophylactic as well as a direct antitoxic, the latter effect extending to all zymotic diseases. It will keep indefinitely, being enveloped in benzoïn and milk-sugar which preserve its potential activity just as a grain of corn is preserved by its environment.

Protonuclein is indicated in any form of the disease where the organism is in a low asthenic condition, and in all zymotic or inflammatory conditions or whenever there are toxic germs to be destroyed.

The following papers were read by title: "The Conservative Use of Lavage in Diseases of the Stomach," by Dr. J. M. G. Carter, Waukegan, Ill. "Constitution and Faulty Elimination as a Factor in Disease," by Dr. F. S. Thomas, Council Bluffs, Iowa. "The Physician," by Dr. Julius Kohl, Belleville, Ill.

The following were elected officers of the Section for the ensuing year: Chairman, Wm. E. Quine, Chicago, Ill.; Secretary, DeLancy Rochester, Buffalo, N. Y.

Recent Literature.

Clinical Gynecology, Medical and Surgical. For Students and Practitioners. By eminent American teachers. Edited by JOHN M. KEATING, M.D., LL.D., and by HENRY C. COE, M.D., M.R.C.S., Professor of Gynecology, New York Polyclinic. Illustrated. Philadelphia: J. P. Lippincott Company. 1895.

The extended works in conjoint authorship which are so prominent a feature in the medical literature of the present day, offer an especially hard task to the reviewer, since each one of the component parts is necessarily an entity in itself, and it is manifestly impossible to criticise each successive article in a full

and satisfactory manner within the limits of a single review.

These works usually fail in comprehensiveness and are marred by frequent repetitions. These failures are in part inherent in the system; in part are usually the result of an attempt to arrange the book after the method which would be followed by a single author, and to distribute to each of the contributors a portion which is expected to be in direct continuity with those which precede and follow it.

In the present volume the editorial work has been admirably done, in that the subject has been divided into broad general topics in such a way that each author's sub-subject is, so far as possible, independent of the others, and capable of standing by itself. The book is then a series of clinical essays on gynecological subjects, which are so arranged that between them they cover the whole field of the specialty very admirably.

Among the twenty articles which comprise the book, it is only possible for us to pick out for remark a few which are distinguished by especial excellence.

The introductory chapter is written in the well-known flowing and eloquent style of the late William Goodell, and is a mournful reminder of the loss which the profession has so lately sustained.

The eighty-two pages on gynecological technique by Hunter Robb, will perhaps be as valuable to the general practitioner as any portion of the book. The subject is one in which Dr. Robb has done perhaps more extensive and exact work than has ever been done by any other gynecologist. The article is most clearly and practically written. Every page teems with facts which are essential to operative success, and it will be read with interest by experts as well as by beginners.

The chapter on Anomalies of Development in the Genital Tract, by Barton C. Hirst, M.D., is an admirable one. That on Traumatic Lesions of the Vulva, Vagina, and Cervix, by Matthew D. Mann, M.D., is admirable in the clearness with which the author describes the procedures for the repair of these lesions, and the decision with which he adheres to the descriptions of those which are of acknowledged worth, without complicating his article by long-drawn-out descriptions of others which he does not wish to recommend.

The chapter on Inflammation of the Female Genital Organs is fully up to the standard which would have been expected from its distinguished author, Dr. William M. Polk, whose name has been so closely identified with recent progress in this subject.

In these days when the interest in everything gynecological tends so strongly to become wholly surgical, the editors are to be congratulated on having been able to place the article on Displacements of the Uterus, by Dr. Paul F. Mundé, in the hands of a contributor who is still an active advocate of the use of minor measures of treatment, and is not disposed to pass over the pessary with a perfunctory notice for the sake of having the more space to devote to hysteror-rhaphy, the Alexander-Adams, and other similar operations.

Drs. Hermann J. Boldt and Henry C. Coe furnish most exhaustive and valuable articles on the Neoplasms of the Female Genital Tract. Both of these articles give to the work a value to the specialist as a book of reference which it could not otherwise have had.

The article on the Diseases of the Urethra, Bladder,

and Ureters, by Charles Jewett, M.D., and John Polak, M.D., has the advantage of dealing with a field which is at this moment in the process of active development. It is fully up to the standard of the day, and is of especial interest in its suggestion of the extent to which recently discovered methods of exploration are curtailing the number of so-called functional ailments, and furnish us instead with a pathologically accurate diagnosis upon which to found our treatment.

We are very glad to see that the volume includes an article on Diseases of the Rectum and Anus by the able pen of Dr. Edward E. Montgomery. This subject is one which the gynecologist can never afford to neglect, but which is too often omitted from text-books on the subject.

The book as a whole is to be cordially recommended.

Twenty-sixth Annual Report relating to the Registry and Return of Births, Marriages and Deaths in Michigan, for the year 1892. Pp. 375. Lansing, Mich., 1894.

The Registration Reports of Michigan are in many respects, among the best reports of the kind in the United States, so far as thoroughness of compilation of the material presented is concerned.

The returns of births and deaths are, as the compiler states, "deficient to such a degree that they would require to be increased by at least 60 per cent. to correctly represent the actual numbers of births and deaths that occurred." This deficiency, however, is in no way to be charged to the compiler but to the existing statutes relating to registration in Michigan. The defects of these statutes are fully pointed out in this report.

It is evident that the compiler has made the best possible use of the deficient data in hand, and is entitled to much credit for so fully and thoroughly presenting the subject. Intelligent comparisons are made with the statistics of other States and countries.

The marriage, birth, and death rates for 1892, and for the five years (1886-90), as presented in Table 5, were as follows:

	1880-1890.	1892.
Marriage-rate per 1,000	17.1	18.4
Birth-rate "	23.8	21.2
Death-rate "	10.1	9.9

From this it would appear that the returns of deaths were considerably more deficient than those of births.

Of the total mortality reported:

Deaths from consumption caused	11.8 per cent.
" diphtheria and croup caused	7.5 "
" typhoid fever caused	3.6 "
" scarlet fever caused	2.5 "
" whooping-cough caused	0.8 "
" cancer caused	3.2 "
" pneumonia caused	7.4 "
" brain diseases caused	8.7 "
" heart diseases caused	5.5 "

The compiler recognizes the importance of a revision of the old system of classification and nosology which has been in use for a very long period (Dr. Farr's), and boldly strikes out in a new line, with a provisional classification, which he recommends and employs as a practical system adapted to modern requirements. His reasons for the changes are fully discussed in this report. One of the chief changes in this system is the transfer of tuberculosis to the class of specific infectious diseases.

In the Twenty-fifth Annual Registration Report of Michigan a review of the results of registration in that

State for a quarter of a century was presented as fully as the imperfect data collected would admit.

On the other hand, the Fiftieth Annual Registration Report of Massachusetts might have presented a half-century's work of extremely valuable character, since the registration of this State is far more thorough and complete than that of Michigan; but when the report was issued, it was found, to the shame of Massachusetts, to contain no reference whatever to the fifty years' work, and was generally condemned by experts as the most worthless report of the series. Its successors, the reports of 1892 and 1893, are quite as deficient and useless, so far as any "practical utility" is concerned, as that of 1891.

The State of Michigan may be congratulated on the fact that this important department of public work has been intrusted to a competent medical authority, who fully appreciates the value of the work of his department.

Die Bekämpfung der Infektionskrankheiten: Hygienischer Theil. Von Oberingenieur J. BRIX, PROF. DR. E. PFUHL, und Hafenarzt DR. NOCHT, Herausgegeben von Stabsarzt PROF. DR. BEHRING. Pp. 493. Leipzig: Georg Thieme. 1894.

It would be impossible, within the limits of a book-notice to give a complete *résumé* of the contents of this extremely valuable work published under the direction of a most progressive author, who has called to his aid the best experts in the subjects treated.

The first portion of the work, by Chief Engineer Brix, of Wiesbaden, treats of the sanitary measures for the prevention of those infectious diseases which stand in relation to water, and the soil. In this portion of the work all questions relating to water-supplies, both public and private, and to sewerage and refuse disposal of towns and dwellings, are treated in the most thorough and systematic manner. The purification of water and of sewage occupy an important share of the work.

It is a satisfaction to find, in a work of this character, that the principles of water and sewage purification are laid down in an exceedingly clear and concise manner, and with no uncertain sound: For example, "By no method of purification can the sewage of cities be so thoroughly accomplished, as by means of irrigation."

Drs. Pfuhl, of Berlin, and Nocht, of Hamburg, contribute the portion upon disinfection of clothing, linen, beds, houses and ship-utensils. This chapter is fully illustrated with cuts and plans of disinfecting stations and apparatus.

The final chapter is contributed by Port-Physician Nocht, of Hamburg, and treats of the disinfection of ships. Prominence is given to the use of lime (in the form of whitewash and of the consistency of cream) and of steam. Bilge-water and the disinfection of the bilge receive due attention, and the results of analysis of the bilge-water of eleven ships are given.

The work is very properly dedicated to Dr. R. Koch, whose teachings and influence the authors gratefully acknowledge.

It deserves a good English translation and will serve as an excellent text-book for the higher technical schools. Its very elaborate table of contents, comprising twenty-five pages, should be alphabetically arranged in a second edition, or possibly at the close of a therapeutic volume which may soon follow

THE BOSTON
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EXPERIMENTAL MYELITIS.

THE action of bacteria or their products on the central nervous system is a subject which for a number of years has been exciting a large amount of speculation. Clinical evidence has not been lacking to show the probable infectious nature of certain lesions, notably those included under the general head of myelitis. Putnam's exhaustive review of the part infection plays in nervous disease, published in a recent number of the *American Journal of Medical Sciences* (March, 1895), gives one a conception of the great amount of work which had been done upon the subject up to that time. In view of the extensive literature which has appeared, and the wide interest which the whole subject has aroused from a clinical point of view, it is rather remarkable that attempts at experimental verification have been comparatively few. It is, therefore, with great satisfaction that we call attention in some detail to an article in the February number of the *Annales de l'Institut Pasteur*, the result of the work of Vidal and Bezançon, from the laboratory of Professor Cornil. The object of this investigation was the production of myelitis by means of streptococcus injections.

After discussing briefly the work of an experimental nature hitherto done on the subject, with references, the writers go on to the details of their own experiments. The animal used for inoculation was the rabbit, the aim being to reproduce in it as closely as possible the conditions which are observed clinically in man. To accomplish this end they inoculated a large number of animals, 116 in all, with streptococci taken from 89 different sources, and endowed with varying degrees of virulence. An enumeration of the origin of the streptococci cultures is as follows: 20 from normal mouths; 49 from the mouths of patients suffering from erysipelas, scarlatina, measles, small-pox, sore throats of various sorts, typhoid fever, influenza, pneumonia, etc.; the bacteria were also taken from a normal duodenum, from puerperal infection, lymphangitis,

erysipelatos patches, appendicitis, purpura, and abscess of breast.

Of the 116 inoculations, but seven animals, or six per cent., later developed paralytic symptoms, which appeared at intervals between the seventh day and the second month, and ran a different clinical course. The streptococci which led to the paralysis were derived, in one case, from an erysipelatos mouth, once from the mouth of a small-pox patient, once from the uterus of a puerperally-infected woman, twice from the same normal mouth, the virulence, however, of the streptococcus in these two latter cases being increased by association with the colon bacillus. In the remaining cases, the inoculation was made from a culture taken from a pseudo-diphtheritic membrane. The animals were inoculated, for the most part, in the cellular tissue of the ear. A rise of temperature followed in most of the cases, with various local disturbances about the seat of inoculation. The advent of paralytic symptoms bore no relation to the supposed virulence of the organism injected. In the seven cases death resulted 13, 15, 25, 32, 37, 45 and 70 days after inoculation.

The advent of myelitis appeared in some cases as a sequel of the disturbance caused by inoculation; in others the animals had apparently completely recovered when the paralysis set in; in still others the spinal cord lesion was the first clinical manifestation of the infection. As a rule, the spinal symptoms appeared quickly, without appreciable cause. In others an exciting cause could be assigned, as in the following case: A male rabbit, inoculated two months before, had been perfectly well until in attempting copulation, he became suddenly paralyzed. Such a case bears a striking analogy to the sudden onset of myelitis in persons to all appearances previously healthy — not an infrequent clinical observation. The symptoms on the part of the affected animals varied widely: the paraplegia was in some cases flaccid in character, in others associated with contractures. In two rabbits the contractures were general, affecting all the extremities and the muscles of the trunk and head. One animal was hemiplegic; all presented considerable muscular atrophy, and nearly all had diarrhea, fecal incontinence and retention of urine.

Of the seven animals that died the spinal cord was examined in four cases. There was no macroscopic lesion, neither meningeal changes nor areas of softening. In one case, after two months' hardening in Müller's fluid, certain changes could be discerned with the naked eye, which later found an histological explanation.

After hardening, the cords were cut and stained in various ways, the bacteriological examinations for streptococci being made by Weigert's method. In every case histological examination showed changes of a diffuse nature, degenerative in character, and of varying intensity, affecting both gray and white matter. The lesions were most marked in the cord whose macroscopic appearance was pathological after hardening in Müller's fluid.

The gray matter throughout the cords was more or less affected, but especially in the lumbar enlargement. The ganglion cells of the anterior horns showed marked degenerative changes up to complete destruction. The neuroglia of the gray matter was but slightly affected; especially was there absolutely no trace of an inflammatory process to be observed. Occasional large granular cells were noted in the neighborhood of degenerating ganglion cells. There was only slight alteration of nerve fibres, merely hypertrophy of certain axis-cylinder processes.

The vascular changes were extreme, especially in the capillaries of the anterior horns and the commissures. The vessels appeared engorged with blood, particularly at the level of the lumbar enlargement; the walls at places were ruptured and the blood extravasated into the surrounding tissue even to the extent of producing infarcts. There was, however, absolutely no indication of inflammatory change, no thickening of capillary walls nor leucocyte infiltration.

The lesions of the white matter were not less interesting, and were identical in the four cases examined, differing only in their intensity. The degenerative changes observed were irregular in distribution, affecting both myeline sheaths and axis-cylinder processes, in the usual way. The neuroglia, as in the gray matter, showed only slight alterations. Large numbers of compound granule cells were visible in the degenerating white matter and especially about its periphery. The ganglia, nerve roots, peripheral nerves and muscles were found to be normal.

The conclusions which the writers reach from their observations, in connection with those made by other investigators are, that in the rabbit the cord lesions produced by streptococcus inoculations may show themselves symptomatically either by progressive muscular atrophy, or by flaccid paraplegia of subacute course, or by paralyses with more or less generalized contractures.

Such experimental myelitides reproduce for the most part the lesions observed in man described as acute myelitis. There are, however, two peculiarities of the human form which are not reproduced experimentally, namely, the perivascular extravasation of leucocytes, and the hypertrophy of neuroglia. Bacteriological examination of the rabbits' cords did not demonstrate the presence of streptococci, whereas they were at times found in the viscera and blood, whence the legitimate conclusion is reached that the observed lesion is produced by soluble toxins and not by actual bacterial action.

The importance of the work, whose substance we have attempted to give in the foregoing abstract, is certainly very great, both from a scientific and a practical point of view. Those who have the progress of scientific neurology at heart will most heartily welcome any painstaking attempt to establish its etiological problems on a basis of demonstrated fact. Practically, too, there is much to be gained from any knowledge of the causation of disease, which is defi-

nite and exact. The time has long since past for the old reproach to be raised that the efforts of the theorist in medicine have no definite bearing on the everyday work of his more practical brother. It must be through the establishment of etiological relationships, which alone can be worked out by means of laborious scientific methods, that the ultimate good of the community at large may best be subserved.

EXCISION OF THE STERNO-MASTOID MUSCLE FOR WRY-NECK.

MIKULICZ, of Breslau, has published an interesting article¹ in which he discusses the various methods of treatment for wry-neck, and its pathology. He considers that open incision of the muscles (Volkmann) has no special advantage over a thorough subcutaneous operation. He advocates in severe cases a complete extirpation of the muscle. He claims that the muscle is completely degenerated and shows no faradic reaction; that it has no functional value; and that any disfigurement of the neck resulting from its loss is more than compensated by the rapid relief from the torticollis. He states that, contrary to the general impression, the fibrous degeneration rarely affects the muscle transversely, but rather longitudinally along the fibres. In rare cases the lower half was found affected.

Mikulicz thus describes his operation: A skin incision, three to four centimetres long, between the sternal and clavicular ends of the muscle; skin and platysma divided; with blunt instruments the sternal and clavicular insertions are exposed and undermined; the deeper structures are protected by an elevator; the muscular insertions are separated from the bones; the cut ends are seized with forceps and strongly drawn out of the wound. As the muscle is pulled down, it is freed from its sheath. The head is at the same time held so as to relax the muscle. In this way the muscle can be exposed nearly to the mastoid process. When the limit of the diseased portion is reached, it is divided with scissors. The portion connected with the spinal accessory nerve is left undisturbed. After extirpation of the muscle the wound is sutured without drainage and the head bandaged in a corrected position.

Since April, 1891, this surgeon has treated 25 cases of torticollis: 22 congenital, three acquired. Of these, three yielded easily to orthopedic treatment; five were treated by subcutaneous tenotomy; 17 by extirpation (eight partial, nine total) of the muscle, and in the whole 17 the result was satisfactory. Where no secondary changes in the vertebræ existed, the restoration of the normal position of the head was rapid. A flattening of the side of the neck resulted from the removal of the muscle. The muscle removed was found in all cases to be diffusely diseased, always along the course of the fibre.

Mikulicz regards the process as a variety of myositis

¹ Centralblatt. f. Chir., 1895, xxii, 1.

fibrosa — a peculiar chronic inflammatory process; and thinks that those swellings of new-born children, called hematoma, which result in muscular contraction, are inflammatory processes from the beginning. The evidence in favor of this opinion is stated, and is quite interesting.

The article is somewhat startling on account of the method of treatment proposed, and will not be accepted as conclusive without discussion, at least as far as treatment is concerned. It has already elicited a reply from Lorenz, of Vienna, who considers that the after-treatment is as important in these cases as in those of club-foot; that the bony changes must be treated as well as the muscular contraction; that there coexists in these cases a cervical scoliosis which must be corrected before a perfect result is obtained, and that this is true whether the sterno-mastoid muscle is divided transversely by tenotomy or the open method, or extirpated entirely.

Lorenz claims, and justly too, that if proper treatment is directed to the spinal changes there will be very few cases which will require so extreme a procedure as total extirpation of the muscle.² After open or subcutaneous section of the contracted sterno-mastoid, he practises "plastic correction" of the deformity. After dressing the wound aseptically, the narcosis is continued, the forehead and occiput are grasped between the hands, and the head bent in a sagittal plane toward the side formerly convex. All violent movements must be avoided, and the amount of force used be carefully estimated. In order to accomplish this properly, considerable time is often required. When the head has been well carried down to the desired side, it is grasped by applying the fingers of each hand to the skull on the convex side, while the thumbs are placed on each side of the ear on the concave side, and the head carried by forcible and repeated efforts so far toward the side formerly convex, that the ear touches the shoulder. The correction must be made complete and forcible, according as the preceding deformity was severe. In less than half an hour the most obstinate forms may be thus corrected. The operation is a trying one for the surgeon, and care must be taken that the trachea is not compressed during the manipulations. The ends of the divided muscle are so far separated by this manœuvre, that there is no danger of cicatricial contraction bringing them together again. The head is held from ten to fourteen days in the corrected position by a suitable bandage, and after the removal of the bandage, active movements are practised; no mechanical treatment is required.

Lorenz contends that better results will be attained, and with less deformity, by this method than by Mikulicz's total extirpation of the sterno-mastoid. Inasmuch as the defect left by division would certainly be less than by excision of the muscle, his contention is probably right, at least in reference to the deformity.

² Centralblatt, f. Chir., 1895, xxii, 105.

MEDICAL NOTES.

THE EIGHTIETH BIRTHDAY OF PROFESSOR VON DITTEL. — Prof. L. von Dittel, of Vienna, celebrated his eightieth birthday on May 15th.

THE CHAIR OF HYGIENE AT MARBURG. — Professor Behring has been nominated for the chair of hygiene at Marburg, as successor to Prof. C. Fraenkel, who has been called to the chair of hygiene at Halle.

DR. BARNES HONORED. — The Society of Obstetrics and Gynecology of Bordeaux, in organizing a Congress for August 8th, on the occasion of the Exposition, has elected Dr. Robert Barnes *Président d'Honneur*.

PROPOSED MEDICAL LEGISLATION IN WISCONSIN. — Attempts are being made by Wisconsin physicians to secure the enactment by the Legislature of a law for the regulation of the practice of medicine.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The twenty-first annual meeting will be held in Detroit on September 3d, 4th, 5th and 6th. Dr. William Pepper, of Philadelphia, is to deliver the annual address in medicine.

A CAMPHOR FAMINE. — According to reports from London, a camphor famine is now threatened as one of the results of the China-Japanese war. Cholera mixtures and smokeless powder will be expensive luxuries during the summer.

A QUARANTINE AGAINST THE PLAGUE. — Under the last regulations of the United States Treasury Department, the plague has been declared quarantinable, along with cholera, yellow-fever, typhus, variola and leprosy. The plague is now raging at Amoy, China, at the rate of fifteen deaths a day.

STRYCHNINE IN SNAKEBITE. — Dr. T. A. Manikam Pillay, in medical charge of the hospital at Ulunderpet, South Ascot, India, reports in the *India Medical Record* of December 16, 1894, three cases of snakebite successfully treated with hypodermic injections of strychnine, according to Dr. Mueller's method.

THE DECORATION OF M. PASTEUR. — The recent statement in *Figaro* that M. Pasteur had refused a decoration offered him by the Kaiser in recognition of his services to humanity, because the memory of 1870 was too strong to allow him to accept it, has been authoritatively denied in Germany. It is stated that no decoration was offered him, and therefore he had no opportunity to refuse.

RETIREMENT OF JOHN S. BILLINGS. — Dr. John S. Billings announces his intention of retiring from his position in the army next October. He hopes before that time to have completed the Surgeon-General's Catalogue, a work which will always remain a monument to his executive ability, learning and perseverance. Its importance to the workers in medicine and medical literature can hardly be overestimated. Dr. Billings retires in order to accept the chair of hygiene at the University of Pennsylvania.

AN ORDER OF THE COURT OF INTEREST TO DR. KEELEY.—According to the *Chicago Herald* of May 2d, Judge Myers of the United States District Court, in session at Leavenworth, Kan., has made a very important order affecting the rights of Dr. Leslie E. Keeley. W. F. Johnson, of Topeka, sues Dr. Keeley for \$100,000 damages, the petition reciting that plaintiff has been made a physical wreck because of the gold cure. Judge Myers, in granting the prisoner's request, rules that Dr. Keeley must make known the ingredients of his bichloride of gold compound. The court holds that the cure is not a property right nor trade secret. Inasmuch as it is unprotected by patent and has been in use more than two years, there is nothing to prevent Dr. Keeley's testifying as to its composition, and the court orders him to do so.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, May 29, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 55, scarlet fever 32, measles 87, typhoid fever 8. During the week ending June 5th, the report was as follows: diphtheria 70, scarlet fever 28, measles 66, typhoid fever 15.

APPOINTMENTS AT THE HARVARD MEDICAL SCHOOL.—Dr. Harold C. Ernst has been appointed Professor of Bacteriology in the Harvard Medical School, and Dr. Francis H. Davenport Assistant Professor of Gynecology at the Harvard Medical School.

PROF. THEOBALD SMITH, M.D.—Dr. Theobald Smith, formerly chief of the Division of Animal Pathology in the United States Bureau of Agriculture, at Washington, has been appointed Bacteriologist of the Massachusetts State Board of Health, and Professor of Applied Zoölogy in the Bussey Institute of Harvard University.

THE ANNUAL DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY.—At the Annual Dinner of the Massachusetts Medical Society on June 12th, His Excellency, Frederic T. Greenhalge, Governor of Massachusetts, Prof. Charles Eliot Norton, of Harvard University, the Rev. James B. Doonan, of Boston College, and Sir William H. Hingston, of Montreal, will be the after-dinner speakers.

BEQUESTS TO HOSPITALS.—By the will of the late Joseph B. Lefavour, of Beverly, Mass., \$5,000 is bequeathed to the Beverly Hospital, and \$5,000 to the Free Hospital for Women in Boston.

MEDICAL LEGISLATION IN RHODE ISLAND.—The Legislature of the State of Rhode Island has recently passed an act for the regulation of the practice of medicine.

THE KEELEY BILL DEFEATED.—The bill to render the employment of the Keeley treatment compulsory at the Massachusetts Hospital for Dipsomaniacs and Inebriates has been again defeated in the Massachusetts House of Representatives.

ADAMS NERVINE ASYLUM.—The Adams Nervine Asylum at Jamaica Plain is about to open a building with twelve beds for the reception of male patients, inhabitants of Massachusetts. Insane persons cannot be received, and a certificate from the attending physician that the patient has disease of the nervous system will be required. Hitherto the benefits of this charity have been confined to women.

THE INCREASE OF CREMATION.—At a public meeting of the New England Cremation Society held in Boston on May 31st, an interesting history of Cremation in the United States was given by the president, Mr. John Storer Cobb, in his annual address. During the ten years in which this method has been used for the disposal of the dead 17 crematories have been established. The following figures show the number of bodies cremated throughout the country in each of the 10 years: In 1885, 36; 1886, 119; 1887, 125; 1888, 199; 1889, 262; 1890, 362; 1891, 464; 1892, 576; 1893, 677; 1894, 876. These figures are interesting in showing a steady and rapid increase, from 36 in 1885 to 876 in 1894.

NEW YORK.

YELLOW FEVER IN HAVANA.—Reports from Havana show that yellow fever has increased very notably of late in that city. Health-Officer Doty, appreciating the danger of the disease arriving in New York, on June 2d started for Cuba in order to familiarize himself with the methods of discharging and lading cargoes at the Cuban ports. At Havana he will consult with Dr. Burgess, the United States Medical Inspector, and will examine the system of the Spanish officials for preventing the spread of yellow fever in Cuba. His trip will include visits to Matanzas, Cardenas and Calbarien, and on his way home Dr. Doty will inspect the new quarantine station at New Orleans.

THE NEW YORK STATE MEDICAL ASSOCIATION.—The Eleventh Annual Meeting of the Fifth District Branch of the New York State Medical Association was held in Brooklyn on May 28th. There was a morning and an afternoon session, and during the recess a luncheon was provided by the Branch. The meeting was presided over by Dr. Austin Flint, of New York, who made an address at the morning session. He also opened the discussion on a paper by Dr. H. A. Hanbold, of New York, on "The Propriety of Administering Digestive Ferments," in which the author argued, on physiological grounds, against the use of such ferments. Professor Flint in his remarks also took the same position. Nearly all the cases of dyspepsia which he had seen, he said, had been old cases which had been under the care of other physicians, and most of them had been treated unsuccessfully with pepsin, pancreatin, etc. A careful study of all these cases failed to show that any one of the patients had received the slightest benefit from this class of remedies. He would not say that some of the cases had not improved while digestive ferments were

being given, but whatever improvement was seen was due, not to them, but to the judicious regulation of the diet. A change of food was often of the greatest possible service in restoring the patients' digestive powers to their normal condition.

Among the other papers were "Living Bacteria in the Bladder," by Dr. X. T. Bates, of Dutchess County; "The Advocacy of a New Method of Operation for Marked Deflection of the Nasal Septum," by Dr. S. Oppenheimer, of New York; "The Abuse of Medical Charities," by Dr. Frank van Fleet, of New York; "Overfeeding," by Dr. T. J. Barton, of Dutchess County; "Chronic Catarrhal Laryngitis, with special reference to its Etiology," by Dr. Dwight L. Hubbard, of New York; and "Clinical Notes on a Recent Series of Operations," by Dr. Thomas H. Mauley, of New York.

THE UNIVERSITY OF THE CITY OF NEW YORK.—The death of Dr. Alfred L. Loomis has led to a number of changes in the Faculty of the Medical Department of the University of the City of New York. Dr. Wm. H. Thomson, is now Professor of Medicine; Dr. W. Gilman Thompson, Professor of Materia Medica, Therapeutics and Clinical Medicine; Dr. Charles L. Bristol, Lecturer on Physiology; Dr. Henry P. Loomis, Professor of Pathology, and Dr. Charles E. Quimby, Adjunct Professor of Practise of Medicine.

DR. ALLAN McLANE HAMILTON.—It is announced that Dr. Allan McLane Hamilton, the well-known neurologist, has leased a house in London, and that hereafter he will practise for a portion of each year in that city; returning to New York in the autumn.

REGULATION OF THE MEAT MARKET.—At a meeting of the Board of Health held May 27th, the following resolution, proposed by Dr. Cyrus Edson, was adopted: "That no meat or dead animal above the size of a rabbit shall be taken to any public or private market for food until the same shall have fully cooled after killing, nor until the entrails, head and feet, (except of poultry and game, the head and feet of swine,) shall have been removed; nor shall the body or any part thereof of an animal which is to be used as food be carted or carried through the streets except it be covered, so as to protect it from dust, dirt or cold, and no meat or poultry shall be hung or exposed for sale outside of any shop or store in this city."

MAYOR STRONG VETOES THE BILL TO TRANSFER THE INDIGENT INSANE.—The bill which recently passed both houses of the Legislature transferring the maintenance of the indigent insane of New York County to the State, has failed to become a law owing to the fact that Mayor Strong did not give it his approval. It is stated that his opposition to the measure was to the clause which stipulated that before the transfer could be made the city would have to pay the \$1,000,000 back taxes due to the State on account of the former State-care Act. Much regret has been expressed by Dr. Carlos F. MacDonald, the President

of the State Commission in Lunacy, at the Mayor's failure to approve, as he believes it will be very difficult to carry a similar bill through another Legislature.

A LIBRARY FOR THE BLIND.—A free circulating library for the blind has just been incorporated in New York.

Miscellany.

AMBULANT TREATMENT OF FRACTURES OF THE LOWER EXTREMITIES.

At the German Surgical Congress, von Bardeleben gave the results of the treatment of fractures of the leg at the Charité in Berlin since his last report, made in 1894. Since that time 74 cases of fracture of the lower extremity had been treated. Of the 46 fractures of the leg 39 were treated with the *Gehverband*. Of four fractures of the patella, two were treated with and two without walking apparatus. Of 23 fractures of the thigh, 16 received the ambulant treatment. In all, then, 181 fractures of the lower extremity have received the ambulant treatment at the Charité: 135 fractures of the leg, 7 fractures of the patella, 38 fractures of the thigh, and one compound fracture of the thigh and leg on the same side.

This method of treatment has a most favorable influence on the general condition of the patients. The time required for consolidation varies between 38 and 19 days, according to the nature of the fracture; in a single case of compound fracture 78 days were necessary to complete consolidation. The ambulant treatment, according to von Bardeleben, is a distinct advance, provided careful supervision is given to the cases while it is in progress.

ANOTHER CASE OF COCAINE POISONING.

SCHEDE¹ has reported at a recent meeting of the Hamburg Medical Society a case of cocaine poisoning by the injection of two grammes of a ten-per-cent. solution of this drug into the urethra. Cyanosis, dilatation of the pupils, and deep coma supervened, followed by trismus and tetanus-like convulsions. Artificial respiration was begun, and the subcutaneous injection of ether and camphor, and the inhalation of nitrite of amyl did not affect the symptoms. After twenty-five minutes, Cheyne-Stokes respiration supervened, and the cyanosis increased. Venesection produced no improvement. The inhalation of oxygen and intravenous injection of 650 grammes of salt solution finally brought the patient round, the recovery being attended by transitory convulsions, and three hours elapsing before complete recovery of consciousness. The lesson of this rather severe experience is the same as that of the case noted in the JOURNAL of April 18th, in which death resulted from a urethral injection, of six grammes of a five-per-cent. solution, namely, to employ weaker solutions, and exercise greater care as to the amount employed, above all in urethral injections. Although the amount of the solution employed in this last case was not excessive, the strength was certainly unnecessarily great. A peculiar susceptibility to the effects of cocaine may

¹ Munchner med. Wochenschrift, May 7, 1895.

exist when least expected, and the knowledge that it may exist should keep us always on our guard in the use of this excellent but poisonous drug.

Correspondence.

END OF A VACCINE VIRUS CONTROVERSY.

BROOKLINE STATION, BOSTON, June 1, 1895.

MR. EDITOR:—Under other circumstances, I would dislike very much to call your readers' attention to a matter concerning which so much legal controversy has arisen; but as it is important that they should not be deceived regarding the question of the legal successor of Dr. Henry A. Martin & Son, I am obliged at this time, to respectfully ask you to allow me to dispel any doubts on this point by printing the following decree:

FULL BENCH, SUPREME COURT OF MASSACHUSETTS.
FRANCES C. MARTIN, Administratrix of the Estate of Henry A. Martin, vs. EVERETT M. BOWKER. HOLMES, Judge.

This is a bill seeking to enjoin the defendant from using the name of Henry A. Martin in connection with the business of producing and selling animal Vaccine Virus.

The only use of the name which the defendant has made or threatened to make is to describe himself as "Dr. Everett M. Bowker, Successor to Dr. Henry A. Martin & Son."

The plaintiff relies chiefly on P. S. C. 76, Sec. 6, forbidding any person to "assume or continue to use in his business the name of a person formerly connected with him in partnership, or the name of any other person," without written consent, but we are of the opinion that the statute does not apply to advertising oneself as "formerly with" or "successor to" another. The word "assume" in the statute means use for the first time in the same way that is contemplated in the other branch, "continue to use in his business." This latter plainly means to use as part or all of the partnership name so as to indicate that the person named is a member of the firm.

Apart from the statute the plaintiff shows no ground for an injunction. The defendant is a successor to Dr. Henry A. Martin & Son. The history of the business is this:

Originally it was carried on by Dr. Henry A. Martin, and afterwards by him and his son, Stephen C. Martin, under the name of Dr. Henry A. Martin & Son. In 1876 the father retired, and the son became sole owner of the business by purchase and carried it on under the same name until his own death in 1893. By his will he left it, including the good-will as well as the apparatus and other assets, to his wife, after a life estate which has lapsed. The wife sold it to the defendant, and so far as she had power, gave him the right to use the style and description complained of.

Taking the strictest view of what is necessary to make a successor, there is no doubt that the defendant is one, and thus being so, he has the right to advertise the fact to the world.

Bill dismissed, May 21st, 1895.

Any breach of the above decree will be vigorously prosecuted.

Very respectfully,
EVERETT M. BOWKER, M.D.

METEOROLOGICAL RECORD,

For the week ending May 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...19	30.17	48	53	43	67	76	72	S.E.	5	9	O.	F.
M...20	30.08	56	68	45	64	41	52	W.	5	9	O.	F.
T...21	30.17	64	57	50	51	74	66	N.W.	7	8	O.	F.
W...22	30.12	51	55	47	67	72	70	N.W.	5	8	O.	F.
T...23	30.08	60	73	46	44	38	41	W.	5	8	H.	C.
F...24	30.15	70	83	57	39	44	42	W.	12	15	C.	C.
S...25	30.19	67	76	58	55	65	60	S.W.	9	11	F.	F.

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 25, 1895

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from:					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Measles.	
New York	1,956,000	—	—	—	—	—	—	—	—
Chicago	1,600,000	—	—	—	—	—	—	—	—
Philadelphia	1,139,457	394	111	11.75	11.75	2.25	5.25	1.25	—
Brooklyn	1,013,000	382	128	8.58	18.46	.79	4.94	—	—
St. Louis	540,800	—	—	—	—	—	—	—	—
Boston	501,107	193	53	11.34	14.58	2.16	2.70	.54	—
Baltimore	500,000	—	—	—	—	—	—	—	—
Washington	285,000	75	24	4.00	9.31	—	—	2.06	—
Cincinnati	325,000	89	35	19.01	17.92	3.36	5.60	10.08	—
Cleveland	325,000	—	—	—	—	—	—	—	—
Pittsburg	272,000	—	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—	—
Nashville	87,754	25	8	16.00	16.00	4.00	4.00	—	—
Charleston	65,165	33	9	15.15	3.03	3.03	—	—	—
Portland	40,000	—	—	—	—	—	—	—	—
Worcester	100,410	32	11	18.78	3.13	—	9.39	—	—
Fall River	92,233	—	—	—	—	—	—	—	—
Lowell	90,613	22	10	4.55	4.55	—	—	—	—
Cambridge	79,607	20	6	10.00	15.00	—	5.00	—	—
Lynn	65,123	20	5	10.00	20.00	—	5.00	—	—
Springfield	50,284	15	3	13.33	13.33	—	6.66	6.66	—
Lawrence	49,900	10	3	20.00	20.00	10.00	—	—	—
New Bedford	47,741	14	1	—	21.42	—	—	—	—
Holyoke	43,348	—	—	—	—	—	—	—	—
Brockton	33,939	5	0	—	—	—	—	—	—
Salem	33,155	15	4	—	20.00	—	—	—	—
Haverhill	32,925	6	1	16.66	16.66	—	16.66	—	—
Malden	30,209	7	3	14.28	14.28	—	14.28	—	—
Chelsea	29,806	9	1	11.11	22.22	—	11.11	—	—
Fitchburg	29,383	6	2	16.66	16.66	16.66	—	—	—
Newton	28,837	7	4	—	28.56	—	—	—	—
Gloucester	27,293	—	—	—	—	—	—	—	—
Taunton	26,964	5	2	—	—	—	—	—	—
Waltham	22,058	4	0	—	—	—	—	—	—
Quincy	19,642	4	1	—	75.00	—	—	—	—
Pittsfield	18,802	—	—	—	—	—	—	—	—
Everett	16,585	4	1	—	50.00	—	—	—	—
Northampton	16,331	6	1	—	—	—	—	—	—
Newburyport	14,073	2	0	—	50.00	—	—	—	—
Amesbury	10,920	3	0	—	—	—	—	—	—

Deaths reported 1,501; under five years of age 438; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 165, acute lung diseases 203, consumption 201, diphtheria and croup 67, diarrheal diseases 18, measles 21, scarlet fever 16, whooping-cough 10, typhoid fever 24, cerebro-spinal meningitis 3, erysipelas, malarial fever, small-pox, each 2.

From diarrheal diseases Brooklyn and Nashville 4 each. Philadelphia and Boston 3 each. Washington, Worcester, Lowell, Cambridge 1 each. From scarlet fever Boston 8, Philadelphia and Brooklyn 2 each. Nashville, Worcester, Lynn and Woburn 1 each. From whooping-cough Philadelphia 5, Brooklyn 3, Providence and Lawrence 1 each. From cerebro-spinal meningitis Providence, Worcester and Somerville 1 each. From small-pox Philadelphia 2. From erysipelas Brooklyn and Providence 1 each. From malarial fever Brooklyn and Nashville 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 18th, the death-rate was 17.6. Deaths reported 3,569; acute diseases of the respiratory organs (London) 240, whooping-cough 85, measles 69, diphtheria 52, diarrhea 50, fever 27, scarlet fever 19, small-pox (Liverpool) 1.

The death-rates ranged from 12.3 in Croydon to 28.7 in Preston, Birmingham 16.9, Bradford 17.5, Cardiff 15.1, Gateshead 13.6, Huddersfield 19.9, Leeds 15.7, Leicester 15.3, Liverpool 23.2, London 16.5, Manchester 25.7, Newcastle-on-Tyne 18.6, Nottingham 16.1, Oldham 22.2, Portsmouth 14.0, Sheffield 15.2, Sunderland 15.9, West Ham 15.0.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 1, 1895.

T. C. WALTON, medical inspector, ordered to examination preliminary to promotion as medical director.

G. S. BEARDSLEY, B. H. KIDDER and W. K. VAN REYPEN, medical directors, ordered as a board to examine medical officers for promotion.

N. L. BATES, medical director, J. M. FLINT, medical inspector and J. D. GATEWOOD, passed assistant surgeon, ordered as a board to revise the "Book of Instructions for Medical Officers."

AMERICAN LARYNGOLOGICAL ASSOCIATION.

The Seventeenth Annual Congress will be held in the Chamber of Commerce, Rochester, N. Y., June 17, 18 and 19, 1895. The profession is cordially invited to attend.

MONDAY, JUNE 17th.

Morning Session.—President's Address, John O. Roe, M.D., Rochester. Foreign Bodies in the Esophagus, Harrison Allen, M.D. Dessicated Thyroids in Goitre, E. Fletcher Ingalls, M.D. The Influence of Chronic Diseases of the Throat upon Certain Defects of Speech, D. Bryson Delavan, M.D. Electrolysis by a Current Controller for the Reduction of Spurs of the Nasal Septum, W. E. Casselbury, M.D. Is Acute Tonsillitis in any way Dependent upon the Rheumatic Diathesis? Geo. B. Hope, M.D.

Evening.—President's Reception.

TUESDAY, JUNE 18th.

Morning Session.—Some Remarks on Removal of the Tonsils, and Case of Lipoma of the Larynx, J. W. Farlow, M.D. A Case of Melancholia cured by Intra-nasal Operation; and a Case of Suppurative Ethmoid Disease, followed by Invasion of the Sphenoidal Sinus, Abscess of the Brain and Death, F. H. Bosworth, M.D. A Consideration of Some of the More Important Principles of Intra-Nasal Surgery, W. K. Simpson, M.D. Ludwig's Angina, J. E. Newcomb, M.D. Discussion on Tuberculosis of the Upper Air-Passages: Etiology, Jonathan Wright, M.D.; Diagnosis, C. C. Rice, M.D.; Treatment, E. L. Shurley, M.D. and J. W. Gleitsmann, M.D.

Evening.—Annual Dinner of the Association at 7.30 P. M.

WEDNESDAY, JUNE 19th.

Morning Session.—Cyst of the Maxillary Sinus, Chas. H. Knight, M.D. A Case of Abscess of the Frontal, Ethmoidal and Maxillary Sinuses, J. H. Bryan, M.D. Necrosis of the Middle Turbinate, and Congenital Osseous Stenosis of the Naris, A. B. Thrasher, M.D. A Naso-Pharyngeal Cyst; an Oro-Pharyngeal Cyst; and Fibroma Papillare, or True Papilloma, of Nasal Septum, Jonathan Wright, M.D. Discussion on the Relation of Vasomotor Disturbances to Diseases of the Upper Air-Tract, by F. H. Bosworth, M.D., W. H. Daly, M.D., and J. N. Mackenzie, M.D.

CHAS. H. KNIGHT, M.D., *Secretary.*

147 W. 57th Street, New York.

ONTARIO MEDICAL ASSOCIATION.

The Fifteenth Annual Meeting will be held in the Council Buildings, corner Richmond and Bay Streets, Toronto, on Wednesday and Thursday, June 5th and 6th, commencing at 10 A. M., on Wednesday.

PRESIDENT'S ADDRESS, R. W. Bruce Smith, Hamilton.

PAPERS BY GUESTS.—Intestinal Complications in Gynecic Surgery, J. B. Murphy, Chicago. Embryonic Remains in Cases of Eczema of the Navel, Robert T. Morris, New York. Operative Treatment for Bronchocele, Francis J. Shepherd, Montreal. Laryngeal and Tracheal Tuberculosis—The Importance of their Early Recognition and Treatment, F. W. Chappell, New York.

DISCUSSION IN MEDICINE.—Diphtheria, W. J. Wilson, Richmond Hill; followed by G. M. Aylsworth, Collingwood, and J. T. Fotheringham, Toronto.

DISCUSSION IN SURGERY.—Delayed Union in Fractures, Geo. A. Peters, Toronto; followed by I. H. Cameron, Toronto, and A. McKinnon, Guelph.

DISCUSSION IN THERAPEUTICS.—The Physiological and Therapeutic Action of Iron, with a discussion of its newer Pharmaceutical Compounds, H. A. McCallum, London; followed by J. H. Sangster, Port Perry, and A. T. Rice, Woodstock.

DISCUSSION IN OBSTETRICS.—The Primary Repair of Genital Lesions of Child-birth, K. N. Fenwick, Kingston; followed by H. Meek, London, and H. T. Machell, Toronto.

PAPERS.—The Present Position of Antitoxin in the Treatment of Diphtheria, Chas. Sheard, Toronto. Antitoxin in the Treatment of Diphtheria, with Clinical Notes of Cases, J. D. Edgar, Hamilton. Calomel Fumigation in the Treatment of Diphtheria, T. F. McMahon, Toronto. Phlegmasia Dolens, Report of Cases, J. Campbell, Seaforth. Constipation, H. Arnott, London. Treatment of Pulmonary Tuberculosis, D. Marr, Ridgetown. A Few Remarks on Home and Foreign Climate in Consumption, E. Playter, Ottawa. Science in Medicine, F. Oakley, Toronto. Hydrotherapy in the Treatment of Exanthematous Fevers, A. K. Sturgeon, Petrolia. Inflammations of the Optic Nerve, their Causes and Prognosis, G. S. Ryerson, Toronto. Cataract, R. A. Reeve, Toronto. A Case of Pneumo-Peritoneum, C. J. Hastings, Toronto. Puerperal Insanity, N. H. Beemer, Mimico. Narcotic Addiction, D. Lett, Guelph. Notes on Paresis, Ezra H. Stafford, Toronto. Use of the Stomach Tube, G. Hodge, London. A Case of Scurvy in a Child, H. T. Machell, Toronto. A Case of Progressive Unilateral Facial Atrophy, I. F. McMahon, Toronto. A Case of Morphaea, A. McPhedran, Toronto. Notes on an Epidemic of Herpetic Tonsillitis, J. R. Hamilton, Port Dover. The Antiseptic

and Eliminative Treatment in Typhoid Fever, W. B. Thistle, Toronto. Traumatic Hysteria, D. C. Meyers, Toronto. Currents and Counter Currents in Therapeutics; or, a Plea for Rationalism in the Treatment of Disease, J. H. Sangster, Port Perry. Intelligent Use of Rectal Injections with Improvement of Ordinary Enema Syringe, P. P. Burrows, Lindsay. Some Remarks on Pneumonia, with Report of an Interesting Case, R. V. Bray, Chatham. Metallic Sutures in Fracture of the Patella, J. J. Cassidy, Toronto. Cases of Post-Pharyngeal Abscess, Double Cephalhematoma, Leucoma, Colitis, etc., G. Acheson, Galt. Traumatic Septicemia, J. C. Mitchell, Enniskillen. An Operative Procedure for Spina Bifida, H. Howitt, Guelph. Intestinal Anastomosis, with Murphy's Button, J. L. Davison and L. Teskey, Toronto. A Case of Anterior Abdominal Nephrectomy for Calculus, with Patient, L. MacFarlane, Toronto. An Operation for Hair-Lip, A. Groves, Fergus. A Case of Ectopic Gestation, and a Case of Mental Aberration following Removal of an Ovarian Cyst, W. J. Gibson, Belleville. Tumors of the Bladder; Report of Cases, F. LeM. Grasset, Toronto. Seminal Vesiculitis, E. E. King, Toronto. Foreign Bodies in the Knee-Joint, G. Bingham, Toronto. Modern Experimental Surgery on Man and Woman; A Criticism of Operations done and the Results obtained, J. F. W. Ross, Toronto. The Use of Ichthyol in Gynecology, L. Sweetnam, Toronto. Use of the Projection Microscope in the Teaching of Anatomy, A. Primrose, Toronto. Display of Bacteria, J. Caven and F. N. Starr, Toronto. Notes on Carcinoma, H. B. Anderson, Toronto.

A luncheon at the New Yacht Club (City), will be tendered by the City members of the Association, to all members present at this meeting, on Thursday, June 6th, at 1 P. M. A yacht trip will follow the luncheon.

JNO. N. E. BROWN, Toronto, *General Secretary.*

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The Annual Meeting of the Society will be held on Tuesday, June 11, 1895, at 11 o'clock, A. M., in the hall at 19 Boylston Place, Boston.

The usual business of the Annual Meeting will be transacted, and the following communications will be presented:

"The Anatomical Evidences of Death by Drowning," by G. DeN. Hough, M.D., of New Bedford.

"A Case of Criminal Abortion with Peculiar Features," by W. S. Birge, M.D., of Provincetown.

F. W. DRAPER, *Recording Secretary.*

RECENT DEATHS.

SIR GEORGE BUCHANAN, M.D., F.R.S., late principal medical officer of the Local Government Board of Great Britain, and Chairman of the Royal Commission on Tuberculosis, died on May 5th. He had been in failing health for some time, and had postponed submitting to an urgent operation in order to finish the report of the Royal Commission on Tuberculosis. He was operated as soon as possible after the report was issued, but died on the eighth day. His courage and devotion to duty could hardly be shown in a more striking way than by the manner of his death.

ARTHUR E. DURHAM, F.R.C.S., consulting surgeon to Guy's Hospital, died May 7th.

BOOKS AND PAMPHLETS RECEIVED.

Some Observations Concerning a New Test for the Detection and Quantitative Estimation of Free Hydrochloric Acid in the Gastric Juice. By Julius Friedenwald, A.B., M.D., Baltimore, Md. Reprint. 1895.

The Prevention and Treatment of Ophthalmia Neonatorum, and the Necessity for More Efficient Legislation to Prevent Blindness from this Cause. By Charles H. May, M.D., New York. Reprint. 1895.

Abstract from the Second Annual Report of the Dairy and Food Commissioner of Pennsylvania, Report of Analytic Work. By Henry Leffmann, A.M., M.D., Chemist to Dairy and Food Commissioner of Pennsylvania.

The Pre-tubercular and Pre-bacillary Stages of Consumption. A Consideration of the Early Diagnostic Signs of Pulmonary Tuberculosis—A Plea for the Recognition of Premonitory Symptoms. By Charles Manley, A.M., M.D. 1894.

Typhoid Ulcer: Perforation (?), Operation, Death. Cerebral Cyst: Operation, Recovery. Direct Fixation in Fractures. Dislocation and Double Fracture of the Upper Third of the Humerus. By B. Merrill Rickets, M.D., Cincinnati, O. Reprint. 1894-5.

Amputation of the Entire Upper Extremity (including the Clavicle and Scapula) for Sarcoma following Fracture of the Clavicle, Extensive Thoracoplasty by Shede's Method. Amputation of the Female Breast. By H. W. Keen, M.D., LL.D., Phila. 1894-95.

Address.

THE PHYSICIAN'S EXTRA-PROFESSIONAL DUTIES.¹

BY ALFRED WORCESTER, A.M., M.D., WALTHAM, MASS.

ON this one day of the year when we leave our patients to the restorative care of Nature, now so beautiful and bountiful, it seems not unfitting that we should ourselves turn from strictly professional themes towards our other interests.

And I am the more inclined to this course by my inability to present any deductions from my own experience in general practice which would be worthy of this occasion. Let us then give this hour to the consideration of our extra-professional duties.

However right it may be under other governments for professional men to devote themselves exclusively to their professions, under our form of government such seclusion is not justifiable. I need not speak of the common duties of citizenship that we share with the laity, for such political duties however much neglected, can hardly escape recognition.

But I call your attention rather to those duties of citizenship belonging particularly to us as physicians, and yet not sufficiently recognized.

As our civilization becomes more complex the different duties of citizenship become less plain but not the less binding. In earlier and simpler stages of social growth these different duties are very plain. Thus, in colonial life, where the common welfare depends upon every man's doing each his part, there can be no question as to the respective public duties of the carpenter, the lawyer and the physician.

In the struggling out-posts of civilization it is not allowable for any one to shirk his share of public work; nor can any waste of power be afforded. Accordingly the carpenter is expected to direct the building of the stockade, and the lawyer must give part of his time to the shaping of the public statutes.

Nor can there be any doubt as regards the nature of the physician's public duties. Plainly he must give to the community the benefit of his special knowledge in matters of public hygiene, and he must also take professional care of all who are dependent upon public support.

This, in the present age, means that the physician must give his best advice about the water-supply and about the disposal of sewage and garbage; that he must also give attention to the educational interests of the colony—not only guarding the healthfulness of the school-children but seeing that some of them are being fitted to be his assistants and successors; and even more plainly it means that he must lead the fight against all contagion and infection, and that he must plan a hospital and devote himself to its management.

As the community, which we are now imagining, grows larger, and as many physicians follow the footsteps of the individual pioneers, these special duties of citizenship do not rest upon all the members of the profession at one and the same time, but may very properly be borne in turn. And further on in the growth of the community these extra-professional duties may be specialized and thus divided among the increasing number of physicians.

Still later in the process of development only a few

of the whole number of the physicians may be needed in the public service, and then there naturally results a loss of individual responsibility for any share of the public duties that rest upon the profession as a whole.

But there can never come a time in the advance of a republic when any profession can be released from the obligation of public service. Most especially is this true of our profession.

Nor is it only a public loss when the medical profession fails in giving to the public service its due measure of devotion. For, in the charitable judgment of the people, if physicians do nothing for the State, then presumably it is not from their neglect but from their general inability and inefficiency outside of their special province. There thus results to the profession as a whole a distinct loss of influence and of usefulness.

How fitting then it is, on this occasion when we meet together for renewed inspiration in our life work, that we should consider these extra-professional duties. Let us at least look them in the face. And let us see in what ways existing conditions might be improved by a larger devotion on the part of physicians to the public service.

Bearing in mind that the physician's public duty comprises those functions of government for which his education and experience have especially fitted him, and which cannot so well be performed by the laity, we find these functions dividing naturally into three classes:

I. The direction of educational processes, so far as the physical welfare of the public scholars is concerned, and also so far as special education is carried into any part of the wide domains of our profession.

II. The care of the physical well being of all, either temporary or permanent wards of the town or State.

III. The legislation and the administration necessary in eliminating all infectious and contagious diseases.

I. The schools of Massachusetts in the past have very justly been the pride of the State. From the earliest days when the feeble Bay Colony gave so freely of its scanty store to the founding of Harvard College "in yon dim unventured wood," no expense has been spared to increase the efficiency of the public schools. And yet from our point of view is their present condition what it should be?

Is it creditable at this late day that school-children should be promoted from class to class without regard to their physical, but solely according to their mental accomplishments?

After such efforts as have been spent in perfecting the system that produces uniform mediocrity out of natural diversity, is it not high time for more attention to the easier problem of giving fairly well shaped bodies to the boys and girls who so soon will be the men and women upon whom our race depends. At least, is it not time for precautions against the actual damage of the scholars' bodies while their minds are being improved?

Shall tuberculous children continue to be huddled together with the healthy in improperly ventilated school-rooms, and shall the regular increase of diphtheria and of scarlet fever, that now comes with each school-year, continue to rob the State of her boys and girls? Surely it is possible to prevent the attendance of desquamating children and to separate the tuberculous scholars from the healthy. At least, the school-

¹ The Annual Discourse before the Massachusetts Medical Society delivered at the One Hundredth and Fourteenth Anniversary, June 12, 1895.

rooms could be kept scrupulously clean; the misnamed "sanitariums" could be made decent; and the dangerous modern custom of giving the old, soiled school-books to the new comers could be rescinded.

If the question be asked why such reforms are not at once inaugurated, the answer is easy. The school authorities do not understand the importance of taking such radical steps as would be necessary.

It must be remembered that we are descended, and not so very remotely, from ancestors who were not afraid of dirt. Cleanliness, though long held to be next to godliness, has not been considered pre-essential. Nor has dirtiness been thought incompatible with finest scholarship. The love of cleanliness is an acquired taste not yet possessed by all of our race. And school-teachers who themselves hate dirt, hesitate to interfere with the independence of families who appear to hate bodily cleanliness. And, again, if the teachers should dare to insist upon having clean scholars, they have at hand no facilities for carrying out the reform.

School-books are freely given, out of the public purse, upon the subjects of physiology and hygiene, but soap and towels and bath-tubs are not provided. How can hygienic principles be inculcated where their application is impossible?

Such provision may not as yet be demanded by public opinion; nor is the half of what at present is taught in the schools so demanded. But were the people and their school-committees alive to the dangers that lurk in the dirt and in the noisome air of the school-rooms, there would soon be a national house-cleaning of the schools.

Now, physicians know, as others do not know, that dirt is dangerous, and that foul air is even more to be feared. They also know that many of our endemic infectious diseases are propagated in the public schools. Physicians are therefore in duty bound to work for the remedying of these evils.

Moreover, physicians are especially able to foresee the advantages that would result from greater attention to the physical growth and well-being of the school-children. Surely it need not be that the graduates of one school in this great country will always be distinguished from others by their splendid carriage. Each High School in Massachusetts could give at least this much of a West Point training. Not by the scanty, spiritless teaching of gymnastics, nor by the perverted sports of the present age, but by a reasonable share of the time and attention now given to far less valuable training, the public schools could certainly improve the bodies as well as the minds of our children.

For the inauguration of such a reform physicians are the natural leaders. True, such leadership is likely to carry the physician into local politics, where the scholar is not always welcome, but where least welcome the most needed. After thorough acquaintance with the actual condition of the schools in his district, and with the best conditions elsewhere, it is the physician's duty to persuade the school-committee, if possible, of the necessity of improving the hygiene of the schools. This failing, then he must reform the school-committee; and this means that he himself must be willing to serve on that committee, caring neither for any threatened unpopularity at the polls nor for any hostile criticism of his best endeavors. His efforts may not at first avail. Much

that is disagreeable is likely to be encountered. Public service is generally thankless; and it is to no easy enjoyment that the high duty of citizenship invites us. Nevertheless, the obstacles to reform are not so mountainous as at first they appear. The people, however much they may indulge in grumbling and in cheap newspaper abuse, are yet not slow to follow good leadership. Parents who at first object to innovations that affect their children and their purses are, nevertheless, quick to recognize real improvements. Moreover, the times are fast ripening for thorough reforms in the public-school system. Parents are learning the dangers of infection. When the school-bell rings for their children, they hesitate as never before to let them go. And if the medical profession could be prevailed upon to devote especial attention to the healthfulness of the schools, there would be general rejoicing.

Before leaving this subject we should note the fact that teaching is one of the obligations resting upon all professional men. Galen's famous oath requires every physician to impart his knowledge to the generation following. And although the medical student of to-day has no preceptor, and although the *science* of medicine is so splendidly taught in the great school close by, yet we must not forget the obligation resting upon us to pass on to others, in the measure we have ourselves received, the art of healing.

True, it may nowadays be somewhat awkward for the old physician to find room in the young graduate's head for any hints as to the treatment of patients. But, on the other hand, if our elder brothers, instead of combating the germ theory, would only teach us what they have learned about patients in life-long practice, if they would teach us what they have learned of comfort's art, then we should be nearer our professional millenium.

It is not, however, only to medical students and to younger physicians that we are under bonds. To the laity we are even more bounden to teach the healing art, so far as we can, to all who are willing to learn it.

We hear nowadays of political campaigns of education directed against financial heresies. Of far greater use would be common-sense crusades against the ignorance and superstition that now so flagrantly defy physiological laws.

In earlier times, when everybody knew all about everybody else, the village doctor was also in truest sense a teacher of his art, for then his precepts as to the care of the sick were widely known. Bedside watching was in vogue, and the physician's minute directions were faithfully followed by the kind neighborly nurses and treasured by them for subsequent use.

Such times are gone by. The art of nursing is no longer a matter of inheritance or of tradition. In place of the neighbors we have nurses now who have devoted their lives to this work. They take the place of the physician's private students, who formerly in return for their instruction gave great assistance. In the same way these modern nurses look to the medical profession for instruction. And every physician, both for his own interest and for his patients', ought to do something towards their training. Even in the smaller towns this great work should be undertaken. Otherwise only the rich patients can be properly cared for, whereas under the former *régime* the sick poor fared as well as the rich. This is a matter for most serious consideration. The most effective opposition

to socialism and anarchy can be made by removing every such injustice. Rank and fortune ought not to flourish where love and charity for the sick neighbor die out.

I beg you to think of this. Call to mind your poorer patients who suffer for nursing which is now entirely beyond their reach. Think also of the many young women who would gladly and gratuitously do this nursing under your instruction, if only you would undertake their training. And then remember that fine old saying, *Noblesse oblige*, or, superior advantages bind to larger liberality.

A very mistaken idea has become current that nurses can be properly taught only in the large hospitals. Of course, it is quite true that nurses for hospitals must be trained in hospitals. But for private nurses such training is not by any means sufficient. The new profession of nursing did not originate in large hospitals nor in great cities. And in the original schools, hospital work is still only one of the many departments in which the nurses are trained.

The best nursing service in any community can be secured only by the efforts of the physicians in practice there. In the smallest towns, where as yet a training-school is not feasible, great advantages can nevertheless be obtained by the co-operation of the local physicians with the nearest nurses' school. Such affiliations are happily fast multiplying throughout the State. And even greater blessings will result as physicians more generally recognize their obligations as teachers of nurses.

II. In founding and in carrying on hospitals it would naturally be thought that physicians would be the leaders.

Within the last few years, as you well know, there has been a great increase in the number of hospitals in this country. And even in many of the smaller towns hospitals are now being projected. As the greater efficiency and safety of hospital treatment become more widely known, and as the many advantages of cottage hospitals become apparent, Christian charity more and more readily manifests itself in this form. The old time neighborliness and kindness is not lost, but in the hospital has become organized and centralized.

Physicians know best these and other great advantages; they know how rapidly modern surgery advances where hospital facilities exist; they know how effective isolation wards are in fighting epidemics; and they know best the blessings that the hospital affords for the otherwise homeless sick and injured.

And physicians also know best the requirements that must be fulfilled in the erection and in the management of the hospitals best suited for their different localities. Why is it then that the new hospital movement in Massachusetts is not everywhere being guided by the Fellows of this Society? True, in some places such is the case, but in many other places the hospital movement encounters either the opposition or the apathy of the medical profession. Too often it happens that the physicians whose co-operation is sought, unless given dictatorial power, sulk in their tents. This comes from not being accustomed to public service, or from ignorance of American institutions. Dictators do not flourish here. And the people, who are the rulers, can be persuaded but not driven. If the first physicians are not willing to work with the hospital leaders, then they can meekly work for them

or let others do so after the hospital is in running order. This they do in some of our cities. And in natural consequence we find one of the newest hospitals built without an operating-room, because, forsooth, the need of it was not suggested to the building committee. In several other hospitals the Fellows of this Society accept appointments on "mixed" or "double" staffs, where the different schools of practice are said to be represented, and where the rules and regulations for their guidance are drawn by lay managers. This they do "for the sake of harmony," and because of their conviction that except for such compliance on their part there would be either no hospitals or only homeopathic hospitals possible in these communities. But do they not thus overlook the fact that this compliance on their part formally recognizes and so perpetuates the false distinctions which we all so devoutly wish to have obliterated.

The roots of this modern difficulty lie buried in the indifference of physicians as regards their extra-professional duties. After hospitals have been inaugurated without the encouragement and guidance of those best fitted to guide such undertakings, then it may be necessary to accept the dictation of those who know no reason why patients at the hospital door should not be asked if they prefer homeopathic or allopathic treatment. But where the Fellows of this Society assume their rightful position in the community, where they show their hearty willingness to do their full share of public work, such awkward predicaments do not arise. In such places there is no necessity for accepting distinctions and designations that ought not to exist, but instead there is grand opportunity for demonstrating that perfect liberality which should be our greatest pride and glory.

Of far more importance, however, than any question of medical ethics is the duty of the physician as a public-spirited citizen to see that proper care is given to those for whose care the community is responsible. Not only in the hospitals, but even more in the asylums and in the almshouses a constant watchfulness is needed to ensure for the unfortunate the best care that a constantly increasing enlightenment makes due to them. Nor can such oversight be relegated solely to officials, who indeed are the least able to secure even the reforms that they desire. In the almshouse infirmaries of England the sick and dying paupers have long had the best nursing that the kingdom can supply. Why should not the aged and the impoverished of Massachusetts in their sufferings and in their last hours on earth have like blessings?

The people, if fully informed, would not let their enfeebled neighbors in the almshouse suffer for lack of improved methods of treatment or for lack of proper appliances for their relief and comfort. Nor would the people, if they knew it, allow delicate orphans to be educated by the harmlessly-insane paupers. Again, if the people heard the sorrowful tales told to the officials in the outside poor departments of our cities — if the woes due only to sickness among the poor were generally known in the community — then there would be far less misery. But in our crowded, hurried life those who can give help and would willingly give it, do not actually see the needs. The physician is in the best possible position to bring into relationship the helpers and the helpless. Difficult as is the great question of alms-giving, in cases of physical helplessness there can be no question. Suffering obliterates

all social distinctions. As regards the able-bodied paupers, let the professional scientific philanthropists have their way; but for the sick and the dying, for the maimed and the feeble-minded, let us follow the prompting of our hearts! Of course, there is here great need of good leadership. At the outset there is need of professional skill in discovering the extent of the physical suffering and helplessness, and in pointing out the proper measures for relief. It is the physician's public duty also to strive for the execution of these needed measures. He must follow the footsteps of Dorothy Dix. Her work was that of a true physician who recognizes his extra-professional duties.

III. The greatest advance ever made in medical science has been made during this last third of the century in making possible the prevention of many of our most dreaded diseases. Indeed, it may almost be thought that sanitation is a new science quite distinct from the science of medicine. But in reality there is no such separation, and the prevention of diseases will always be only a special department of our profession. The apparent separation is owing mainly to the fact that the sciences of organic chemistry and of bacteriology, which are the foundations of hygienic science, are younger than the leaders of the medical profession. Comparatively few physicians have had opportunity for such studies, and in consequence the profession as a whole has not grasped the glorious opportunities which the microscopes have already revealed. Even where attempts have been made to realize these advantages, disappointments have often resulted. Surgeons have clutched at the shadows of great principles. Too often they have trusted to antiseptics regardless of the essentials of asepsis, the new-found goddess of hygiene.

After such wondrous revelations as to the causation of diseases it might perhaps be expected that a whole generation of physicians must go and come before the full advantages of these great discoveries can be realized. But it need not be so long.

There is no sense in the separation that exists to-day between the physicians in active practice and their brothers in the laboratories. Theory and practice must always go hand in hand if either is to be of greatest use. The bacteriologist, if he gives not half his heart to the widest clinical application of his knowledge, will lose his highest inspiration. And the busy practitioner who aspires to the highest fulfilment of his mission must now keep in touch with the searchers in the dimly-lighted world of germs.

The common meeting-ground for bacteriologists and for physicians and surgeons can be found in hospital work and also in the work of health boards. Fellows of this Society should never forget that Massachusetts owes her pre-eminence in public sanitation to the efforts of our former Fellow, the late Dr. George Derby, who organized our State Board of Health—the first in this country, if not in the world. I need not remind you of the great work now being done by this board under the guidance of its distinguished chairman and untiring secretary. But I ask you if the local health boards in our cities and towns deserve corresponding credit. The answer is shameful. The trouble is, that the men best fitted to operate this splendid machinery have not given to the Commonwealth that devotion she has the right to expect from all her sons. No grander opportunity has ever been offered to the medical profession than this of directing

the work of public sanitation. Health boards have been authorized by the State in every city and town.² To these boards the State has granted almost dictatorial power, and yet in more than one-third of our towns no health boards have been formed. One of these derelict towns has over 10,000 population. Although many of them are small, that is no excuse for sanitary obtuseness. Where the community has been properly taught the importance of public sanitary work, such work has been cheerfully supported. And yet, in spite of the provision that in the larger towns one member of the health board shall be a physician, so negligent have we become of our extra-professional duties, that in many towns it has been almost impossible to persuade any physician to serve on the board of health, and in many other towns only second-rate men undertake such service. The best physicians say they have not the time, or they shun the notoriety and the possible unpopularity. As a necessary result the local health board too often lacks the confidence of the public and the co-operation of the medical profession.

Already, however, there are signs of improvement. Within the last few years the local health boards have formed a State Association for mutual improvement; and during the past year there has been a distinct advance in the co-operation of the bacteriologists and practising physicians. For this we are in part indebted to the City Physician of Boston, Dr. J. H. McCollom, who for many months generously gave his services to the physicians of this vicinity in determining for them the presence or absence of the diphtheria bacillus in suspected throats. Already in several other cities similar work has been undertaken. But is it not discreditable that this investigation of diphtheria is not being carried on in every city and town? Surely the health board in every community ought to provide for such work. Then might this modern curse of diphtheria be fought to some purpose. If not exterminated, at least it might be "in straiter limits bound."

Leprosy and small-pox have been conquered; and, as a crowning triumph of sanitation, the last invasion of Asiatic cholera was repelled from our shores. Why should we not also drive out every infectious and contagious disease? At least, the complete disinfection of materials—dwellings, furniture and clothing—is possible and practicable. In other countries disinfecting stations are so well arranged that a private house or a school-house or a factory can be promptly and thoroughly disinfected. This is done for the good of the public and, of course, at the public expense. Why should this not be done in Massachusetts? Why should we longer allow the public to be fooled with the useless fumes of sulphur?

Ever since the pilgrims, perhaps in consequence of their previous close confinement on shipboard, succumbed in such frightful numbers to the "white pestilence," pulmonary tuberculosis has maintained in New England its deadly pre-eminence.

Until Koch's discovery of the bacillus of the disease settled all questions of diagnosis, the physician might have been excused for sharing with his patients at first that feverish hopefulness so characteristic of the early stages, and afterwards the absolute hopelessness that so long precedes the end. But now there is no excuse for such professional helplessness—at least the disease must be recognized. In the early stages there is undoubted opportunity for cure. In the middle stages

² Chapters 218 and 473, Acts of 1894.

there is still a fair chance. And in all stages of the disease there is the absolute necessity of preventing the infection of others.

The modern treatment of tuberculosis and of diphtheria, as well as the recognition of these diseases in their earliest stages, depends largely upon bacteriological work which very few physicians have time and facilities for doing. One central laboratory, however, can easily serve a great many practitioners. And such laboratories should be organized, so that these modern weapons against infection may be freely placed in the hands of every physician in the State. This is the proper work of the boards of health. But how can such work be done except under the direction of the highest medical intelligence? No better illustration could be offered of the importance of our extra-professional obligations.

Massachusetts has taken another of her great forward steps in exterminating tuberculosis from our herds of cattle. No longer is it unavoidable that the seeds of this disease shall be given to our children in their daily food. Would that we also kept the germs out of the air that they must breathe!

True, it is a gigantic task that confronts us. Patients already infected with tuberculosis cannot be segregated as lepers are, and yet much might be done both for their relief and for the greater safety of others. Hospitals for diseases of the throat and chest might be established in our pine woods, in imitation of Sharon, and in our hill townships as well. Such sanitariums, properly equipped and properly managed, would effect the cure of thousands now doomed to die for lack of salubrious surroundings and modern treatment. To other thousands, already far advanced consumptives, such hospitals would give every possible chance, and at any rate give great comfort and relief; and at the same time, by bringing such patients under intelligent superintendence, much would be accomplished in preventing the further spread of the disease. Such measures, it is true, would entail a great outlay of public money. But the investment would bring most blessed returns. By affording every possible comfort to the hopelessly sick, and by giving to those who cannot afford either a change of climate or expert professional attention, the best hygienic surroundings and the recently greatly improved medical treatment, the State would have the moral right to require the stricter quarantine that is so important.

Tuberculous and healthy children should not be allowed to attend the same schools. For the tuberculous even better schools should be provided, and might well be afforded by any community where the safety of the young is properly valued. Tuberculous operatives should not be allowed at the same benches nor in the same crowded rooms with others. In any shop or factory it would be wise economy for both proprietors and employes to arrange for this separation even by pensioning the afflicted.

But the separation necessary to prevent the spread of tuberculosis among school-children and operatives is only a small part of what sooner or later must be undertaken in every enlightened community. It is even more necessary to educate every tuberculous patient to such personal habits as will prevent repeated auto-infection, and at the same time ensure the safety of other members of the family and of the public.

That our foe is so mighty, so insidious and so firmly intrenched, ought to make us all the more eager to

begin the fight. We must look out, too, that we stand shoulder to shoulder. Individual efforts will count for nothing. Even a single city or town could do little more than to set the example.

Plainly the lead must be taken by the health boards of the State, working in unison. This co-operation can be secured only by a greater devotion of the physicians in the public service. It is in this sort of extra-professional work—in stimulating the health boards to united, vigorous action—that physicians now have grand opportunity for usefulness.

We have now briefly considered three departments of public service where the knowledge and experience of physicians is greatly needed, in order to provide for all our people the advantages that now separately may be had here and there in other countries.

Under monarchical governments we might petition the king and his councillors for these reforms. But in a republic, reforms originate not in professional petitions, but in popular demands. The people are willing to be persuaded, and must be persuaded before they undertake reforms. Direct responsibility, therefore, rests upon those who alone are able to lead such movements.

In the evolution of this country we have not yet attained the condition of a perfectly representative government. And it is only in the higher development of this grand policy that our national hopes safely rest. Geographical sections may be represented, and voting districts may already be numerically equal, even political parties may be justly represented, but real representative government requires also that each class and profession and trade shall be represented. Such government, so far as our profession is concerned, can easily be obtained by concerted action. And one of the functions of the District Societies, and especially of the local circles of Fellows ought to be the nominating of our representatives for public service in those departments where the help of our profession is needed. Such nominations would have the binding force that honor always imposes. And the physician's public service would be far easier if undertaken at the request of his professional brethren.

But it is not enough that we strive merely to secure the election of our professional representatives. It is even more important that we shall take a greater interest in the public work. One of the sections of our annual meeting might very profitably be devoted to sanitary science. Public measures that especially concern the medical profession should be discussed; and our opinions as physicians should be made known at the proper times, that is, in the formative stages of legislation when such opinions may be of some use. There would then be less ground for pessimistic criticism of school and hospital and health boards.

The three great needs are, first, an individual recognition of our responsibilities for extra-professional or public service; second, concerted effort to secure proper professional representation in the government; and, third, a continued interest in the public service of our Fellows for their encouragement and support.

It may not be uninteresting for us to look at the amount of public service now being done by the nearly two thousand Fellows of this Society, who are practising medicine in two hundred and forty of the cities and towns of Massachusetts. Twenty-five are serving on school-committees, and twenty-five others are serving on health boards.

In pointing out our present failures in these respects, I should not be forgiven if I did not make honorable exceptions. I see before me many of our older Fellows who in previous years have nobly earned exemption from further public service. It was their privilege to serve our country in the dark days of her sorest need. They gave freely of their youth and of their prime. No words of ours, at least in their presence, can fittingly express our joy and pride in having these heroes in our ranks. May they long enjoy our love and honor and gratitude!

And there were others, the comrades of our living heroes, who returned not from the battle-fields, but who there gave to our country the last full measure of devotion. At this memorial season it is especially fitting that we should hold them in remembrance. Nor could any anniversary of this Society be complete without their commemoration. Their lot it was to die in the midst of the nation's travail. For them there was no rejoicing over the new birth of perfect freedom, and over the restoration of the Union. But, like Dr. Warren, whose life-blood shed on yonder hill still quickens the pulses of patriotism, so these brave war surgeons, whose bones lie in the Wilderness, on the hills of Gettysburg, or in the swamps of the Chickahominy, have bequeathed to us the priceless blessing of noble examples.

Shall we prove ourselves worthy of our inheritance? In times of peace and prosperity shall we begrudge giving some small portion of our time to the public service in which they gave up their lives? Rather, as we return to our routine responsibilities, shall we not also willingly assume our extra-professional obligations?

I plead in behalf of anxious parents, who would give their all to ensure the health of their children, but who do not know as you know, in what ways this might be done. I plead in behalf of the distressed, for whom the public would gladly do more if only the way were pointed out. And, finally, I plead in behalf of generations yet unborn, that this dear land of ours shall be more jealously preserved from contamination, in order that the Commonwealth of Massachusetts for the coming ages may be the healthful home of succeeding generations.

God grant that it may be so!

Original Articles.

AN EXAMINATION OF SOME RECENT STATISTICS IN REGARD TO ETHER, AND A CONSIDERATION OF SOME PRESENT METHODS OF ITS ADMINISTRATION.¹

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(Concluded from No. 23, p. 562.)

CONSIDERING briefly some of the present methods of giving ether, let us first discuss the general principles underlying etherization. That life may continue, a certain amount of oxygen is necessary, and it is also necessary that carbonic dioxide, CO_2 , should not be present except in small quantities. If there be either too little oxygen, or too much CO_2 , or both of these conditions simultaneously, the patient will become

asphyxiated, and if subjected to such influences long enough, will die. Therefore, it must not be forgotten that any method of etherization is bad which favors the development of the above-mentioned conditions, and is good in just so far as it avoids them, other things being equal. This seems so self-evident as to make its repetition almost absurd; but an examination of some of the well-known ether-inhalers would indicate that if it had not been forgotten, at least it had not been suitably provided for in mechanical construction of these instruments. To produce anesthesia, it is necessary to introduce into the system a certain amount of the vapor of ether (or chloroform); and to combine this with a sufficient quantity of oxygen, and the removal of CO_2 , is the essential problem underlying all anesthesia.

The absolutely essential characteristic of any ether-inhaler is, therefore, to present to the patient sufficient ether and sufficient oxygen, and to permit the CO_2 to escape. To these characteristics, an ideal inhaler would add cleanliness, lightness, simplicity, adaptability, a minimum amount of ether wasted externally to the patient, and so far as may be, a removal of the unpleasant irritation of the ether vapor itself.

The various mechanical arrangements for giving ether may be roughly divided into three classes: (1) the cones, (2) the mask, and (3) the inhaler proper. In this classification the sponge is included among the cones, though it does not properly belong there, for in reality it forms a little class by itself, not only in its action, but in its use. It might be considered a cone without sides. All three of these classes have, of course, a common object in view, and that is the presentation of ether vapor to the patient in a safe and acceptable manner. And if we may judge, as we are told, of the degree of resistance of a disease to drugs, by the number of remedies suggested for it, so may we argue from the number of mechanical contrivances which are described for the administration of ether and offered for sale, how far we still remain from an ideal ether-inhaler. And though one naturally shrinks from offering another machine to increase the already too great number which exist, still it is pardonable to endeavor to grasp firmly the essential principles of etherization, and then to suggest some of the necessary characteristics of that wonderful instrument of the happy future, the ideal ether-inhaler. But before consulting the future, let us consider the past and present.

Considering first, the sponge, it is perfectly obvious that with a good ether sponge there is ample opportunity for a sufficient supply of oxygen, and for the dissipation of the undesirable CO_2 . In this respect, the sponge is perhaps the best known method of giving ether; at all events, there is no other inhaler with which the writer is familiar, that excels it in this regard. The objections to the sponge are mainly the large amount of ether required, and the complete saturation of all the assistants; the liability of vomiting into the sponge, in which case it is extremely difficult to clean; and the fact that many patients dislike to use a sponge with which others have previously been etherized. It is unquestionably true that with a sponge more time is consumed in producing anesthesia, and for obvious reasons. That the sponge hardens and tends to freeze, as is said to be the case in the Ormsby inhaler (Buxton), has not been observed in Boston; and there are no other considerable objec-

¹ Being one of two papers receiving the second Lyman Prize for 1894.

tions that the writer has found. All these are unquestionably valid, as they are unquestionably secondary in importance to the fact that with the sponge the patient is etherized and not asphyxiated; and the fact which seems to be unquestionable, that there has never been a death directly traceable to ether in the Massachusetts General Hospital, where the sponge is used to the practical exclusion of all other methods, must make us a little cautious in moving too lightly to other and more complicated inhalers.

The cone, which is essentially a sponge or a spongy substance, enclosed in more or less impermeable walls, comes next under consideration. The essential principle upon which it rests is, that when placed upon the patient's face, all the air which enters his lungs shall first pass through an ether-bearing medium, and, conversely, that no air which has not passed through such a medium, shall enter his lungs. For this reason, the cone should not be placed directly over the face at the first inspiration, but held at a little distance until the trachea and bronchi have become accustomed to the ether vapor. In the cone, it is absolutely essential that the ether-bearing medium shall be so arranged as to allow complete and easy respiration, and that all the air necessary shall pass easily through it. The towel cone more nearly approaches the sponge in character, since air passes through its sides as well as through the apex. The various modifications of the towel cone — the paper cone, rubber cone or metal cone — all aim to possess qualities more or less desirable. A good cone, for one who really wants a cone and not a sponge, should fit snugly and comfortably over the mouth and nose, should be easily cleaned, light and strong, so arranged that it may be rapidly made ready for etherization, and when so made ready, should be perfectly comfortable to the patient when breathing deeply; in other words, should offer no obstacle to a forced deep inspiration. Such a cone combines the desirable qualities of the sponge with other desirable qualities which the sponge does not possess. It is perfectly safe; it does not waste much ether; it is not in any way objectionable to the patient, and it may be fed with ether without removing it from the face.

The ether masks are seldom seen in this country. In Switzerland and Germany and France, however, they are extensively used. Perhaps the best known is that of Juillard of Geneva, and its modifications by Dumont and Ritsche. In the excellent article on ether narcosis by Garre, a detailed description, and pictures are given both of the Juillard mask and of the Dumont modification, while the Ritsche modification is described and pictured in his own article below referred to. A metal or wire basket, large enough to cover the entire face, is covered with oiled silk, and at its vertex contains a tuft of flannel upon which the ether is poured. The mask is then held down on the face, and, as a rule, in much less than half a minute, pressed down so as to exclude the external air as much as possible, surrounding the edge of the mask with a towel, and the struggling patient is restrained by assistants. The mask is removed as seldom as may be to pour on more ether. Slight modifications of the above exist in both directions. In Lyons, a longer time is taken in making the patient accustomed to the fumes, before tightly covering the face. In the second method, a large quantity of ether is poured on at first, and "after a few breaths," the mask is pressed down

on the face. The author naively adds that "the patient believes that the concentrated ether vapor will suffocate him, and fights for a short time very energetically, but soon loses consciousness." He adds, that if the mask is not removed, a long narcosis may be obtained, the expired ether being again inspired, without producing any signs of a CO_2 asphyxia. Since this was the apparatus employed and the rules followed by Miculicz, it is possible that American surgeons may not wonder so much as they otherwise might, that he has abandoned ether for chloroform.

The modifications of Juillard's mask do not vary its workings. That of Dumont is merely to employ a second wire basket within the first, and between the two to place the ether-bearing medium. This at once ensures greater cleanliness and offers a larger surface for the evaporation of the ether. The Ritsche modification is to make the mask with metal sides into which glass windows are placed on the sides. The objections to this mask are very obvious; in all except Ritsche's form the entire face is invisible; corneal reflex and pupil, as aids, are removed, and the irritating effect of ether on the conjunctiva is substituted. And in spite of the assertion that CO_2 poisoning is not developed, a condition closely analogous to it, would often, if not invariably, be revealed, if the masks were removed often enough to allow of its being observed; at least, similar conditions would produce such results in America.

We come now to the inhalers proper (or improper), which are, as a rule, more complicated instruments. They are often furnished with a reservoir to contain ether, which moistens the ether-bearing medium over which a stream of air plays, or else the inspired air is brought through the ether reservoir itself.

The simplest of all inhalers is the Allis. In reality it is rather a cone than an inhaler. The original form, in which the many times reduplicated folds of a bandage on which the ether is poured, were fitted into a rubber cylinder, was perhaps the most satisfactory of the varieties of this inhaler. In its latest modified shape, "aseptic" so-called, the rubber cuff is omitted, and the shell is of metal, which is supposed to fit snugly over any face, and which springs open along one side to permit the removal of the bandage. The outer shell is clasped by two projecting hooks with sharp corners (enough alone to condemn it) and the inhaler itself is practically a rather inferior variety of cone. Its chief merit is the rather ingenious arrangement of the bandage, which holds the ether well, and permits a free passage of air. The Allis inhaler consumes much ether.

Next to the Allis, come a series of inhalers furnished with bags which receive the expired air and ether and hold it until the patient inspires it again, protecting the general atmosphere, and the occupants of the room at the expense of the patient.

The simplest of these is the Wauscher inhaler, modified by Laudau (Vogel). A rubber mouthpiece, shaped somewhat like the mouthpiece of a nitrous-oxide gas apparatus, has attached to it a short neck, a large bag of thin rubber. The mouthpiece, neck and bag are all detachable. Into the bag the ether is poured, and the mouthpiece applied to the face; the bag is shaken to hasten evaporation of the ether. Unless the apparatus be lifted from the face, a fresh supply of air is not offered to the patient. It is interesting to note that Vogel, after describing this apparatus,

enters into a long exposition of the CO_2 poisoning which must necessarily result from the use of the Juillard mask. If he describes his own inhaler accurately, it would seem to be rather a Hobson's choice between them.

Ormsby's inhaler is similar in general shape to Wauscher's but has a sponge in the neck of the bag; a tube leads from the outside to this sponge, and ether poured into the tube is distributed over it.

Canfield's inhaler has a much larger neck. Part of this metal neck is an ether reservoir, and the remainder an open tube connecting the mouthpiece and the bag, and loosely filled with a sponge. By pressing a button, ether is allowed to trickle down upon the sponge.

Clover's is at once the most complicated and the best known inhaler used in English-speaking countries, and does not need description. Its mechanism is in many ways admirable, and unlike many inhalers, it may be used in almost any position which it is necessary for the patient to assume. The inspired air is carried through the ether on its way to the mouth, and a valve leading directly through the mouthpiece permits undiluted air to enter in moderate quantities, if so desired. A large part of the air, however, is expired into the bag and immediately inspired again. Buxton, in commenting on it, says that cyanosis and asphyxia may be avoided by lifting the inhaler from the face every seven or eight inspirations. The bag is the chief objection to all of these, and in the judgment of most American surgeons, an objection sufficient to condemn them in spite of other and better qualities and their mechanical advantages. It is not good for an unetherized person to breathe and rebreathe the same air, and why it should be good for one etherized, to whom the shock of the anesthesia is added, to do so, is not at all obvious.

Battershall has produced a remarkable-looking inhaler, which seems both clumsy and needlessly spread out, but yet contains principles which, theoretically at least, should place it ahead of any yet considered in this paper. A rubber mouthpiece is fitted to a (long) tunnel, into which, in turn, a cylinder fits. The cylinder is partially filled with cotton to be saturated with ether, a valve which opens towards the cotton is placed at the distal end of the cylinder, and a valve which opens towards the external air, is placed upon the upper edge of the mouthpiece. A screw permits a small quantity of pure air to enter the tunnel above the mouthpiece at will. When the patient inspires, the valve in the mouthpiece closes, that in the cylinder opens, and the air rushing in enters the lungs after passing through the ether-laden cotton (the screw in the tunnel being closed). On expiration, the air rushes out through the valve in the mouthpiece, that at the end of the tunnel being closed. If pure air seems indicated, the screw in the tunnel is partially closed. Of the practical working of this inhaler, the writer is ignorant; theoretically, it is much better than any of those previously considered. Its present construction could be definitely improved.

Packard has invented an inhaler consisting of a bottle for ether, a mouthpiece connected with this bottle by a rubber tube, and a Davidson bulb acting into the bottle, and when contracted, forcing the ether vapor into the mouthpiece, whence it is sent by expiration into the bottle again.

Khrone and Seseman, in London, have a similar

principle, better developed and more mechanically perfect, in which the really excellent mouthpiece is furnished with a valve, after the manner of Battershall, and also a valve at the entrance of tube to mouthpiece, shutting off expired air from a return to the ether bottle. On inspiration, ether vapor is forced in from the bottle and is expired into the open air. A very small amount of ether is used, and it is entirely unirritating to the patient. The only objection to the arrangement is its size, and the rubber tubes at which an excitable patient might clutch and easily destroy the apparatus.

Dr. Williams, of this city, has constructed an inhaler which is probably, on theoretical grounds, the most perfect that has been made. In it the valves acted as in the two above described, but the ether vapor was not forced from the reservoir but simply inhaled with the air by the inspiration of the patient. A screw also admits pure air directly from without. The only objection to this instrument, is the minor one of size, and certain mechanical and constructive details. The principle of inhaling into the lungs air which has passed through a body of ether, and then exhaling it into the surrounding atmosphere, appears to be unquestionably the most perfect foundation for ether anesthesia. The production of an apparatus embodying this principle, which shall be of a convenient size, light, strong, durable, simple, and so arranged that it may be used in any position, upright or inverted, is the main problem that now confronts any one who would produce an ideal ether-inhaler. The difficulties are greater than is at first apparent, and many forms sufficiently obvious and easy of construction, combine in themselves several of the above enumerated qualities. But the mechanism which possesses them all has not yet been devised; and while waiting for its appearance, it is evident that a cone which has proved by experience to be trustworthy, and ether, which, as Vallas says, is as effective as chloroform and less fatal, are respectively the best agent and method for producing anesthesia at the present time.

It is impossible to leave this subject without a word of regret for the lack of careful and trustworthy statistics in this country upon ether anesthesia, and equally impossible to omit an earnest appeal for the development of such statistics in the future. Particularly in Boston, the birthplace of ether (and of anesthesia), is it appropriate that reliable and complete notes upon all points of etherization should be taken as a matter of course, and collected to make a basis for scientific conclusions. It should be the duty of the etherizer to make such notes, and it would at once demand a more thorough training upon the part of that assistant, a more complete concentration of his attention upon the etherization alone, and an elevation of the standard of his position. The sentiment that "any one will do to give ether" is gradually dying, and the quicker it is buried the better. Granting that the etherizer is thoroughly familiar with and understands completely his duty (and this should be a *sine qua non* just as much as with the operator himself), the complete care of the anesthesia should be placed in his hands. To it he should give his entire attention, and to the patient as little ether as is consistent with complete unconsciousness. The etherizer should be the one appealed to in regard to the patient's condition, and on his judgment should depend the question of the necessity of stimulation, its character and its amount,

subject only to the final authority of the operator, which need be only occasionally invoked. The etherizer has had both the respiration and the pulse-rate constantly before his eyes and under his fingers, and should be best able to judge of variations in either of them. It should be his privilege to ask for the discontinuation of the operation or to call for artificial respiration, if the case seemed to him to demand it. In this way, the position of etherizer would be made one of much importance, and the necessity for more judgment and skill in the administration of ether would be demanded and undoubtedly developed. The record of a surgical case should not be complete without the notes upon the anesthesia, made by the etherizer himself, and they should comprise—

The time required to produce complete anesthesia.

The duration of anesthesia.

The quantity of ether used, if a special form of cone be used.

The presence or absence of vomiting both during and after the operation, and if present, its amount and character.

The character of the recovery from ether, and the occurrence of collapse, cyanosis, unusual conditions of the heart, or respiration, and any other circumstances that seems worthy of comment.

Such notes, combined with the results of the examination of the urine, before and after, in at least a certain proportion of cases, would undoubtedly teach us much that would be valuable upon the subject of anesthesia. It would be a practice in line with the increased care of details in other branches of the science, and it would certainly enable future surgeons to avoid the mistakes, few though they be, that have been made; and it would probably contribute not a little to the comfort of the patient. And is it not appropriate that the city which was the mother of ether anesthesia should follow most carefully the development and growth of its offspring, and in intimate and accurate knowledge be not only its foremost champion, but its final authority?

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BICYCLING FOR WOMEN.¹

BY CHARLES W. TOWNSEND, M.D.

As an aid to the discussion on this subject of bicycling for women I have sent to a number of female physicians in Boston and throughout the State a list of questions. The answers of eighteen of these I have been able to classify, and I wish to express here my indebtedness to these physicians² for much valuable information.

The questions asked were:

- (1) Do you consider bicycling good for the average woman?
- (2) Have you seen any harm from it? If so, what?
- (3) Would you advise it in any form of uterine disease?
- (4) What is your personal experience, if any, with bicycling?

The answers I have classified as follows:

- (1) All but one stated decidedly that they considered bicycling of value to the average woman, ten of them adding one or more of the following qualifications:

- (a) If used in moderation, both as to length of ride and speed.
- (b) If properly dressed, one adding without corsets.
- (c) If in proper posture.
- (d) If at proper times.
- (e) If protected from falls while learning.

(2) Nine had seen no harm from bicycling. Four more had seen harm only from excessive use in the form of general fatigue and jarring of the head and spine. One reports severe pain in the head in a stout woman of forty following excessive strain in climbing a steep hill. Another has seen serious ovarian trouble directly due to riding long distances or during or near the menstrual period.

Another reports a case of renal hemorrhage; a case of profuse metrorrhagia; a case of oöphoritis with antilexion and intense dysmenorrhea in a patient hitherto entirely healthy; and a case of miscarriage.

Another physician has seen uterine congestion and dysmenorrhea in a patient with no previous history of pelvic trouble.

¹ Read before the Obstetrical Society of Boston, April 13, 1895.

² Answers were received from Drs. R. Barnard, F. Berlin, E. L. Call, E. M. Davis, S. E. Palmer, M. Perry, A. G. Richardson, L. M. Robinson, M. A. Smith, S. R. Stowell, J. Tolman, L. F. Vickery, G. Wolcott, E. W. Mooers, S. M. Crawford, S. E. Crocker, H. L. Harrington, L. V. G. Mackie, M. O'Callaghan, and C. J. Alexander.

Another has seen harm in a case of extensive adhesions and contracted ligaments; where there were active inflammatory processes present; and in one case where there was a small subperitoneal fibroid in the uterine wall.

One physician reports contusions from an improperly fitted saddle, a difficulty which can be avoided, she adds, by proper adjustment of the saddle.

(3) The question, "Would you advise it in any form of uterine disease?" was answered in the negative by two only. The remainder had recommended the exercise or might recommend it in suitable cases. The majority of these limited the exercises to chronic cases, especially where the circulation was sluggish and the muscular system relaxed, cases of uterine neurasthenia, dysmenorrhea, amenorrhea due to chlorosis, moderate displacements and imperfect development.

A number of cases are reported as benefited by bicycle exercise. They are briefly: Several cases of retroversion, one case improved so that pessary was discarded, others not harmed; a cured case of retroversion learned to ride, the falling off, etc., doing no harm, general health improved. One had "seen improvement in patients with enlarged and even prolapsed uteri after taking systematic exercise on the wheel."

The following cases are worth reporting at some length:

Young married woman, retroflexion of uterus and prolapsed ovary with adhesions; dysmenorrhea and pain on walking. Learned to ride a bicycle and used it all summer with the exception of the menstrual periods. Rode thirty and forty miles in a day at times. At the end of this time examination showed that "the inflammation has entirely subsided, her menstruation causes her very little pain, and she considers herself a perfectly well woman. The displacement is still there but not so sharply defined."

Another case is as follows:

A young woman of delicate physique with great dysmenorrhea requiring rest in bed. Use of bicycle begun last April followed by improvement in general health with menstruation fairly comfortable, not requiring rest in bed.

Several speak of the beneficial use of the bicycle where walking was difficult or impossible. One says: "Several patients with uterine and ovarian disease, who were unable to take walking exercise have received marked benefit from bicycling," and adds, "due I have thought to the general tonic effect of an out-of-door life, change of thought, etc., all the organs of the body partaking in the good results." This strikes the key-note of the situation.

(4) It is interesting to note that these favorable criticisms were not obtained from bicycle enthusiasts, as only one of these had used a bicycle herself. Three had begun to ride only, while the remainder had no experience in bicycling.

The one rider says, "My own personal experience leads me to consider bicycling a decidedly healthful, safe, agreeable and cheap form of exercise."

These replies, it seems to me, cover the field of bicycling for women very satisfactorily, showing that the bicycle is of great value to the average woman, even to the woman with various forms of uterine disease. They also show that the bicycle when improperly used is liable to do harm.

It remains to sum up briefly the subject.

Out-of-door exercise, it is unnecessary to state, is of great value to every one, and, it is also unnecessary to add, that women as a class suffer greatly from the lack of it. Another thing from which women suffer is too heavy and too tight clothing. Both of these ills the average woman is entirely unconscious of, and will deny the need of more exercise on the one hand, or the existence of heavy and tight clothing on the other. No amount of dress-reform preaching or of calisthenic exercises will remedy these evils, or awaken the woman to a knowledge of the possibilities of the enjoyment of life. This is what the bicycle is doing, and is destined to do in the future.

The bicycle provides not only an agreeable method of exercise in the open air, but also demands a comfortable loose and light costume. Whether it will change woman's dress so far as to discard the skirt and substitute the divided garment or loose knickerbockers remains to be seen.

Patients who have substituted the comfortable loose "health" waists for corsets, while they were riding, have found that corsets were unnecessary for their every-day dress, and decidedly uncomfortable.

In talking with several ladies' tailors on this subject I have found that short corsets which do not press on the abdomen are used, and that, while some cling to the regulation corset, many are using waists simply. One tailor writes me, "I make bicycle costumes for a great many that do not wear corsets, but the Equipoise waist, and make them just the same style and cut as if they wore corsets."

Like all forms of exercise the bicycle can do harm by excessive use. Too great speed or too long rides are exhausting and may injure some delicate point. The exercise is so agreeable and inspiring that there is more danger of excess than in many out-of-door sports, especially if a spirit of ambition and rivalry is allowed. The long rides on time—even "century" runs are indulged in by women—accomplish no useful purpose, and often result in great harm.

Another danger to be avoided is the strain from riding up steep hills, a case where ambition often compels the rider to persist after the effort becomes too great. A good rule is to dismount and walk up every hill where the effort of riding is at all irksome. The change of exercise is restful and beneficial.

Another evil, one which fortunately is rarely found among women riders, but is all too common among men, is the stooping posture with bent back and head thrust out awkwardly like a tortoise. This is the position of the racer on the race-course. For ordinary riding it is entirely unnecessary, and very harmful, contracting the chest and bowing the back, besides preventing the rider from enjoying the scenery. The class of riders who sit in this way, however, do not care for scenery. By raising or lowering the handle bars or seat, both of which are adjustable, any road bicycle may be so arranged that the rider is compelled to sit erect. This matter is often not understood by parents who think that the bicycle is so constructed as to require a bent posture. There is no more need to condemn bicycling on this account, than there is to condemn horse-back riding on account of the position of the jockey in racing.

The saddle, in addition, allows considerable adjustment of tilting and should be so arranged as to avoid pressure in the pudendal region. This danger has by

some been much overestimated and can be avoided. The stooping posture as well as a faulty position of the saddle tends to bring pressure in this region.

The bicycle has been compared with the sewing-machine. As well compare mountain climbing with exercise in a treadmill! The differences are great, and I have arranged them in parallel columns.

BICYCLE.	SEWING-MACHINE.
Out-of-doors.	In-doors.
Mental recreation.	Monotonous task.
Body erect.	Body bent over.
Increased circulation.	Stasis of blood in lower limbs and pelvic organs due to bent position.
Vision not concentrated.	Eyes fixed on fine points.
Exercise consisting of sweeping movements of legs and thighs, together with the use of all body muscles in swaying motion of balancing, together with more or less use of arms.	Exercise limited to restricted movements of lower legs.
Exercise demands deep inspirations.	Exercise so slight that deep inspirations not required.

Those who do not ride imagine that bicycling exercises the legs only. They are very much mistaken.

Dr. G. M. Hammond⁸ has found that the average expansion of the chest in bicyclists who sit erect is one and four-sevenths inches, the average in the non-exercising man being one inch.

The delightful nature of the exercise is of the greatest value. To most women gymnasium work is a bore, and so often is walking with no object in view except the exercise. Both of these forms of exercise when prescribed by the physician often accomplish but little, as the patient is not taken away from herself.

Not so with the bicycle, which breaks up morbid trains of thought, takes the patient away from herself, and in that way benefits every nervous or functional complaint. It is, moreover, an exercise which develops self-reliance, a virtue much needed by this class of patients.

It is unnecessary to speak of the advantage to town dwellers of getting easily into the country and of the small expense and great possibilities of bicycling.

In conclusion, it seems to me that bicycling is beneficial to women, not from any special effect on the pelvic organs, but because it is an agreeable, healthful form of exercise in the open air, a form which exercises the whole body, and indirectly benefits special conditions. And the converse of this holds true, that as a general exercise bicycling is not hurtful to the pelvic organs even when these are affected, unless the disease is so acute that any exercise as great as this is contraindicated.

BICYCLE SADDLES FOR WOMEN.¹

BY JAMES R. CHADWICK, M.D.

It has seemed to me important to inaugurate a discussion before this Society upon the subject of the bicycle saddle for women, in view of the great and increasing resort to this mode of exercise. I feel my incompetence to decide upon the various considerations presented by the topic, because I have never been a bicycle rider. My concern has been, however, awakened by the admissions of two patients. (1) A mar-

ried woman, thirty-four years old, complained that after the menstrual period (during which she abstained from riding) she invariably was conscious of an irritation in the vulva which persisted for several days. I could not discover that any permanent lesion was produced. She attributed the discomfort to the fact that the vulva rested upon the pointed projection of the saddle in front. She subsequently obtained an English saddle — the Brooks Oval Saddle by name — which differed from the other chiefly in being broader behind and less high in front. Upon this saddle she has since ridden without discomfort. (2) A few months later a married woman, forty-seven years old, who had been referred to me by Dr. Weir Mitchell, of Philadelphia, for neurasthenia, amenorrhea, etc., reported to me that she had taken to bicycle-riding with the greatest benefit to her general health, but that she had been much troubled with leucorrhea. This last symptom I found attributable to a chronic vaginitis and apparently produced by the exercise. In view of the great improvement in her general physique I did not deem it necessary to forbid bicycling, but prescribed an astringent for the vaginitis; with what effect I have not since learned. These experiences have led me to give much attention to the saddle of the bicycle and its fitness for women.

I find that no serious attempt has as yet been made to produce a saddle that shall be adapted to a woman's anatomy. The bicycle saddle for men seems to have been modelled upon the saddle that was found suitable for men riding upon a horse, being merely reduced in most of its dimensions. This has answered most of the requirements, though often found to strike against the prostate gland or the pubic arch. When women began to ride they were given the same saddle, regardless of the fact that behind the pubic bone are the external genital organs so prominent as inevitably to rest upon the anterior projection of the saddle. The result has been that women have generally had great difficulty in having the saddle so adjusted as to be rendered comfortable — in other words to avoid pressing unduly upon the vulva.

My inquiries have not enabled me to form definite conclusions, but have made evident the fact that (1) the saddles in most use require many adjustments to be comfortable to the generality of female riders; (2) that some of the saddles are absolutely unfitted for the use of women; (3) that the teachers have no definite ideas by which they can adapt the saddle to the use of women.

Now let us consider briefly in what respect the saddle needs alteration to fit it to the anatomy of woman. In the first place a woman's pelvis is broader than a man's, and the tuberosities of the ischia are further apart in woman than in man, consequently the width of the rear portion of the seat needs to be greater. No such provision has been made. This is a matter, however, easily corrected when attention is called to it. Secondly, the anterior projection of the saddle must be tilted downwards so that it will not strike against the vulva. This, however, requires the most delicate adjustment, for if the saddle is tilted too far the slope of the seat causes the rider to slide forward so as to rest almost entirely upon the anterior projection, and so defeat the object of the tilting. Again, the seat may be shifted backwards and forwards upon the frame, without tilting. When shifted backwards, the action of the leg upon the treadle tends to push the

¹ Read before the Obstetrical Society of Boston, April 13, 1895.

⁸ New York Medical Record, February 2, 1895.

body backwards and thus to ensure that the ischia shall rest upon the saddle; but in this location the muscular action of the legs is less effective, which renders the work of propulsion greater.

From the foregoing it is evident that the adjustment of the present form of saddle to women is attended with great difficulty. The question therefore arises, Is the anterior projection of the saddle essential? I cannot pretend to answer this question; but it seems to me that experiments should be made to dispense with this feature of the present saddle if possible. The problem is whether without the anterior projection, the seat of the rider would be sufficiently secure. The trouble is that when the leg is straightened and the treadle at the lower point of its circuit the thickness of the thigh tends, by pressing against the anterior margin of an oval saddle, either to lift the tuberosities of the ischia from the saddle or to drag them forward, so that after a jounce they will not descend upon their proper place, and a secure seat will thereby be lost, or the skin be chafed at the junction of the thigh and the ischiatic region. The feasibility of such a saddle as this can only be determined by experiment, and should be made before women are generally allowed to ride the bicycle.

In conclusion, I would express the opinion that bicycling is a most desirable form of recreation and exercise for women, and that my only purpose in bringing it up for discussion on this occasion is to stimulate the inventive minds of its advocates to devise a saddle which shall not inflict local injury or discomfort upon women riders.

Clinical Department.

MULTIPLE FIBROID OF THE UTERUS WEIGHING FOUR AND A QUARTER POUNDS.¹

BY W. L. BURRAGE, M.D.

R. H. (colored), thirty-nine years old and single, first came under observation August 17, 1894. She was a native of Virginia, and had always enjoyed good health up to two years previous to this time. During these two years she had suffered with dysmenorrhea, which had been increasing in severity, and with profuse menorrhagia and constant pains in the groins, especially on the left side.

The pain in the groin was of a bearing-down character, and prevented her from lying on the left side. She complained also of frequent micturition and of poor appetite and sleep. The catamenia were regular, of two days' duration, flow of twenty napkins. The severe dysmenorrhea was every other month, when she was obliged to give up work and suffered with a large variety of nervous symptoms.

Diagnosis: Fibroid, size of large orange; nodule behind, another to left and above; cervix behind pubic arch and to the left, in front of posterior nodule, which nearly fills the pelvis; sound goes upward three inches.

Treatment with intra-uterine galvanism was begun at once. Eighteen treatments, N. 50 to 100 milliamperes of five minutes' duration each were given during three months. At the end of this time the tumor had grown perceptibly, and was distorted to such an extent that intra-uterine treatment was no longer pos-

sible. A galvano-caustic puncture, 100 milliamperes, N., was then made in the posterior nodule.

At the end of seven months she was a good deal relieved as regards her symptoms, but she looked forth with terror to every other menstrual period, and was anxious to get rid of the tumor, which had increased one-third again in size and reached nearly to the umbilicus.

I operated at St. Elizabeth's Hospital April 3, 1895. There were no adhesions, and the only trace that I could find of the electrical puncture was a black spot the size of a pin's head on the posterior nodule. After the broad ligaments had been tied off, the tumor was delivered with comparative ease after the posterior nodule had been dislodged from the pelvis. The vagina was not opened, a small piece of the cervix being left behind. The canal of the cervix was touched with pure carbolic acid, the uterine arteries tied with silk, and the stump and the peritoneal edges whipped over with continuous catgut. No drainage.

The operation was ten days ago, and the patient so far has had an uninterrupted recovery. The temperature has not been above 100°; the union in the abdominal wound has been good, and aside from some nervousness at night and sluggishness of the bowels, there has been nothing abnormal to note.

Inspection of the tumor shows the futility of trying to reach all parts of such a uterine cavity as is here shown with electrode or curette; for, as you see, it is some four and a half inches deep, measured from the severed edge of the cervix, and the distorted left horn reaches through to the back of the tumor, bending in several directions as it goes.

This case exemplifies the rule that electrical treatment does not diminish the size of the tumor in a majority of cases of fibroids and it causes no adhesions.

Medical Progress.

RECENT PROGRESS IN ANATOMY.

BY THOMAS DWIGHT, M.D.

THE RELATIONS BETWEEN THE SHAPE OF THE SKULL AND THE POSITION OF THE PETROUS PORTION OF THE TEMPORAL BONE.¹

DR. GARNALT has undertaken to verify Körner's views on this question which is of much practical importance in otological operations. Körner had declared that the floor of the middle cerebral fossa is higher in long skulls than in short skulls, and also that the continuation forward of the lateral sinus before its descent, is in direct relation to the degree of brachycephaly. Garnault's studies were made on sixty skulls, of which only seven were mesaticephalic. It is needless to go into details when the conclusions are as sweeping as they are in this case, for Garnault finds, to state it most favorably for Körner, that his conclusions are of no practical value.

GROOVE ON SPINE OF SPHENOID.²

Mr. R. Clement Lucas spoke at a meeting of the Anatomical Society of Great Britain and Ireland, of a small groove which is found very constantly on the inner surface of the spine of the sphenoid caused by

¹ Shown at the Obstetrical Society of Boston, April 13, 1895.

¹ Comptes Rendus de la Soc. de Biol., 1895, No. 6.

² Journal of Anatomy and Physiology, vol. xxix, January, 1895.

the chorda tympani nerve. It is important as locating definitely the course of this interesting structure after its escape from the skull. It is situated behind and usually rather internal to the foramen spinosum. The best guide to the groove on the entire skull is the tubercle at the front of the vaginal process of the temporal bone. In some cases the groove broadens anteriorly. Mr. Lucas suggests very plausibly that this may be due to movements transmitted to the nerve through the lingual, which, of course, moves with the tongue.

COMMUNICATION BY A LARGE VESSEL BETWEEN AN ARTERY AND VEIN.³

As is well known, it has been maintained by several anatomists, that there are vessels connecting arteries and veins which are too large to be called capillaries. Suquet described such vessels in the human hand and foot and introduced the term "circulation dérivative." The doctrine has experienced several vicissitudes. Professor Debierre and Dr. Gérard of Lille, now come forward with a truly remarkable observation. They found, not an excessively minute vessel, about which one might quarrel as to whether it was a large capillary or a small vein, but a vessel three centimetres long and two and one-half millimetres in diameter, forming a loop between the femoral artery and vein at the fold of the groin in a child three days old. This description applies particularly to the left side, but a corresponding vessel was found on the right. Most people would be inclined to look on this as a very exceptional and extraordinary arrangement, but the authors think otherwise. They have seen similar dispositions in the bodies of four young children, but at different points. With one exception, when there was found an anastomosis between the aorta and the inferior cava, these communications were always at the folds of the great joints of the limbs. Observations are now being made on the adult, which are promised later.

THE CUSPS OF THE PULMONARY AND AORTIC VALVES.⁴

Professor Windle read a paper before the Anatomical Society of Great Britain and Ireland, on the relative position of the semilunar valves of the pulmonary artery and aorta. They are usually described either according to Valsalva, who gives one anterior and two posterior cusps to the pulmonary valve, and two anterior and one posterior to the aortic; or, in a directly opposite manner, according to which the pulmonary has two in front and one behind, the aorta one in front and two behind. This latter description is spoken of in the paper as that of "Gibson," which is undoubtedly a misprint for Sibson. Windle examined nearly 100 hearts himself, and brought the series up to that number by the use of notes on frozen sections furnished him by others. He finds that in 15 cases the arrangement is that of Valsalva, and in 85 that of Sibson. He adds the following judicious remarks: "In saying this, however, it is important to note that the description is only a rough one. It is only in comparatively few cases that the two anterior cusps of the pulmonary artery are equally anterior . . . ; and that the same is true of the two posterior cusps of the aorta, indeed, more true; for the arrangement in

the pulmonary orifice tends to be more strictly in conformity with the description than that in the aortic."

VARIATIONS OF THE THYROID IN MAN.⁵

Dr. C. F. Marshall has examined the shape of this organ in the bodies of 60 children under ten years. His chief purpose was to obtain statistics of the persistence of the thyro-glossal duct and of the "canal of His," meaning by the latter the median cervical fissure which is occasionally met with. This latter was not found at all, nor was there ever any persistent ductus lingualis, though in 15 per cent. there was a little duct one-quarter inch long from the foramen cecum, representing its rudiment. The variations in shape were so great that Dr. Marshall declared it absurd to speak of a normal thyroid.

The lateral lobes were usually about equal. Once the right lobe was wanting, so that the gland consisted of a left lobe and an isthmus.

The isthmus was wanting six times, and was more or less fused with one lobe in about one-quarter of the cases.

The pyramidal process was found in almost half the bodies, and usually was attached to the hyoid bone.

The author notes "that there is no relation between the extent of the remnant of the ductus lingualis and the presence of the processus pyramidalis, for in the nine cases in which the ductus lingualis was represented by one-quarter inch, only four of these cases had pyramidal lobes, the other five having none at all." There are seventeen drawings of thyroids appended to this very interesting paper. It may be remarked by way of criticism that the morphology of the thyroid of the infant and of the adult is probably not the same. It would be well to have another series taken wholly from adults.

Dr. Mauclaire⁶ has examined some 80 bodies and 30 dried preparations to determine the position of the isthmus of the thyroid on the trachea, which is somewhat variously stated in the books. Roughly speaking, he finds that in two-thirds of the cases the isthmus covers a part of the first ring, and more or less of the second. Next in frequency is what is commonly called the classical position, in which it rests on the second ring and leaves the first uncovered.

THE SIZE AND POSITION OF THE STOMACH.⁷

Dr. F. Martius has made an extremely interesting preliminary communication of experiments made by Herr Meltzing in his clinic on the living stomach. The method was to introduce a sound bearing an Edison lamp into the stomach of persons on whom the boundaries of lungs and liver had been previously determined by percussion. Experiments were made with the patient lying and standing; with the stomach both full and empty.

Perhaps the most interesting result is that the empty stomach descends a great deal lower than is commonly supposed. This might, perhaps, have been expected for we are too apt to forget that our ideas of topography are gained from subjects in a position of extreme expiration. The empty organ almost invariably descended as low as the navel, and when filled with water materially lower. We come, however, here on a statement that is quite unintelligible, namely, that the lowest point reached was on a level with a plane

³ Comptes Rendus de la Soc. de Biol., 1895, No. 1.

⁴ Journal of Anatomy and Physiology, vol. xxix, January, 1895.

⁵ Ibid., vol. xxix, January, 1895.

⁶ Bull. Soc. Anat., Paris, tome ix, No. 3, 1895.

⁷ Wiener med. Woch., No. 7, 1895.

connecting the highest points of the crests of the ilia. Now this is at practically the same level as the navel.

When the patient, who has been examined lying with the stomach full of water, rises, the lower border of the stomach and the edge of the liver fall from four to eleven centimetres.

The respiratory excursions of the lighted space are considerably in the recumbent and but slight in the upright position. The enlargement of the illuminated area on filling the stomach takes place chiefly to the right.

The observer has seen cases of really immense stomachs which to all intents and purposes are perfectly normal. Hence he declines to call an organ pathological, if we rightly understand him, whatever may be its size if it performs its functions. We are glad to learn that the author is about to publish his observations in book-form.

THE CECUM.*

One would think that this organ had received so much attention that little new remains to be said of it, but there is no cessation of new contributions. Dr. Richard J. A. Berry gives a detailed examination of 100 cases, from which the following points may be gleaned.

There has always been some uncertainty as to how the upper boundary of the cecum is to be determined on the unopened organ. Of course the cecum is that part of the intestine below the opening of the ileocecal valve, but this point is not always to be known from external inspection. When the frenal furrows are to be seen the position of the valve is clear; when they are not Dr. Berry would have us take a point midway between the upper and lower borders of the cecum, just where it enters the ileum. As he justly premises that the solution can only be approximate, there can be no hesitation in following his plan.

The dimensions were taken on 42 ceca of which casts had been made, with the results shown in the following table:

Age.	No. Cases.	Av. length.	Av. breadth.
Below 10 years	11	2.8 cm.	3.7 cm.
10 to 30 years	3	7 cm.	8.5 cm.
30 to 40 years	11	6.4 cm.	7.4 cm.
40 to 60 years	11	6.8 cm.	8.8 cm.
60 to 80 years	6	6.8 cm.	7.7 cm.

The author emphasizes two points as shown by this table, first, that the cecum is much larger in the adult than in the child, and, second, that the breadth is always greater than the length. Sex apparently has no influence on the size.

Treves describes four types of cecum, which it may be worth while to recapitulate for our readers who cannot easily turn to the original. The first is a conical prolongation of the gut something like a cornucopia. The second is short and bulging. These two forms resemble each other in one important respect, namely, that the three muscular bands are about equidistant and on the whole the cecum is fairly symmetrical, with the appendix springing from its extremity. In the third form the pouch to the right of the anterior band has grown to such an extent that it forms a great part of the cecum which is entirely lob-sided, the appendix arising from its left side near the end of the ileum. The fourth form is an exaggeration of the preceding, the anterior band runs by the lower border of the ileum to the origin of the appendix.

Treves found the relative frequency of the types as

follows: I, 2 per cent.; II, 3 per cent.; III, 90 per cent.; IV, 5 per cent. Berry finds in his 100 cases the following percentages: I, 10 per cent.; II, 6 per cent.; III, 80 per cent.; IV, 4 per cent. It is to be noted, however, that Berry included children and fetuses. Now six of his ten cases of type I were fetuses and this is the fetal type. Of the four others, three were from young children, thus leaving one adult case of the first type. The second type, which is an evident modification of the first was represented by six cases, but only two of these were from adults.

When all not adults are stricken out of Berry's series, we find his table reads as follows: I, 1 per cent.; II, 2 per cent.; III, 94 per cent.; IV, 3 per cent., which is strikingly like that of Treves. The practical surgical deduction is that in over 90 cases in 100 among adults the origin of the appendix will be found not far from the ileum.

Dr. Berry found the cecum completely invested by peritoneum in 94 per cent. of his cases.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, April 13, 1895, the President, DR. JAMES R. CHADWICK, in the chair.

DR. W. L. BURRAGE reported a case of

MULTIPLE FIBROID OF THE UTERUS,¹

and showed the specimen, weighing four and one-quarter pounds.

DR. JAMES R. CHADWICK read a paper on

BICYCLE SADDLES FOR WOMEN.²

DR. CHARLES W. TOWNSEND read a paper on

BICYCLING FOR WOMEN.³

The subject of bicycling for women was then discussed by the Society, especial attention being paid to the saddles, of which Dr. Chadwick had brought a number for criticism. The general opinion seemed to be favorable to bicycling as an exercise for women, although the present form of saddle was thought by some to be objectionable.

DR. E. J. FORSTER reported

A CASE OF VESICO-VAGINAL FISTULA

so large that it was possible under ether to look in and see the urine coming out of the ureters.

DR. EDW. REYNOLDS remarked that a curious fact of the case was that the ureters opened on the anterior surface of the bladder owing to the cicatricial adhesions.

FURTHER LIGHT* ON THE "KEELEY CURE."—Rev. Dr. J. M. Buckley, the editor of the *Christian Advocate*, has obtained the information from 68 clergymen and 25 physicians, that of 534 persons known to have taken the bichloride treatment 251 relapsed, 13 became insane, 11 died, 2 committed suicide and 275 were cured. The quality of bichloride furnished must be poorer at present than it was when the 95 per cent. of cures claimed by Keeley were effected.

¹ See page 596 of the Journal.

² See page 595 of the Journal.

³ See page 593 of the Journal.

* Anatomisches Anzeiger, Bd. x, Nr. 13, 1895.

ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

THURSDAY. — MORNING SESSION.

THE Association met in the Army Medical Museum Library and was called to order by PRESIDENT WM. OSLER, of Baltimore, who delivered

THE PRESIDENTIAL ADDRESS.

Dr. Osler reviewed the work of the Association for the past nine years, and concluded that the Association had thus far abundantly fulfilled its prime object, "the advancement of scientific and practical medicine."

This Association, he said, has already had a potent influence on the study of pathology and clinical medicine in this country. We need, however, a larger group of men who are devoting themselves exclusively to these branches. The rapid progress of the medical schools has increased the teaching positions in the scientific branches, and there is at present an actual scarcity of thoroughly trained pathologists and bacteriologists to fill them. There is no need to insist upon the necessity of accurate and prolonged training in the development of workers in these branches; but I do not think that the profession of this country as yet understands the art of training special clinical physicians. We have taken it too much for granted that such develop readily in the routine of family practice. True, along this path some of the most noted men in our ranks have travelled; but the time has come when able young men should be encouraged to devote themselves to internal medicine as a specialty. Content to labor and wait, during the first ten or fifteen years of professional life, with pathology as the solid basis of development, such men will pass to the wards through the laboratories, thoroughly equipped, to study the many problems of clinical medicine. They will gain the confidence of their professional brethren by accurate and thorough work, and through them, if they wish, the public and practice. The opportunity for such a career is in every city with a hospital of fifty beds. Of such — of physicians (in contradistinction to surgeons, gynecologists and general practitioners) and of pathologists and bacteriologists — should our Association in large part be composed.

We should all understand that this is a working Society; and when any of us cease to attend regularly, or when our interest grows lukewarm, we will promote best the common welfare by quietly retiring.

We have lost year by year very heavily by death, 16 of a total of 111 members. While some have passed away in the fulness of years, with their work accomplished, others have been taken in their prime, and several of our most valued members have been removed while still in the days of promise. This year we mourn the loss of two men who could ill be spared from their respective spheres of labor and from us.

Of Alfred Lee Loomis I need not say much to this audience, before which, as well as before a much larger, he played a strong rôle. Energy and determination, so clearly stamped on his features, led him early into the path of success, and each decade added reputation and prosperity. Threescore and four years found him one of the most prominent figures in the profession of this country — a successful writer, a much sought-for consultant, a busy man of affairs. Then

the end — and happily for him, perhaps, while the harness was still on, and while the vigor of mind and body was still unimpaired. In this Society, in the Congress of our united bodies, Dr. Loomis proved a trusty counsellor, an earnest worker and a zealous supporter of the best interests of the profession. In his faithful attention to those duties which lie outside of the daily routine of our lives, duties which we are only too apt with advancing years and with assured success to neglect, he was a notable example to us all.

The death of William Cecil Dabney is in every way deplorable, untimely; and, since he died of such a preventable disease as typhoid fever, we might almost say, unnecessary. He had only reached that stage in his career when experience and judgment begin to ripen, and when we begin to discern in a man whether he is intellectually a polyp or a mammal, whether with his growth there has been development as well. Dr. Dabney was a conscientious and earnest worker, a zealous teacher and a man of wide sympathies with all that was best in the profession. He had a warm, lovable nature which endeared him to an unusually wide circle of friends and patients. To our Association, of which he was an original member, he was much attached; and we have lost in him a strong and faithful colleague, one whose ways and works were of the best and highest.

LEUCOMAIN POISONING,

by DR. B. K. RACHFORD, Cincinnati.

Leucomain poisoning is a form of auto-intoxication etiologically related to migraine, migrainous epilepsy, and migrainous gastric neurosis. Paraxanthin, the most poisonous of leucomains, is found in very great excess in the urine passed immediately after these migrainous attacks, and is not found in increased quantities in the urine of these patients between these attacks.

Xanthin, another poisonous leucomain, is found in great excess in the urine passed just after one of these attacks, and in migrainous gastric neurosis xanthin is found not only in great excess in the urine, but it is also found in the stomach contents.

The paraxanthin separated from the urine of these cases will produce in the mouse symptoms very similar to an attack of migrainous epilepsy.

DR. F. P. KINNICUTT: I would like to ask if Dr. Rachford has had the opportunity of investigating urine in cases of tetany. I think it is exceedingly probable that a certain number of cases of tetany are the result of auto-intoxication, and that auto-intoxication is presumably due to some form of indigestion. It occurs not infrequently in cases of dilated stomach and in cases of severe gastro-intestinal disturbance, which would make it probable that it is caused by auto-intoxication. In the last few months I have seen two cases of tetany. One case was fatal in twenty-four hours after the occurrence of the first symptoms. The autopsy showed simply an enormously dilated stomach. The patient had had several previous attacks in the course of the preceding ten years, and all accompanied with marked symptoms of gastric intestinal disturbance. The other case was in a child, the tetany going over a period of three weeks. In this case there was continuous spasm. The symptoms finally entirely disappeared. Examination of the urine was not made.

DR. W. H. THOMSON: I feel extremely gratified

with the experimental demonstration that Dr. Rachford has given of the connection of migraine with auto-infection. I have long held that view; and I read a paper before this Society on the significance of intermittency in functional neuroses. The fact that some nervous diseases should be characterized by complete intermissions pointed strongly to toxic rather than to structural relations in their etiology. I do not see that the hereditary character of these functional neuroses militates in any way against such an inference, because clinical experience certainly shows in the case of gout, for instance, that we may have hereditary abnormal chemistry as well as hereditary abnormal morphology.

With reference to migraine, it has been my custom for years to treat those patients prophylactically, and I have felt that I have had a good deal of success by the free use of ammonium and sodium benzoate.

A close relation seems to exist between migraine and some cases of the uric-acid diathesis and some cases of epilepsy, and I have treated them on the same principle. This relationship was strikingly illustrated in one case that I had. The patient was one of the worst cases of migraine that I have ever had to do with. She had a son who from childhood had uric-acid renal calculus. A daughter inherited the migrainous tendency and that daughter had a son who was epileptic, an epilepsy which was very closely analogous in its symptoms to that which Dr. Rachford has described.

DR. F. C. SHATTUCK: How long does it take to find the xanthin and paraxanthin?

DR. B. K. RACHFORD: Three weeks.

DR. J. E. GRAHAM: I would like to ask Dr. Rachford if he examined the urine shortly before the attack, say a week before?

DR. B. K. RACHFORD: I have made an examination of the urine at almost all times between the attacks and as recently as one week before and have always failed to obtain these poisons. I have not yet had a case of tetany that I could satisfactorily examine. Apart from the interest which attaches to these cases this has, I think, a great bearing upon the pathology of uremia and eclampsia from uremic causes.

SOME TOXICOGENIC GERMS FOUND IN POISONOUS FOOD,

by DRs. VICTOR C. VAUGHAN and GEORGE D. PERKINS, Ann Arbor, Mich., was read by title.

DR. A. C. ABBOTT, Philadelphia, read a paper on THE EFFECT OF THE GASEOUS PRODUCTS OF DECOMPOSITION UPON THE HEALTH OF ANIMALS THAT ARE COMPELLED TO RESPIRE THEM.

In a paper read by the writer at the Congress of American Physicians and Surgeons, session of 1894, were presented the results of a series of experimental studies that were made with a view of determining in how far the opinion held by many with regard to the part played by the air of sewers in causing or disseminating diseases, could be supported by evidence obtained through the employment of exact chemical, physical and bacteriological methods of investigation.

The outcome of these experiments afforded nothing to justify the view that the air of sewers, under ordinary circumstances, could be held accountable for either the causation or dissemination of infectious maladies.

Since the presentation of the conclusions embodied in that paper, a series of experiments have been made with the object of discovering the effect of the gaseous products of decomposition on the health and resistance to infection of animals that were compelled to respire them. For this purpose animals, rats and guinea-pigs, were confined under bell-glasses through which was passed continuously, for varying periods, the air from over substances (meat-infusion, sewerage and urine), in different stages of decay. Some of the animals were subjected to this treatment only, while others were inoculated from time to time during the experiment with cultures of the bacillus of typhoid fever. Of eighteen animals on which the experiments were performed, only two, which will be referred to in detail in the body of this paper, showed any effect; the remaining sixteen presenting nothing that could be attributed to the conditions under which they had lived for from one to five months prior to their being killed. The general condition of these animals during the experiments, as determined by their outward appearance, appetite and daily fluctuations in weight, was as good as that of other animals kept under the ordinary conditions of the laboratory.

As a result, the conclusion seems justifiable, that as ordinarily respired, the air of sewers, or that from other bodies undergoing decomposition and putrefaction, has either not the power of inducing pathological conditions at all, or, if it has, such conditions are not demonstrable by such laboratory methods of experimentation as we have practised on rabbits and guinea-pigs.

RENAL AFFECTIONS FOLLOWING INFLUENZA,

by DR. G. BAUMGARTEN, St. Louis, Mo.

A report of eight cases, from which it appears that damage to the kidneys is a frequent, and sometimes a serious consequence of grippe. Besides transient albuminuria, there have been found acute degeneration of the kidney, acute inflammation, both forms of chronic diffuse nephritis, and cases of persistent albuminuria not plainly belonging to one of these groups. The injurious influence on public health exerted by an epidemic of grippe may last much longer than the epidemic itself, by reason of renal and other sequels.

DR. A. JACOBI: I know that I find renal trouble very frequently after influenza. It has appeared to me that the form of nephritis that we see after influenza is the same that we find after diphtheria and after typhoid fever and, therefore, I believe that it must be due to the same cause, to the toxins of the different germs giving rise to these diseases. The microscopical appearances of such a urine are about as follows: Specific gravity say from 1.014 to 1.022 or even 1.026, of small amount when the case is recent, a very small amount of blood, hyaline casts, hyaline casts studded with granular matter or with small epithelium and granular casts of the thin, fine variety. These characteristics I have found, not only after influenza, but also after typhoid and after diphtheria. They are contrary to what we find after scarlatina, which has its own peculiar form of nephritis. The large majority of these cases get well and get well speedily, that is within two or three weeks, but sometimes taking two or three months. I have also seen quite a number of cases that became chronic.

DR. TYSON: I have observed renal trouble in persons who were entirely well and free from evidence of

it until after an attack of grippe. I have taken no trouble to collect cases of this kind but it seems to me there would be a considerable number if I gathered them. Then there is a second class of such cases, consisting of those who had so-called functional albuminuria previous to an attack of the grippe. In a certain number of such cases, the patient returned to me after having had the grippe, with a very much more serious state of affairs, with increased albuminuria, an increased number of tube casts and an altogether aggravated condition. Of these two conditions, the occurrence of primary nephritis from grippe and an aggravation of a previous albuminuria, I can speak from experience.

It is evidently a toxic nephritis.

DR. F. C. SHATTUCK: I am sorry that Dr. Charles Folsom, of Boston, is not here, because this is a subject in which he is interested. Last winter I saw a number of times with him, a young lady, previously neurasthenic but much better than she had been, who was stricken with the grippe, followed by bronchopneumonia; the next thing was an acute nephritis with almost suppression of urine and an enormous amount of albumin. She became uremic; and it seemed as if the nephritis itself would prove fatal, because the quantity of the urine remained very small. Later on, the urine increased in quantity and she was doing pretty well. Next she had a general neuritis; and then came her sudden death, apparently from gastric implication. In connection with this case, Dr. Folsom has alluded to similar cases, so far as the nephritis is concerned, which he has seen in the Boston City Hospital and in which autopsies had been obtained, the character of the kidney being generally the large, red, swollen kidney. Regarding the similarity of the process with the nephritis which we see in typhoid, it seems to me that, however it may be pathologically, there is a certain clinical distinction between them. Of course, the influenza is a disease which is vastly more common than typhoid; the number of cases affected is very much larger, consequently we might get the disease in a larger number of cases although not in a larger proportion of cases. I do not recall a case of typhoid fever in which I have seen such a very severe consecutive nephritis as I have seen following influenza.

DR. M. H. FUSSELL: I have under observation at the present time at the University of Pennsylvania, at least two cases of acute nephritis, which we think are due to a previous influenza. One of the cases came to the dispensary complaining simply of malaise which had followed an attack of influenza. He had gone about to different doctors, no one seeming to think of examining his urine. We found on examination an unquestionable parenchymatous nephritis. This case, especially, points to the value of examining urine as a routine matter, as we do at that institution.

DR. A. JACOBI: I wish to correct a mistake I may have made. I spoke of the nephritis of diphtheria and typhoid, not as a sequel of these diseases, but the ordinary affection which is found in the beginning and during the course of the typhoid and in the very first days of diphtheria. It is of the same nature as this one which is found during and after influenza, so far as I know.

DR. A. H. SMITH: It seems to me that the degree of intoxication resulting from grippe is perhaps

greater than its ordinary clinical manifestations would lead us to suppose. I should regard these cases of nephritis as exemplifying that idea. I have seen recently as the result of the last epidemic, several cases in which there seem to be very marked cardiac degeneration. Taking the history now, of the several years of grippe which we can refer to, I think we may conclude that the phenomena that we observed during the prevalence of the fever are but a very small part of the damage which is likely to occur. In one of Dr. Baumgarten's cases he speaks of subnormal temperature. During the last epidemic I noticed that very frequently. It seems to me that a considerable proportion of the cases of grippe which I had last winter were followed by subnormal temperature, often persisting for a considerable time, which we may justly refer to an invasion of the nervous system by the grippe poison.

DR. G. BAUMGARTEN: Dr. Jacobi may be right in deciding that the usual nephritic condition in influenza is that of typhoid fever, yet I would like to point out that the condition in influenza is not always the same; that there are various forms; we have for instance, a hemorrhagic nephritis and a non-hemorrhagic nephritis, and we have nephritis which comes on during the acute stage of the disease, and nephritis which comes on much later. We have affections which result early in dropsical symptoms, and those which show no dropsy at all but develop very acute uremic symptoms. Finally we have chronic affections of the kidney which can with the greatest probability be traced to an attack of influenza and which has not passed through any acute stage of nephritis.

REPORT ON IMMUNITY AGAINST VACCINATION CONFERRED UPON THE MONKEY BY THE USE OF THE SERUM OF THE VACCINATED CALF AND MONKEY,

by SURGEON-GENERAL GEORGE M. STERNBERG and SURGEON WALTER REED, U. S. A.

DR. G. M. STERNBERG: Three years ago at a meeting of this Association, I read a paper in which I gave the results of some experimental work which seemed to demonstrate the fact that blood serum from a recently vaccinated calf, a calf immune as the result of its vaccination, neutralized the potency of vaccine virus when it was exposed directly to such blood-serum. The method used was to expose the points charged with the virus directly to the blood-serum from the immune calf. Other points were exposed in the same way to the serum of a non-immune calf. The serum from the non-immune calf had no effect, while that from the immune calf neutralized the virus. I stated that there was an antitoxin in the serum of immunized calves which might perhaps be used for immunizing children or for the treatment of the disease. I continued these experiments on children in a different way. I wished to find whether the serum from an immune calf, or from a patient recently having had small-pox, would prevent the development of the vaccine vesicles after vaccination. I went to the orphan asylums in New York, and I had a considerable number of unvaccinated children put at my disposal. I vaccinated in some cases in one arm with bovine virus given to me by Dr. Griffiths of that city, while in the other arm I injected the blood-serum from the immune calf. In other cases I injected immediately in the vicinity of the vaccination of the same arm. I also obtained blood-serum from a recent small-pox

case. I went to the small-pox hospital, and there was a young woman just convalescing from a very severe case. She consented to let me have some blood. I drew from her arm some four or five ounces of blood in a sterilized test-tube, obtained the serum from it, and used that in the same way, injecting about five cubic centimetres, sometimes in one arm, sometimes in the other. I never have published the results of the experiments, because I hoped to continue them, and also because the results were negative.

Press of duties has prevented my continuing this line of work, so I suggested to Dr. Reed, the curator of the Army Medical Museum, that he continue these experiments; and he has done so, and I will now read his paper.

DR. WALTER REED briefly reviewed the work done by former investigators on this subject, then detailed his own experiments, concluding as follows:

Putting together the results obtained in these experiments and those given by Strauss, Sternberg and Copeman, it is believed that the following conclusions may be drawn:

(1) That the manifestations of vaccinia in *Cercopithecus mona* is as well marked as *Rhœsus*; but that in *Cebus apella*, an American monkey, vaccinia apparently runs a milder course.

(2) That by the injection of the serum of the blood of a vaccinated monkey it is possible to immunize *Cebus apella* against vaccinia, and that the immunity thus acquired may last for thirty days.

(3) That the serum of the blood of the vaccinated calf, when injected in large quantities may markedly retard the course of vaccination in the monkey.

(4) That this retardation of the vaccinia probably continues so long as there is present in the system of the vaccinated animal certain antitoxic substances contained in the serum; and that when these substances have been eliminated from the body, the process proceeds to a successful though somewhat modified course of development.

That the fact, first pointed out by Sternberg, that the serum of the blood of the vaccinated calf contains some antitoxic substances which can destroy the virus of vaccine lymph, would seem to be confirmed.

When, however, we come to inquire as to the practical use of the serum of the vaccinated calf, as a therapeutic measure in the treatment of variola in the human being, we are compelled to admit that this antitoxic substance appears to be present in such small quantities as hardly to justify its use. Unless the curative action of this serum against small-pox in man is many times greater than its immunizing effect against vaccinia in the monkey, the quantity required would be greater than could be practically used.

It remains for the discovery of some means whereby the antitoxin can be separated from the serum, or its quantity increased in the blood of the calf. Until this has been accomplished, the use of the serum for the cure of small-pox, except in enormous quantities, 1 to 50 of body weight, can hardly be expected to exert any curative action.

(To be continued.)

Recent Literature.

The Medical Register for New England. By FRANCIS H. BROWN, A.M., M.D. Eighth edition. Boston: Damrell & Upham. 1895.

The fact that one edition of this Register succeeds another at regular intervals, and that the eighth edition has been reached, testifies sufficiently to its popularity and utility.

This last edition has been thoroughly revised and contains much new matter, especially in regard to Societies, Hospitals and Institutions of recent origin. It is a great convenience to all who have medical interests.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science, by Leading Authorities of Europe and America. Edited by THOMAS S. STEDMAN, M.D. In twenty volumes. Vol. II, Nutritive Disorders. New York: William Wood & Co. 1895.

The subjects treated in this second volume of the "Twentieth Century Practice," under the head of Nutritive Disorders, are: Addison's Disease and other Diseases of the Adrenal Bodies, Diabetes Mellitus, Rheumatism, Gout, Arthritis Deformans, Diseases of the Muscles, Obesity.

This forms a very interesting and important group of systemic derangements, which are still entirely in the hands of the medical practitioner, into none of which has the all-pervading surgeon's knife found an entrance.

The different subjects, in the order given, are treated by Sir Dyce Ducksworth, of London; Dr. Carl H. von Noorden, of Frankfort-on-the-Main; Dr. Thomas J. MacLagan, of London; Dr. Henry M. Lyman, of Chicago; Dr. Archibald E. Garrod, of London; the late Dr. Dujardin-Beaumetz, of Paris; Dr. Max J. Oertel, of Munich. The titles of the contributions and the names of the contributors are in this instance a trustworthy indication of the value of the volume to the physician.

Those who are familiar with MacLagan's "Rheumatism: its Nature, its Pathology and its Successful Treatment"; with Lyman's "Practice of Medicine"; with Oertel's theses on Exercise in Affections of the Heart; with Sir Alfred Garrod's writings on Gout and Kindred Diseases, will find themselves at home in this volume. In general, however, these and the other well-known writers give here their maturer judgment and their enlarged experience, and the reader finds between two covers what he must otherwise search for in many different sources.

A very good index at the end of the volume adds materially to its value for the busy man.

De l'Hystérectomie Vaginale. By DR. EMILE BAUDRON. Paris. 1894.

The full title of this book explains its scope. It is an account of vaginal hysterectomy applied to the surgical treatment of bilateral lesions of the uterine appendages, and describes the operation of Péan. It is based on a study of the first two hundred cases of Dr. Paul Segond, and contains thirty-eight illustrations. It is of particular interest at this time when this operation is being actively discussed in medical circles.

A MONUMENT TO LAVOISIER. — The French Institut has decided to open a subscription toward the erection of a monument to Lavoisier in Paris, his native city.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JUNE 13, 1895.

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A NEW THEORY REGARDING THE PHYSIOLOGY OF THE NERVE CENTRES.

It is not unnatural that the various revelations concerning the minute structure of the nervous system, which recent methods of staining are forcing upon us, should lead to new speculations regarding its physiological action. The researches of Golgi, Ramon y Cajal, and all who have followed in their footsteps must be regarded as perhaps the most significant histological advance of the last twenty-five years. It is certainly too early to determine all its physiological bearings, and we must look with interest, it may be, but at the same time with much scepticism, upon broad deductions drawn from anatomical data thus far at our disposal.

A bold theory in explanation of physical and even psychical processes has recently been formulated by Professor Matias-Duval, of Paris, on the basis of our present knowledge of nerve structure, of which we give the essence in the following paragraphs. The paper embodying his ideas was read at a recent meeting of the Société de Biologie of Paris. He first takes up the now almost universally accepted theory of nerve conduction by contiguity rather than by continuity, and speaks of the anatomical arrangement of the terminal processes of cells. As a result of this, it happens that the bridge of transformation of sensory into motor excitation, the reflex centre, is represented not only by a nerve cell, but by articulation of prolongations at a distance. Such agents as strychnia and potassium bromide modify reflex activity, by acting upon cell processes, instead of upon cells themselves. Such an idea is confirmed by what we know of the action of curare upon the terminal arborizations of motor nerves.

By an extension of this theory to all the nerve centres we are much better able to understand the anatomical conditions underlying such phenomena as

memory, the association of ideas, imagination, and even to comprehend histologically the results of habit and education.

Thus, recently, E. Tauri¹ remarks, that, since every reiterated functional act causes hypertrophy of the locality of its occurrence, the repeated passage of nerve currents must provoke an hypertrophy of the nerve cells which are in function; if this hypertrophy take place in the sense of an increased length of a prolongation, it will diminish the distance between the parts which ought to communicate; when, by greater proximity, the passage from one to another neuron becomes much facilitated it also becomes unconscious; this is why habitual automatic actions are unconscious. But one may ask whether this be a question of proximity definitely established between the terminal ramifications, or of a facility acquired by these ramifications, through a veritable ameboid property of their protoplasm, of prolonging themselves at a given moment and retracting themselves at another moment.

Wiedersheim's investigations on the brain of *Lepidoptera hyalina*² and a certain analogy in olfactory cells would indicate the possibility of amebiform movements of nerve cells and their prolongations, in general. The hypothesis of such ameboid movements in the brain cells of man has therefore a certain basis in observed fact. We may, then, believe that the connections between nerve cells in nerve centres are not only by contiguity, pure and simple, but may be more or less intimate under varying circumstances. It may consequently be conceded that imagination, memory and association of ideas become more active under the influence of certain agents (tea, coffee) whose action without doubt (?) would be to excite the amebiform movements of the contiguous nerve extremities, to bring together their ramifications and facilitate the passage of nerve influence.

This conception, which ranks cerebral actions, even the most elevated, with histological processes similar to those which we observe in the ameba and leucocytes, would find its application in the analysis of the phenomena of sleep and waking, and would give us what he (Duval) designates as the *histological theory of sleep*. In an individual who is asleep, the cerebral ramifications of the sensitive central elements of a neuron (see the nomenclature of Van Gehuchten for sensitive neurons) are retracted just as, under the microscope, are the pseudopods of a leucocyte which is anesthetized by absence of oxygen and an excess of carbonic acid. The feeble excitations exerted upon the sensory nerves of a sleeping person provoke reflex actions, but do not pass on into the cells of the cerebral cortex; stronger excitations cause prolongations of the ramifications of the sensitive neuron and, in consequence, the current passes into the cells of the cortex, the result being an awakening, the successive phases of which clearly explain the re-establishment of a series of passages of the nerve current, which, previously, had been inter-

¹ Rivista Sperim. di Frenatria e Med. Leg., 1892.

² Anat. Anz., 1890.

rupted by retraction of the pseudopodic ramifications. But, just as violent and non-habitual excitations will cause retractions in the ameba, in the same way, in man, special excitations will induce retraction of the pseudopods of neurons and the arrest of the corresponding nerve function (acts of inhibition, chorea from nervous interference); and by the same mechanism, violent and abnormal excitations will cause anesthesias and hysterical paralyses.

Researches by M. Azoulay on the pathological anatomy of general paralysis, by methods of Golgi-Cajal, have shown a partial atrophy of nerve tufts in certain motor elements; in other words, a partial disappearance of the pseudopodia of the neurons.

From this the author goes on to quote other evidence from the lower forms of life, and concludes as follows:

"The ideas which we have set forth are a legitimate development of these comparisons. The similarity between a neuron and an ameba may elucidate many other questions than those here indicated. To point out one more, we may show, by the light of this comparison, how vain and how lacking in *raison d'être* the famous hypothesis of the neurility or the indifferent conductivity by a nerve fibre ought to seem and, as a consequence, how much the ingenious but always unprofitable attempts of Paul Bert to induce union between a sensitive and a motor nerve lose in interest. These experiments, which formerly excited our enthusiasm, now seem to us without reason, or resolve themselves into the problem of discovering, after having cut the pseudopod of an ameba, whether this pseudopod can be made to unite with the body of another ameba."

Had the above ideas not been enunciated by a man of recognized scientific attainment, in all seriousness, we should have passed them by without comment. As it is, we can but wonder at the poverty of the evidence, which Professor Matias-Duval regards as sufficient for the maintenance of his hypothesis. It goes without saying that the matter under consideration is one of the utmost subtlety. It concerns itself with an ultimate problem, which to many minds has long been regarded as unsolvable by any means at the disposal of physical science. That imagination, for example, should find its explanation in the ameboid movements of cells and the pseudopodic retractions and prolongations of their processes, savors of anything but exact science.

Altogether to be deprecated, at the present state of our knowledge, are hasty generalizations from the rapidly accumulating but still few facts at our disposal. Psychology cannot fail to be the loser by the formulation of laws which are based on insufficient data, and exact medicine should not be called upon to labor under a heavier burden of unproved hypotheses, than she already has to bear. The ingeniousness of M. Matias-Duval's theory we cannot but admire; the foundation upon which it rests we must regard as altogether insufficient.

A MEDICAL-PRACTICE LAW IN RHODE ISLAND.

On May 16th, the Legislature of Rhode Island passed an Act Regulating the Practice of Medicine. This Act, a copy of which is before us, is to take effect sixty days after its passage, and provides that the necessary qualifications for practising medicine in Rhode Island shall be either "a diploma from a reputable and legally qualified medical college, endorsed as such by the State Board of Health," or satisfactory evidence that the physician desiring to qualify was reputably and honorably engaged in the practice of medicine in Rhode Island prior to January 1, 1892. Any person, not qualified as above described, must submit himself to such examination as the State Board of Health may require. Ten dollars must be paid by the applicant to defray the expenses of the examination.

Section 4 provides that no itinerant doctor shall be allowed to register or to practice medicine in any part of the State.

The Act further provides that the State Board of Health may refuse certificates, or revoke certificates already issued, to any individual guilty of grossly unprofessional conduct of a character likely to deceive or defraud the public. Appeal from the decision of the Board may be made to the Supreme Court, whose decision shall be final.

Section 6 provides that no discrimination shall be made against any particular school or system of medicine, and that women shall not be prevented from practising midwifery.

The penalty for violation of the law is a fine of fifty dollars for the first offence, and a fine of one hundred dollars and imprisonment for thirty days, or either or both, for every subsequent conviction.

The phrase "engage in the practice of medicine" within the meaning of the law is defined as opening an office for such purpose, or announcing to the public in any other way a readiness to practise medicine or surgery in the State.

The State of Rhode Island is to be congratulated upon having secured at length a medical practice law which is excellent in many of its provisions. The efforts which have been made for many years to secure such legislation have at length borne fruit in the passage of the Act of which we have given an abstract above, and these efforts would have been well worth while if nothing had been secured but the passage of the clause preventing itinerant physicians from practising in the State. The physical and financial harm done by these travelling quacks and impostors can hardly be overestimated.

Under the Act the State Board of Health is made responsible for the enforcement of its provisions, and will have entire charge of the examination of candidates and their credentials. Upon the intelligence, honesty and faithfulness of this board the value of the law to the people of the State will absolutely depend. Let them see to it that their work is well and faithfully done.

One clause in the law can well be criticised, namely, that one which allows women to practise midwifery without registration or examination, as if midwifery were a branch of medicine in which ignorant and fraudulent practitioners could do no harm, and therefore no legislation on the subject were required.

The law on the whole, however, is a distinct step in advance, and one which will undoubtedly accomplish much for the protection of the people of the State against unqualified practitioners.

MEDICAL NOTES.

BACTERIA IN CLOTHING.—Dr. Leitz of Munich, according to *La Médecine Moderne*, has found that a little disc three millimetres in diameter, which has been placed upon a woollen stocking which has been worn, produced 356 colonies on nutrient gelatin. A cotton stocking gave 712 colonies. From a glove which had not been worn, 33 colonies were obtained. Among the colonies there are always a few pathogenic bacteria, the staphylococcus pyogenes albus being the commonest. Leitz has found the typhoid bacillus in clothing after twenty-one and twenty-six days; the anthrax bacillus obtained from cloth was virulent at the end of a year. An encouraging fact was that the linen of tubercular patients after profuse night-sweats, did not apparently contain the tubercle bacillus; the results of inoculation were negative.

A SPECIAL FOOTBALL LESION.—In the *Centralblatt für Chirurgie*, No. 16, 1895, is an abstract of an article by Magg (*Hospitals Tidende*) in which he states that he regards a subpatellar bursitis, a lesion which he has frequently observed in football players, as a special lesion due to the repeated action of the quadriceps femoris muscle in kicking.

THE ASSOCIATION OF GERMAN ALIENISTS.—The Association of German Alienists will hold its annual meeting this year in Hamburg, on September 13th and 14th. The following are the principal questions on the programme: "The Diagnostic and Prognostic Significance of the Knee Phenomenon in Mental Diseases" (to be introduced by Dr. A. Cramer, of Göttingen); "Action-bringing Insanity in its Nosological and Forensic Relations" (to be introduced by Dr. Koppen, of Berlin); "Transitory Mental Disorders of Epileptics in their Medico-Legal Relations" (to be introduced by Professor Siemerling, of Tübingen).

MUSIC FOR THE SICK POOR OF PARIS.—A French gentleman, M. Guzman, has left 50,000 francs to the Assistance Publique, the Paris Municipal Charity Department, to defray the cost of musical entertainments to be given to the sick poor in the hospitals and asylums under its control.

SYMPHYSEOTOMY AT THE MAISON BANDELOCQUE.—In the report of the Maison Bandelocque for 1894, Pinard reports that during the year 21 symphyseotomies were performed in the service, 12 on primiparæ and nine on multiparæ. Of the 12 primiparæ

there was one death from septicemia with suppuration of the wound on the tenth day. Of the children 11 lived. Only one died during labor. Among these 12 cases, ten were face presentations, one of them being a brow. Among the nine multiparæ there was one death from puerperal sepsis. All the children were born alive, except one in whom numerous attempts at forceps delivery prior to admission to the hospital had produced multiple fractures of the skull. Of the 21 operations 17 were performed in cases of vertex, two of face, two of breech presentations. One woman had symphyseotomy performed twice with perfect result as to both mother and child.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, June 12, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 101, scarlet fever 38, measles 140, typhoid fever 7.

HOSPITAL FOR CONSUMPTIVES.—The bill to establish the Massachusetts Hospital for Consumptives and Tubercular Patients has been passed by the Massachusetts House of Representatives with an amendment making the establishment of the hospital mandatory instead of permissive.

THE MASSACHUSETTS MEDICAL SOCIETY.—The Committee of Arrangements for the meeting this year have, as stated in their announcement, made special efforts to make the visit of the members attractive and profitable. The arrangements for entertainment at the theatres and concerts, the harbor excursion, etc., can hardly fail to add greatly to the enjoyment of the visitors. The committee are to be commended for the enterprise shown in their preparations for the entertainment of the visiting physicians.

THE AMERICAN NEUROLOGICAL ASSOCIATION.—The members of the Association during their recent meeting in Boston were entertained at luncheon on Wednesday, June 5th, at the Hotel Vendome by Dr. James J. Putnam, Dr. Morton Prince, Dr. Henry R. Stedman and Dr. William N. Bullard. In the evening there was a reception to the members at the University Club, under the auspices of the Boston Medico-Psychological Society, to which were invited also the staffs of the Massachusetts General and Boston City Hospitals and the Faculty of the Harvard Medical School. On June 6th the Association accepted an invitation from the Trustees of the Massachusetts General Hospital to visit the new McLean Hospital at Waverly. The annual dinner took place at the University Club on Thursday evening.

NEW YORK.

THE JANITORS OF PUBLIC SCHOOLS.—In the future the public schools are not likely to be closed on account of the presence of contagious disease in janitors' families. At a meeting of the Board of Education held June 5th the report of the committee on

buildings recommending that all janitors be required to reside outside of the school-houses was taken up and adopted, and the Board voted to ask the Board of Estimate and Apportionment for \$4,000 additional appropriation for janitors' salaries, or so much of that sum as may be necessary to enable them to secure living quarters elsewhere than in the school buildings.

DR. DOTY'S CHANGE OF ROUTE.—Health-Officer Doty, who started for Cuba recently, found when he arrived at Tampa that the United States Medical Inspector, Dr. Burgess, had left Cuba. Consequently he decided not to go there, and continued his trip to New Orleans, where he has been examining the new quarantine station.

EARLY OPENING OF THE SWIMMING BATHS.—Twelve of the fifteen free swimming baths situated along the East and Hudson Rivers were opened to the public on June 5th. This is considerably earlier than the usual date for opening, and the change was made on account of the intense heat of the early days of June.

DEATHS FROM HEAT.—On Monday, June 3d, the last day of the hot weather, the coroners were called upon to attend no less than fifty-eight cases of sudden death, a large proportion of which were due more or less directly to the heat.

DEATH OF DR. J. MARSHALL HAWKES.—Dr. J. Marshall Hawkes, of New York, died suddenly after an operation for the relief of complicated mastoiditis on May 26th. Dr. Hawkes was a graduate of the College of Physicians and Surgeons, New York, and was especially identified with orthopedic surgery. He was best known by his invention of the paper jacket as a support in disease of the spine.

DEATH OF DR. WILLIAM B. WALLACE AND DR. ALPHONSE M. WALLACE.—Dr. William B. Wallace and his son, Dr. Alphonse M. Wallace, both died of pneumonia on June 7th. The elder Dr. Wallace was taken ill on May 25th. The attack was a very severe one, but he successfully passed the crisis and was thought to be on the way to recovery when he began to fail and he rapidly succumbed. He was born in County Limerick, Ireland, fifty-three years ago, and was educated for the priesthood at Mount Mellery College. He decided to abandon this career, however, and entered All Hallows' College, Dublin, where he took his degree in Arts. In 1868 he came to this country and studied medicine at the College of Physicians and Surgeons, New York, where he was graduated in 1871. He soon built up a large practice and at the time of his death he was visiting physician to the City Hospital (Charity) on Blackwell's Island, and consulting physician to St. Joseph's Hospital, Yonkers. It was as an ardent Irish patriot that Dr. Wallace was best known to the public. He was considered one of the most eloquent orators among his countrymen in America, and he was a leader in all the Irish national movements inaugurated here. He was one of the organizers of the Irish National Land

League of America, and when that went out of existence, 1882, he was one of the chief promoters of its successor, the Irish National League of America. When the Irish Parliamentary party became divided owing to the Parnell divorce case, Dr. Wallace became an advanced anti-Parnellite, and with Dr. Thomas Addis Emmet and other well-known Irishmen, formed the Irish Federation of America, of which he was elected Vice-President, an office he held at the time of his death. The younger Dr. Wallace was a devoted watcher by the bedside of his father, and four days after the latter's illness commenced was himself taken with pneumonia. He died within twelve hours of his father. Dr. Alphonse Wallace was born in New York and was twenty-seven years of age. He was educated in the public schools and St. Francis Xavier College, and received the degree of M.D. from the College of Physicians and Surgeons in 1888. He afterwards served as house physician at St. Vincent's Hospital, and for four years had been an examining physician of the Department of Charities and Correction. He was a widower, his wife having died two years ago. They had no children. The elder Dr. Wallace left a widow, two sons and three daughters. The funerals of father and son were held together at St. Patrick's Cathedral on June 10th.

Miscellane.

SUDDEN DEATH.

In his book on "Death and Sudden Death," M. Brouardel gives a number of causes of sudden death which are little known, and fortunately extremely rare. Gonorrhea, for instance, may lead to sudden death. Four or five cases of sudden death from gonorrhea in the male have been reported in Germany. In France only one case has been reported. The medico-legal autopsy showed a phlebitis in the prostatic venous plexus and pulmonary embolism. Of a similar nature was the case of a girl of sixteen upon whom Brouardel performed the autopsy. A gonorrhea resulted in phlebitis of the veins of the left broad ligament, which was followed by thrombosis of the left iliac vein, and fatal embolism.

In such a condition as this, in a pregnant or a non-pregnant woman, with disease of the adnexa, or uterus, an ordinary vaginal examination may be the cause of sudden death. In addition to a case seen by Brouardel while he was an interne, he has twice seen cases of this sort, namely, sudden death from vaginal examination, in a physician's office. Lovain had a case in which sudden death of a young girl was caused by a vaginal douche given in the treatment of gonorrhea. It is well to remember that vaginal examination may have a result less grave, but none the less important from the point of view of the physician's responsibility. M. Tarnier has reported that two women upon whom he had practised vaginal touch aborted on the same evening, and that neither of them could¹ be suspected of having taken any measures to bring on abortion.

¹ La Médecine Moderne.

THE LATEST REPORT ON ANESTHETICS.

At the German Surgical Congress, Gurlt, of Berlin, made a report on anesthesia, which is of great interest. During the year, he had examined 77 reports from operators, 63 of whom were Germans. The reports embraced 51,957 anesthetics, of which 31,083 were produced by chloroform, 15,712 by ether, 2,148 by chloroform and ether, 1,554 by A. C. E. mixture, 1,426 by bromide of ethyl, and 34 by pental. There were 23 deaths under chloroform, to which may be added eight in which the cause of death was doubtful, five deaths from ether, and none from the mixture.

The complete statistics of anesthesia now extend over 266,151 cases. Chloroform has been fatal in one out of 2,909, ether in one out of 6,004, ether and chloroform mixture in one out of 10,162, A. C. E. mixture in one out of 5,745. The ether statistics are therefore rather more favorable than those of chloroform, especially considering the doubtful cases alluded to above.

Severe pneumonia has followed etherization in a not inconsiderable number of cases, namely, 30, and has proved fatal in 15, of which 13 were operations on the abdominal cavity. The explanation of this is found in the fact that patients who have undergone abdominal section avoid coughing as far as possible, on account of the pain in the wound which it causes. Thus the pneumonia is allowed to progress. As far as possible, therefore, ether should be avoided in abdominal operations.

In the discussion which followed Trendelenburg and Landau spoke strongly in favor of ether as an anesthetic.

Correspondence.

"END OF A VACCINE VIRUS CONTROVERSY."

ROXBURY, MASS., June 7, 1895.

MR. EDITOR:—Owing to a similarity of names, there has been some confusion in regard to the legal controversy above referred to.

The plaintiff in that case was my mother, the widow of Dr. Henry A. Martin. Since the death of her son, Dr. Stephen C. Martin, the production of vaccine virus at Brookline has been carried on by A. A. Reed for a few months, and for the last year by Dr. Everett M. Bowker. Dr. Bowker did business under the title of "Dr. Everett M. Bowker, successor to Dr. Henry A. Martin & Son." My mother sought to enjoin him from the use of her husband's name of "Henry A. Martin" as a part of his business designation; but our Supreme Judicial Court has just decided that he may continue under this designation; in fact, deciding that the words "successor to Henry A. Martin & Son" are mere words of description, and not a part of his business name, and has dismissed her bill. This leaves the parties exactly where they were before any bill was brought, but does not give Dr. Bowker any additional rights whatever. He may continue to do business under the title of "Dr. Everett M. Bowker, successor to Dr. Henry A. Martin & Son," but that is all.

This legal controversy in no way affects my business of producing vaccine virus, which I have continued uninterruptedly since the death of my brother, Dr. Stephen C. Martin, under my own name.

The threat of prosecution at the end of the item referred to is plainly meant for me, but with the above explanation it will be seen that it has no foundation whatever, and is absurd.


Very respectfully,

FRANCIS C. MARTIN, M.D.

[The JOURNAL must consider this correspondence as closed.—Ed.]

METEOROLOGICAL RECORD.

For the week ending June 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...26	29.86	58	64	52	99	91	95	E.	S.E.	6	9	R.	O.	.12
M...27	29.68	64	76	53	90	81	86	S.	W.	11	8	O.	F.	.25
T...28	29.91	57	65	49	64	64	64	N.W.	W.	10	19	O.	O.	
W...29	30.02	66	78	54	60	57	58	N.W.	N.E.	2	11	F.	C.	
T...30	29.96	68	77	58	60	60	60	N.E.	S.W.	14	2	C.	F.	
F...31	29.86	78	90	65	48	60	54	N.	N.	8	10	C.	O.	
S...1	29.92	72	78	66	48	85	66	N.	N.	9	9	C.	R.	.93
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 1, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	756	321	17.03	11.31	5.72	5.72	3.51	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	405	105	13.50	15.50	1.00	5.50	.50	
Brooklyn	1,013,000	405	140	14.00	13.25	1.75	7.00	1.00	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	182	53	7.70	17.08	1.22	1.22	1.22	
Baltimore	600,000	—	—	—	—	—	—	—	
Washington	285,000	82	24	8.54	17.08	1.22	1.22	—	
Cincinnati	325,000	109	31	11.96	14.72	—	—	4.60	
Cleveland	325,000	82	22	8.54	17.08	4.88	—	1.22	
Pittsburg	272,000	—	—	—	—	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	36	5	—	16.68	—	—	—	
Charleston	65,165	43	19	6.99	—	6.99	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	20	6	20.00	20.00	—	15.00	—	
Fall River	92,233	26	13	30.80	—	19.25	3.85	—	
Lowell	90,613	22	3	13.65	9.10	4.55	9.10	—	
Cambridge	79,607	24	6	12.48	24.96	—	4.16	—	
Lynn	65,123	20	3	—	5.00	—	—	—	
Springfield	50,284	20	8	30.00	20.00	5.00	—	25.00	
Lawrence	49,900	20	5	15.00	15.00	—	—	—	
New Bedford	47,711	10	3	—	10.00	—	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	33,939	2	0	—	—	—	—	—	
Salem	33,155	11	1	—	—	—	—	—	
Haverhill	32,925	6	5	16.66	—	—	—	16.66	
Malden	30,209	5	2	20.00	—	—	20.00	—	
Chelsea	29,806	—	—	—	—	—	—	—	
Fitchburg	29,383	10	2	10.00	20.00	10.00	—	—	
Newton	28,837	13	2	15.38	15.38	—	7.69	7.69	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	7	4	—	—	—	—	—	
Waltham	22,058	6	2	—	50.00	—	—	—	
Quincy	19,642	—	—	—	—	—	—	—	
Pittsfield	18,802	2	0	—	50.00	—	—	—	
Everett	16,585	1	0	—	—	—	—	—	
Northampton	16,331	5	2	—	—	—	—	—	
Newburyport	14,073	3	0	—	33.33	—	—	—	
Amesbury	10,920	4	0	25.00	25.00	—	—	—	

Deaths reported 2,443; under five years of age 816; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 324, acute lung diseases 309, consumption 329, diphtheria and croup 113, diarrheal diseases 53, measles 62, scarlet fever 32, whooping-cough 19, typhoid fever 29, cerebro-spinal meningitis 6, erysipelas 6, small-pox 2.

From scarlet fever New York 14, Brooklyn 4, Philadelphia, Boston, Cleveland and Lawrence 2 each. Washington, Providence, Cambridge and Amesbury 1 each. From whooping-cough New York 10, Cincinnati 3, Brooklyn 2, Philadelphia, Boston, Providence and Cambridge 1 each. From typhoid fever Philadelphia 8, New York and Brooklyn 5 each. Boston, Cleveland, Fall River and North Adams 2 each. Washington, Cincinnati and Lawrence 1 each. From cerebro-spinal meningitis New York 3, Cleveland, Worcester and North Adams 1 each. From

erysipelas New York 4, Philadelphia 2. From small-pox New York and Cincinnati 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending May 25th, the death-rate was 17.4. Deaths reported 3,529; acute diseases of the respiratory organs (London) 245, whooping-cough 95, measles 84, diphtheria 64, diarrhea 55, fever 29, scarlet fever 26.

The death-rates ranged from 9.5 in Croyden to 27.3 in Liverpool, Birmingham 15.5, Bradford 17.3, Cardiff 15.1, Gateshead 12.0, Hull 14.9, Leeds 17.5, Leicester 11.8, London 16.3, Manchester 26.0, Newcastle-on-Tyne 21.4, Nottingham 17.9, Oldham 17.7, Sheffield 14.6, West Ham 18.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 1, 1895, TO JUNE 7, 1895.

So much of the order as directs CAPTAIN RUDOLPH G. EBERT, assistant surgeon, to report in person to the commanding officer, Fort Columbus, New York, for duty at that post is amended to direct him to report for duty at Vancouver Barracks, Washington, relieving CAPTAIN WILLIAM H. ARTHUR, assistant surgeon.

CAPTAIN ARTHUR on being thus relieved, will report for duty at Fort Columbus, New York.

Leave of absence for one month and fifteen days, to take effect on his arrival in New York City, en route to his station in the Department of the East, is granted MAJOR TIMOTHY E. WILCOX, surgeon, U. S. Army.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 8, 1895.

J. E. GARDNER, surgeon, detached from Naval Station, New London, Conn., and wait orders to sea duty.

CLEMENT BIDDLE, passed assistant surgeon, detached from Naval Hospital, Chelsea, Mass., and to naval station, New London, Conn.

FRANKLIN ROGERS, surgeon, detached from U. S. R. ship "Wabash," and to the Navy Yard, Boston, Mass.

J. L. NEILSON, surgeon, detached from Navy Yard, Boston, Mass., and to the U. S. R. S. "Wabash."

SOCIETY NOTICE.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-first Annual Meeting of this Association (late Association of Medical Superintendents of American Institutions for the Insane, founded in 1844), will be held at the Brown Palace Hotel, Denver, Col., June 11, 12, 13 and 14, 1895.

HENRY M. HURD, M.D., *Secretary*.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Medical Society of Virginia. Twenty-fifth Session. Richmond, Va. 1894.

Early Diagnosis of Cancer of the Uterus. Chloroform in Labor. By Edwin Ricketts, M.D., Cincinnati, O. 1895.

A Modification of Hedin's Hematokrit. By W. F. Arnold, M.D., passed assistant surgeon, U. S. Navy. Reprint. 1894.

Malattie Predominanti Nei Paesi Caldi e Temperati. Dott. Filippo Rho, Medico di 1st classe nella Regia Marina. Roma 1895.

The Significance of the Presence of Lactic Acid in the Stomach. By Julius Friedenwald, A.B., M.D., Baltimore. Reprint. 1895.

The Etiology, Pathology, and Treatment of Intestinal Fistula and Artificial Anus. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprint. 1894.

A New Method of Examination and Treatment of Diseases of the Rectum and Sigmoid Flexure. By Howard A. Kelly, M.D., Baltimore. Reprint. 1895.

Indigestion, an Introduction to the Study of the Diseases of the Stomach, by George Herschell, M.D., London. Second Edition. New York: G. P. Putnam's Sons. 1895.

The Surgical Treatment of Inguinal Hernia. By Henry O. Marey, M.D., Boston, Mass. Reprinted from the Transactions of the New York State Medical Association, Vol. 11, 1894.

The International Medical Annual and Practitioner's Index; a Work of Reference for Medical Practitioners. By Thirty-seven editors. Thirteenth year. New York: E. B. Treat. 1895.

Infection and Immunity, with Special Reference to the New Diphtheria Anti-Toxine. By Charles Russell Bardeen, B.A., Assistant in Histology, Johns Hopkins University. Reprint. 1895.

Medical Gynecology; a Treatise on the Diseases of Women from the Standpoint of the Physician. By Alexander J. C. Skene, M.D. With illustrations. New York: D. Appleton & Co. 1895.

Leçons de Chirurgie (La Pitié 1893-94) par le Dr. Felix Lejars, Professeur Agrégé à la Faculté de Médecine de Paris, Chirurgien des Hôpitaux, avec 128 figures dans le texte. Paris: G. Masson. 1895.

Transactions of the Sixteenth Annual Meeting of the American Laryngological Association, held in the City of Washington, D. C., May 30, 31 and June 1, 1894. New York: D. Appleton & Co., 1895.

A Bacteriologic Study of Oysters, with Special Reference to Them as a Source of Typhoid Infection. By Charles J. Foote, Demonstrator of Bacteriology in the Medical Department of Yale University. Reprint. 1895.

Seventeenth Annual Report of the State Board of Health of the State of Connecticut, with the Registration report for 1893, Relating to Births, Marriages, Deaths and Divorces. New Haven: Printed by the State. 1895.

Transactions of the Obstetrical Society of London (Vol. XXXVI, for the year 1894. Part IV, for October, November and December. Edited by William Duncan, M.P., Senior Secretary, and Percy Boulton, M.D. London: Published by the Society. 1895.

The Evolution of the Diseases of Women, by W. Balls-Headley, M.A., M.D. (Cantab.) F.R.C.P. (London.) Lectures on Midwifery and the Diseases of Women at the University of Melbourne. London: Smith, Elder & Co. Melbourne and Sidney: George Robertson & Co. 1894.

Fourth Biennial Report on Vital Statistics of the State of Minnesota for the Years 1892-93, With a Comparative Study of the Leading Causes of Mortality in Minnesota for the Quinquennial Period 1887-93. Arranged and Edited by Charles N. Hewitt, A.M., M.D., Secretary of the Board of Health and Vital Statistics. 1895.

Immunity, Protective Inoculations in Infectious Diseases, and Serum Therapy by George M. Sternberg, M.D., LL.D., Surgeon-General U. S. Army, Ex-President American Public Health Association; Honorary Member of the Epidemiological Society of London, of the Royal Academy of Medicine of Rome, etc. New York: William Wood & Co. 1895.

Tumors of the Vagina, Considered in the Obstetrical Point of View. Note on the Pathology and Treatment of Osteomalacia, With Report of a Case Cured by Bilateral Oophorectomy. Parietal Fibro-Myomata of the Uterus, and Professor Vulliet's Operation for their Extraction. By Charles Greene Cumston, B.M.S., M.D., Boston, Mass. Instructor of Clinical Gynecology, Faculty of Medicine, Tufts College. Reprint. 1895.

The Prevention of Epidemics and the Construction and Management of Isolation Hospitals. By Roger McNeill, M.D., Edin., D.P.H., Camb., Medical Officer of Health for the County of Argyll; formerly Resident Medical Officer Infectious Hospitals of the Metropolitan Asylums Board at Homerton and Deptford, London, and H. M. S. "Atlas" and "Endymion," Greenwich. With illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

Therapeutic Suggestion in Psychopathia Sexualis; With Especial Reference to Contrary Sexual Instinct. By Dr. A. von Schrenck-Notzing (Munich, Germany). Authorized translation from the German by Charles Gilbert Chaddock, M.D., Professor of Diseases of the Nervous System, Marion-Sims College of Medicine, St. Louis; Member of the American Medico-Psychological Association; Attending Neurologist to the Rebekah Hospital, St. Louis, Mo., etc., etc. Philadelphia: The F. A. Davis Co. 1895.

Edwards' Hygiene with Anatomy and Physiology, being an Amplification of Edwards' Catechism of Hygiene. By Joseph F. Edwards, A.M., M.D., Member of the State Board of Health of Pennsylvania; Member of the American Public Health Association; Foreign Associate Member of the French Society of Hygiene; Fellow of the College of Physicians of Philadelphia; Member of the Philadelphia County Medical Society; Editor of the *Anna's of Hygiene*, etc. Intended for schools and general reading. New York: Edward P. Strom. 1894.

A Textbook of Chemistry, Intended for the Use of Pharmaceutical and Medical Students. By Samuel P. Sadler, Ph.D., F.C.S., Professor of Chemistry in the Philadelphia College of Pharmacy; Author of "A Handbook of Chemical Experimentation," "A Handbook of Industrial Organic Chemistry," and Chemical Editor of the United States Dispensatory; and Henry Trimble, Ph.D., Professor of Analytical Chemistry in the Philadelphia College of Pharmacy; author of "Practical and Analytical Chemistry," and of a monograph on "The Tannins." Philadelphia: J. B. Lippincott & Co. 1895.

Original Articles.

THE TREATMENT OF ADVANCED (HOPELESS) CASES OF PHTHISIS.¹

BY EDWARD O. OTIS, M.D.,
Visiting Physician to the "Free Home for Consumptives."

It is human nature to evince a more lively interest in any undertaking which offers a reasonable hope of success, than in one in which the result is inevitably failure. This is true in medical work as well as in other departments of labor. The acute or chronic disease which possesses the possibility of a cure naturally excites in the physician that eagerness of the chase, that enthusiasm in its treatment which the hopeless case does not. Every true physician, however, with love and sympathy for his kind, recognizes the duty of employing the same conscientious care in the treatment of his hopelessly sick patients as in that of those who offer the possibility of a cure. "Here it is," says Musser,² "that the exercise of the high and holy qualities typified of old by the Master Physician are essential." Moreover, quite as much skill and judgment are often required in the care of the former class; and the experience one gains is not only of exceeding value but available in any and all varieties of medical work.

In this climate and region, advanced cases of phthisis are by far the most common of this hopeless class. Every general practitioner has his share of them. They are long drawn out and possess an infinitude of ills, and demand fertility of resources and a large knowledge and skilful use of therapeutic expedients. But it is no unworthy goal to strive for, to make the lingering and weary days of the consumptive as comfortable and free from pain as the conditions will allow. Surely no class of patients are more grateful to the physician for his exertions in their behalf.

A patient with advanced phthisis is very frequently in a state of sepsis, and presents the various symptoms of the septic condition; the peculiar temperature, sweating, chills, cardiac debility, progressive muscular weakness, and loss of flesh, etc. A clear recognition of this fact will aid greatly in our intelligent treatment. In addition, of course, there are the various symptoms which are the result of the tubercular virus and its ravages; cough, vomiting, diarrhea, hemorrhage, various digestive disturbances, pains, pleuritic and others; catarrhal and irritable conditions of the upper air-passages, nervous instability, insomnia, and others.

I. THE SICK-ROOM.—Patients in this stage of the disease have their lung capacity greatly reduced; the average of a dozen male patients I found to be 90 cubic inches, the normal average being 235.7. Consequently they need a large supply of oxygen, and it is of the first importance that they should be in an airy, well-ventilated room. If one is well covered in bed or protected from a direct draught the window can almost always be kept open even in the colder portions of the year. An open fireplace is very desirable, and sunlight a necessity; it is a tonic and antiseptic and conduces to a cheerful mental condition. If we spent as much care and pains in giving our phthisical pa-

tients sunlight as we do creosote, I believe we should obtain as good results and in a more agreeable manner.

II. FOOD.—The feeding of these patients is a very difficult and delicate matter; more or less anorexia exists, the digestive powers are impaired, the appetite is capricious, and vomiting not infrequent. If the patient is able to be about, the three regular meals may be taken with supplementary lunches, such as milk and egg, koumiss, cream and hot water, bouillon, cocoa or coffee with bread or biscuit, a glass of porter, ale, or some light wine. Often no regular meals are possible the digestion and appetite are so impaired, and then one must have recourse to frequent feeding with small amounts of easily digested or partially digested food. Milk, either plain or with some alkali—lime-water or soda-water, Vichy, Seltzer, Apollinaris; raw eggs with a little alcohol in some form, sherry, whiskey, or port; carefully prepared soups; some of the various beef juices or extracts; peptonized foods. I have found the liquid peptonoids very serviceable; some of the malt preparations can also be used. Even with the most careful feeding various digestive disturbances will arise and persist which call for special treatment.

The most generally serviceable combination for these disturbances I have found to be the pepsin, bismuth and charcoal tablet of Wyeth, which seems to meet a variety of unpleasant symptoms. For flatulence aromatic spirits of ammonia, bismuth, bicarbonate of soda, tincture of cardamon, creosote or naphthol. For pain after eating, Dettweiler finds salicylate of bismuth of service. For the anorexia nothing seems to avail for any length of time; the various bitter tonics in various combinations for a while aid—gentian, cinchona, quassia, quinine, nux vomica, strychnia, malt. The mineral acids may also be combined with some of these.

It was almost a routine practice in my service at the Free Home for Consumptives to give all, except the extreme cases, malt with creosote, often combined with cod-liver oil when no fever existed, and it has seemed to me that this combination not only assisted the appetite but the digestion as well. As to alcohol, I have used it freely in its various forms. Necessary, as a rule, in all stages of this disease, it is especially so in the advanced stage. I have found whiskey, brandy, and the malt liquors the most generally serviceable.

III. FEVER.—The fever of advanced phthisis is generally the result of septic absorption from suppurating cavities or foci, and unless it produces unpleasant symptoms it is my experience that direct treatment is uncalled for, and is a menace to the already weakened heart. The inunction of guaiacol has been tried for this purpose and it does produce a most marked and rapid reduction in temperature but at the same time a depression which is often alarming, and the same danger exists to a less extent in the use of all the coal-tar antipyretics. The patient with fever should be kept in bed and free from excitement, given easily assimilable liquid nourishment, and from one-half to one hour before the expected rise of temperature a glass of Cognac and water or strong wine.

This is the plan pursued at the Sanitarium of Görbersdorf, and generally by the German specialists in this disease. An ice-bag over the heart is much used also by the Germans, but my limited experience is in accord with that of Wolff, that seldom does any

¹ Read before the Clinical Section of the Suffolk District Medical Society, March 20, 1895.

² The Treatment of the Final Stage of Phthisis, J. H. Musser, Medical News, Philadelphia, October 15, 1887.

definite result follow its use.⁸ If the fever has daily exacerbations and is productive of much discomfort, we are obliged to have recourse to some direct antipyretic; antipyrine, thallin, antifebrin, salicylate of soda or phenacetine may be used, but cautiously. Daremberg⁴ with the characteristic French enthusiasm, says the treatment of the fever of tuberculosis was revolutionized when Knorr discovered antipyrine, but few of us, I think, would agree with him. The antithermic, he says, should be used to prevent the rise of temperature rather than to lower it after it has risen, and consequently should be given three or four hours before the expected rise or exacerbation. Of the various antipyretics mentioned perhaps phenacetine is the least harmful and given in small doses as Yeo⁵ recommends, two or three grains in combination with hydrobromate of quinine two to four grains. When antipyrine is used and there is an inclination to sweating, Székely⁶ advises the use of atropia or agaracin half an hour before the antipyrine is given. It is also advised to give it an hour before, or two hours after eating. A preparation known as pyretine, the composition of which is unknown to me, and which was first called to my attention by my colleague, Dr. Fillebrown, has given me as good results with as few evil effects as any of the antipyretic group. Salicylic acid and salicylate of soda so highly extolled by Jaccoud⁷ for the fever of phthisis, is especially useful, says Székely, in the fever of resorption (septic). It should be given, he says, in the late evening, and to avoid the annoying ringing in the ears, combined with ergot. My experience with it, however, has not been very satisfactory. If the fever is continuous no antipyretic is of much avail, but if used, should be given before the fever has reached its height, otherwise sweating and vomiting may be produced.

IV. SWEATING.—This is not an infrequent occurrence in advanced phthisis, and is another of the symptoms of the septic condition which prevails so largely as I have said in the latter days of the disease. Simple means will often serve to modify or avert this troublesome symptom; a glass of milk with two or three teaspoonfuls of brandy at bedtime, together with gentle friction either dry or with alcohol or vinegar and water. The drugs for this symptom are numerous: atropia, ergot, picrotoxine, oxide of zinc, camphoric acid, chloralose, extract of Coto bark (strongly recommended by Székely), and agaracin. Of all the antisudorifics I have used, agaracin has been the most satisfactory, given in doses of one-twelfth of a grain or larger; as its action is slow it must be given early. Atropia is efficient, but its after-effects are not always agreeable, and after my favorable experience with agaracin, I have abandoned its use.

V. COUGH.—No one symptom is so distressing to the patient and all about him as his cough; it harasses him by day and renders his nights wretched. From the very nature of the conditions he must cough much, for the material secreted from the various diseased areas is constantly collecting and must be expelled. This constant coughing keeps the mucous membranes of the upper air-passages in a state of continual irritation; so that the poor sufferer is subjected to a two-

fold stimulus to cough, one from below and the other from above. Cough he must sufficiently to expel the secretion; but cough he does, as a rule, far more than is necessary to accomplish this. Now this unnecessary and useless coughing can, to a greater or less extent, be restrained by proper training. One must establish a coughing method, and learn how to cough with effect and economy of strength, and to restrain the dry, unproductive cough. Daremberg speaks of taking lunch at Falkenstein with Dettweiler and his one hundred and fifty phthisical patients, and not hearing a cough ten times in three-quarters of an hour. In expressing his wonder at so little coughing among so many tuberculous patients, Dettweiler replied that he taught his patients not to cough, by telling them that when they itched in public they did not scratch, and that cough without expectoration was a scratching of the throat which itched, and, therefore, they should not scratch the throat in public.

The medicinal treatment of the cough, and in this stage it must be treated medicinally, includes the whole materia medica pretty nearly; but opium in some form is the one drug upon which we must chiefly rely. As some one has said, "Without opium the treatment of phthisis would be impossible." My experience coincides with that of Wolff,⁸ that codeia is the most useful form of this drug. It does not disturb the stomach as other forms of opium often do, and it quiets the cough. After a trial of a variety of cough preparations, I obtained the most satisfactory results when almost every patient in the hospital was put upon this drug. I used a watery solution in the proportion of 1 to 100. It can be given frequently, and a couple of teaspoonfuls of the solution at night will generally produce a good night's rest.

In most cases of advanced phthisis there is an irritable condition of the mucous membranes of the upper air-passages, the pharynx and larynx which, from the slightest cause, produces a cough of irritation. Local applications will aid us here. If the cough is caused by laryngeal irritation sipping ice-water will sometimes calm it. If the pharynx and larynx are in a chronic irritable catarrhal condition, we can first clean the surfaces by some alkaline solution like Dobell's, or warm borax and water, and then make such applications as cocaine, menthol, insufflations of morphia, iodoform and starch, inhalations of balsamic vapors, or a solution of nitrate of silver. Almost every phthisical patient has a paroxysm of coughing in the morning, on arising, if he is well enough to get up, or upon taking food. This is a cough of expectoration, and all we can do is to make the paroxysm as short, easy, and effectual as possible. A glass of some warm alkaline drink, Apollinaris, soda, Vichy, or Seltzer water with a little alcohol in it, brandy or rum; or a glass of warm milk and water with a little bicarbonate of soda and common salt in it, will often accomplish this.

VI. VOMITING.—This is an annoying symptom after taking food; and the cause, as given by Yeo, and which seems to be reasonable, is the increased secretion in the air-passages, already in a catarrhal state, caused by the stimulus of the circulation by the food and the rapid absorption of fluid from the surface of the stomach. Acting on this theory, he gives about half an hour before a meal, a glass of hot milk with some alkaline water (Ems, Seltzer, or the like), with a tablespoonful of brandy or whiskey, and so

⁸ Die Moderne Behandlung der Lungenschwindsucht, von Dr. Felix Wolff, 1894.

⁴ Traitement de la Phthisie Pulmonaire, Dr. G. Daremberg, 1893.

⁵ Manual of Treatment, L. Burney Yeo, 1893.

⁶ Die Behandlung der tuberkulösen Lungenschwindsucht, von Dr. August von Székely, 1894.

⁷ Curability and Treatment of Pulmonary Phthisis, Jaccoud, 1885.

⁸ Die Moderne Behandlung der Lungenschwindsucht.

favors free expectoration, just as previously mentioned in the morning paroxysm of coughing. The meal should consist of as little fluid as possible; and immediately after it a few grains of pepsin, with a few drops of hydrochloric acid, is given. I have followed this plan partially with more or less success. Peter, quoted by Yeo, ascribes vomiting to the irritation of the gastric portion of the vagus by the contact of food, and just before the meal he gives a rapidly absorbable sedative such as a few drops of laudanum in a teaspoonful of water, and immediately afterwards three drops of hydrochloric acid in water. If the vomiting seems to be caused by laryngeal irritation, local applications of astringents and anodynes can be used. If digestive disturbances seem to be the cause of it, antifermentatives such as carbolic acid, creosote, naphthol, charcoal, iced lime-water, Vichy, soda-water and the like, may prevent it. When it is an oft-recurring symptom, perfect rest in bed and frequent feeding with a small amount of easily digestible nourishment, such as liquid peptonoids or peptonized milk, will aid greatly.

VII. PAINS. — The phthisical patient in this stage complains of many and various pains and aches — pleuritic, painful affections of the intercostal nerves; pains in the back, joints, abdomen, muscles, etc. The variety of local applications is great, and one after another has often to be tried: Tincture of iodine; dry heat by means of dry cloths and the hot-water bag; belladonna, in liniment or plaster; chloroform; and, what I have found perhaps as efficacious as anything, equal parts of guaiacol and glycerine painted over the painful area. If the pain is pleuritic and aggravated by respiration, and situated at the base of the chest, strapping with adhesive plaster, diagonally applied, as first suggested by Roberts, restrains the respiratory movement, and consequently stops the pain. If the pleuritic pain is at the upper part of the chest, one must have recourse to some counter-irritation.

VIII. DIARRHEA. — This is either septic, or due to gastric or intestinal irritation, or perhaps most frequently in this stage, is the result of tubercular ulceration. If septic, salicylic acid or naphthol may be used. When the diarrhea is not dependent upon intestinal ulceration, milk and lime-water, and tannate of bismuth are serviceable. If tubercular ulceration exists we can only hope to mitigate it, and opium with bismuth and some astringent have served me the best. Yeo and Székely recommend highly extract of Coto bark; a solution of nitrate of silver can also be used per rectum. The patient must be kept quiet in bed and given some partially predigested food like liquid peptonoids or peptonized milk.

IX. HEMORRHAGE. — Hemoptysis occurs in this stage as in the earlier ones, and, in the main, requires the same treatment — perfect rest in bed, an ice-bag over the heart region, and opium in the form of morphia, or codeia, with the addition of ergot subcutaneously if indicated. I believe that in the hemoptysis of this stage more or less alcohol is of benefit, contrary to the common usage in the treatment of this symptom. Cold liquid food is always recommended, and ice. Daremberg mentions "a very useful application" which is new to me, ice to the testicles or vulva; he applies it twice a day, and keeps it in contact with the skin about five minutes. He mentions the case of a consumptive who always carried a box of ice with him when he travelled; he had so much confidence in this practice. In the profuse, sudden,

and alarming attacks of hemoptysis in advanced cavity cases, Yeo recommends frozen compresses as "one of our best resources."

X. INSOMNIA. — Sleeplessness is a frequent and trying symptom, not only as a result of the cough, but from the unstable, nervous condition. Some simple nourishment at bedtime, or a glass of wine or whiskey and water may produce the desired result; if not, I use some one of the non-depressing hypnotics — trional, chloralamid or sulfonal. The two former I have found the most satisfactory, in doses of ten to fifteen grains.

XI. EDEMA. — Edema of the lower extremities often ushers in the final event, as if the poor sufferer's cup of woe was not full. I know of nothing better for this painful symptom than a comfortable position in bed, gentle friction with alcohol and water, a light bandage, or wrapping the limb in some soft material like cotton or woollen.

XII. The mouth, tongue, and lips need attention at this stage. For the aphthous condition of the mouth and tongue frequent cleansing with some alkaline wash, such as Dobell's solution or a boric-acid lotion is comforting; tincture of myrrh or menthol in almond oil can also be used. For the dry, parched lips, camphor-water and glycerine, benzoated oxide of zinc ointment, simple glycerine or cold cream.

XIII. This stage is accompanied with more or less anemia, and calls for iron when it can be borne. I have used quite extensively a preparation known as pepto-mangan, first called to my attention last winter by Dr. von Ruck, of Asheville. It is easily assimilated, causes no disturbance of the digestion, and can be continued for a long time.

XIV. The heart sympathizes with the general condition, and cardiac debility and irritability is a constant concomitant of this stage. The pulse is feeble, quick, easily compressed. For this condition I have found strychnia invaluable, and during my service the majority of the patients are taking it. It is not only a most efficient heart tonic, but it influences favorably many of the other symptoms. It is an admirable tonic in anorexia, relieves constipation, is a good respiratory stimulant in dyspnea, will often relieve vomiting, moderates the cough, reduces nervous irritability, and relieves many of the various pains of this stage of the disease. Indeed one is inclined to share the enthusiasm of Mays,⁹ who places this drug third in importance in the prominent measures which he employs in the treatment of this disease, putting only physical rest and nutritious food before it.

Such in brief seem to be the main features in the treatment of advanced cases of phthisis. It is necessarily a symptomatic one, and I have only attempted to deal with the more common and prominent symptoms. Their variety indeed is legion, taxing to the utmost the skill and patience of the physician; but he has his reward in the satisfaction of knowing that he has at least smoothed the downward way of the weary traveller, as well as gained for himself added skill and experience in professional work. It is a losing fight at the best, and both the patient and physician know it; but the gratitude of the one, and the satisfaction of the other in duty well and patiently performed, mitigates the bitterness of defeat.

"The physician who treats phthisis," says Dett-

⁹ The Strychnine Treatment of Pulmonary Consumption, by Thomas J. Mays, 1894. Reprint.

weiler, "needs the greatest patience and self-sacrifice, and genuine sympathy for the sufferer, and must, therefore, as Nothnagel beautifully expresses it, 'Auch ein guter mensch sein, soll er ein guter Lungenarzt sein.'"

PUERPERAL SEPTICEMIA, WITH CASE.

BY JOHN Z. CURRIE, M.D., S.M., PH.D., CAMBRIDGE, MASS.

FOR various reasons puerperal septicemia is one of the most important diseases with which the medical practitioner has to contend. Notwithstanding the fact that our increased knowledge respecting its cause and nature and the consequent improvement in the means resorted to for its prevention and cure, have reduced the frequency of its occurrence and somewhat lessened the rate of mortality from this source, the fact remains that this disease is liable to occur in the practice of any obstetrician, frequently when least expected, and is even under the most favorable circumstances an affection of an extremely grave character. The rate of mortality from this disease is still extremely high; when death occurs it is under circumstances which are peculiarly sad and likely to excite a great deal of comment; moreover, some one who has been connected with the case, usually either the doctor, or nurse, or both, is almost certain to be censured. There are other reasons also why puerperal septicemia is one of the most undesirable diseases which can occur in any practice: recovery is usually slow and frequently imperfect, treatment requires a great deal of personal attention on the part of the medical attendant and when the nature of the disease becomes known it does not in any sense contribute either toward the excellency of the physician's reputation or to the increase of his professional business.

Considerable discussion has arisen at different times in reference to the use of the term puerperal septicemia, but if it be understood that puerperal septicemia differs from septicemia occurring under ordinary circumstances, only in the peculiar conditions under which it occurs, no uncertainty should exist as to the precise character of the disease referred to. It is simply a case of wound infection, and various terms are applied to the resulting conditions, according to the parts or organs chiefly affected. As has been pointed out by Dr. H. C. Ernst, for its production there is required the same combination of circumstances as for the production of septicemia in any other case, namely, (a) a specific virus, (b) a means of entrance for the virus into the system, and (c) a constitutional condition which under existing circumstances favors the development of the disease. In this case the specific virus is a pathogenic bacterium, the result of a morbid process which has either taken place within the genital tract or has been communicated from without by something which has come in contact with the parts. The wounded genital tract furnishes abundant means of entrance for the bacteria either at the original placental site, where a rent or abrasion has occurred, or even where the mucous membrane has been denuded of its epithelium. The reduced vitality of the parturient woman, the result of gestation increased possibly by a protracted labor or an excessive hemorrhage, together with the difficulty which exists of keeping the wounded parts in a septic condition, renders the woman particularly susceptible to infection.

I have selected the following case, which occurred in my own practice quite recently, not for the purpose of giving a detailed statement of its progress from day to day, but because it illustrates in a marked degree certain important peculiarities of the affection under consideration and because it affords an opportunity for a practical illustration of such treatment, as, in my opinion, is most likely to promote a cure.

Mrs. —, a healthy, robust woman, aged twenty-one years, was delivered of her first child April 19, 1894. The labor, although somewhat tardy during the second stage, was quite natural and completed without interference of any kind. The external parts were small and somewhat rigid and in order to prevent a rent posteriorly a slight cut was made on each side of the vaginal outlet during the expulsion of the head. Notwithstanding this a small rent occurred posteriorly during the passage of the shoulders. The placenta and membranes were expelled intact with comparatively no assistance and but little hemorrhage followed. After the vaginal canal was well washed out and the rent properly cleansed, it was repaired and covered as well as possible with an antiseptic dressing. The rent was quite superficial but two stitches being required to retain the parts in apposition. For the sutures kangaroo tendon of moderately large size and which had been purchased ready for use, was used.

The progress of the case for the first three days was uneventful. The secretion of milk was established by the third day. There was no increase of temperature at any time up to this period and no discomfort of any kind was experienced. On the morning of the fourth day the patient's appearance had changed sufficiently to attract attention and upon inquiry it was learned that she had a slight chill during the early morning. The chill was very slight there being no rigor and no external appearance of its occurrence. It consisted simply of slight, creepy, chilly sensations, referred especially to the back and lower extremities. When I saw her about three or four hours afterward, the face was flushed, skin dry and hot, tongue dry and somewhat furred, temperature 105°, pulse 126. There was constant complaint of headache, great thirst and "bad taste in the mouth." Later the tongue became thickly furred, there was profuse and almost constant perspiration. Jaundice was apparent on the second day of the attack, and on the third day diarrhea occurred. The stools were liquid, of light color, very offensive, and soon became involuntary. Food was taken in fair quantities throughout the attack, was well retained and caused no inconvenience. The secretion of milk was not suppressed until near the end of the attack. After the occurrence of the diarrhea the pulse fell to 108 and the temperature to 103°. The highest temperature attained at any time was 105.3° on the morning of the second day. This condition continued for about seven days when improvement in every respect began. The temperature fell to 101° and pulse to 98. The jaundice gradually disappeared, control over the action of the bowels was regained, perspiration became less profuse and the desire for food more marked. Internal examination within four or five hours after the occurrence of the chill revealed an unhealthy condition of the edges of the posterior rent. The tendon in the most superficial stitch was apparently unchanged and was surrounded by a small but appreciable amount

of pus. As far as could be ascertained at this time, in approximating the edges the tendon had been drawn through the skin on one side. Several small lacerations were found within the vagina and the external os was considerably lacerated. Each portion of broken surface was covered with a grayish pseudo-diphtheritic membrane. The uterus was large, uncontracted, loose and flabby and the outline difficult to trace. The external os resembled a loose opening, unhealthy in appearance and studded thickly with pseudo-diphtheritic patches. The uterine cavity contained nothing but the ordinary amount of discharge and a small amount of *débris*. No shreds of membrane, clot or anything else likely to cause infection were found.

The treatment resorted to in this case was as follows. The uterus and vagina were well irrigated with hot water. The uterus was then emptied of its contents, a sharp curette being used for the purpose. Another warm-water injection was used followed by one of bichloride of mercury, 1-2,000. Every portion of broken surface about the cervix uteri and within the vagina was cauterized with stick nitrate of silver, and subsequently dressed with a powder composed of equal parts of iodoform and boracic acid. The unhealed portion of the external wound was reopened, the remaining tendon removed and after being properly cleansed and cauterized, the wound was dressed with the powder just referred to. Every rent or abrasion was treated in the same manner. For several days the uterine cavity was washed out with warm water followed by a mild antiseptic solution, once daily, the vaginal cavity twice daily, and every portion of broken surface was either cauterized or well covered with the powder once daily as appearances indicated. As improvement took place the wash was used less frequently; and as the sores assumed a more healthy condition, powdered oleate of zinc was substituted for the powder before used. At the end of the second week after the chill, and after all applications excepting the vaginal douche had been discontinued, another chill occurred. This was more pronounced than the first, but was not an actual rigor. The general condition of the patient after the second chill was much the same as after the first and all the symptoms which resulted were about the same as in the first instance, excepting that the jaundice and diarrhea were less marked. A vaginal examination revealed the presence of a large sore of the same appearance of those before described, in the fold between the cervix uteri and the posterior vaginal wall. The same treatment was resorted to as in the first instance and after about five days, improvement again began. Recovery after this was uninterrupted but not rapid. Constitutional treatment was supporting and symptomatic. Quinine was given in one large dose at the outset, and afterward in four-grain doses every five hours. Occasionally phenacetine was given to relieve restlessness or headache, or if the temperature for several hours exceeded 104° and was not reduced by alcohol baths. The exhibition of phenacetine was never trusted to the nurse. Milk, or some form of liquid nourishment, was given every two hours during the day and at night, in such manner as would least disturb the patient. In about five weeks after the birth of her child, the patient apparently needed no further attention, and has remained quite well up to the present time.

The treatment just described gives a fair general idea as to what course, in my opinion, should be pursued in every case of puerperal septicemia; and just in proportion as this treatment is resorted to at an early date and carried out effectually, will be the number of recoveries.

An examination of the whole genital tract should be made at once; and even although a probable source of infection may be discovered, no part of the genital tract should be omitted in consequence of that. After thoroughly washing out the vagina, it is better to begin by treating all external broken surfaces, if there be any. Then every portion of the vagina and the cervical canal, as far as possible, should be exposed, and abrasions and lacerations sought for. Each of these, after being thoroughly cleansed, should be cauterized. This not only insures destruction of all septic material at that point but also seals the broken surface temporarily and promotes repair. Garrigues recommends that equal parts of chloride of zinc and water be used for this purpose and that it be kept in contact with the part for at least one minute. This, however, is very painful, and difficult to apply at all extensively without an anesthetic. I have been accustomed to use stick nitrate of silver for this purpose and always with apparent good effect; it acts very promptly, destroys the virus sufficiently, does not injure the tissue deeply, and seals the opening effectually for the time. When this has been done the uterine cavity should be washed out with warm water and then thoroughly emptied of its contents. For this purpose a large, moderately sharp curette is most desirable and if used with care no ill-effect should result from its use. Some operators prefer a dull curette, while others are satisfied with swabbing out the uterus with antiseptic gauze or other soft material, especially in mild cases. No doubt one operator succeeds better with one instrument while another does the work more effectually with another. The means by which the uterus is emptied is not of so much importance as that it should be done thoroughly and without injury to the organ.

In November, 1894, Alberti reported the case of a woman who was curetted for retained placenta and in attempting to remove the material which had been scraped away, a small loop of intestine was drawn down. Notwithstanding all the effort which was made she subsequently died in consequence of the uterus having been punctured by the curette. The curette should be used carefully to avoid injuring the weakened, flabby walls, but at the same time every portion of the internal surface of the uterus should be gone over and all the contents including the diseased decidua should be removed. A curettement under existing circumstances is much more difficult than under ordinary circumstances, owing to the enlarged cavity and non-resisting walls. In a case of moderate puerperal sepsis, which occurred in my own practice not long since, after the curettement the patient's condition was still very unsatisfactory, and the operation was repeated on the following day. It was then seen, as had been suspected, that the first attempt had not removed all the contents. In all probability, in many instances of this kind in which no improvement follows the use of the curette, the explanation is that the uterine cavity has not been thoroughly emptied of its contents. The point sought to be accentuated is that the uterus should be completely relieved of any accumulation at as early a moment as possible and without

injury being inflicted upon the organ. The cavity should then be washed out with warm water which has been boiled, followed by a moderately strong antiseptic solution. If the antiseptic selected be one of an actively poisonous nature, it should be followed by another warm-water douche to prevent any danger from absorption. The manner of giving the intra-uterine douche is of considerable importance, as serious accidents have resulted from its use. Rather than to trust to any of the complicated instruments devised for this purpose, it is better to see that there is ample space for the return of the injected liquid and that it actually does all return. If even a small quantity remain within the uterus, it frequently occasions a severe uterine colic. While this may not be a very serious matter, the pain is sometimes very great and produces considerable constitutional disturbance. It is well to remember that at this time the uterine cavity is simply a loose sac, and that there is nothing to favor the outflow of the liquid excepting gravitation. After the liquid has ceased to flow from the uterus, the cervical canal should be gently opened and depressed until no more liquid escapes. If there be no tenderness over the region of the uterus, external pressure and turning the patient on the side favor the return of the liquid. It is better to introduce the liquid at the fundus, as this favors its return and insures its coming in contact with the whole cavity. It is better also that the liquid should enter the uterus by force of gravitation than that any additional force should be used. In this way the force is not great, the flow is steady, the return of the liquid is likely to be established at once and the danger of its being forced in any harmful direction is reduced as largely as possible. It is also well to use a soft instrument for entering the uterus. I have known a uterus so attenuated that a Simpson's sound punctured the wall simply by its own weight. I have learned of another case also, in which the uterus, soon after death, when laid over the end of an upright Simpson's sound, apparently offered no resistance whatever to the entrance of the instrument through its walls. For this purpose I frequently use a soft-rubber male catheter. With a sound in the eye it is easily carried to the fundus and there is comparatively no danger of inflicting injury.

The most desirable intra-uterine injections are a two-per-cent. solution of carbolic acid or creolin, or a solution of bichloride of mercury, varying in strength from 1 to 2,000 to 1 to 4,000. In my opinion, especially in serious cases, for the first injection at least, a moderately strong solution of bichloride of mercury is by far the most reliable. For subsequent use a weaker solution of the same character or a carbolic-acid solution should be substituted. Creolin is somewhat objectionable on account of its color. When using creolin in this way it is impossible to judge accurately of the character of the discharge which is present. The use of eucaline in the proportion of 1 to 100 of water has recently been recommended for this purpose. It is one of the coal-tar products combined with eucalyptus and it is alleged that while it possesses all the virtues of creolin as an antiseptic, its use is not objectionable on account of its color. For simply cleansing the vagina, in my opinion, there is nothing so agreeable to the patient, and at the same time so effectual as one or one-and-a-half per cent. solution of lysol. After the use of the intra-uterine douche an iodoform suppository should be placed

within the uterus and carried up to the fundus. It is occasionally difficult to accomplish this with ordinary dressing forceps, and there is some liability of injuring the uterus by their use. It is much more easily accomplished with a long, curved instrument made for the purpose; some authorities recommend that the uterus be measured with the forceps before inserting the suppository in order to insure its reaching the fundus. Garrigues recommends that a suppository containing about 40 grains of iodoform be used once daily, after the intra-uterine injection, until the sloughs come off and the fever abates. After this it is of the utmost importance to secure and maintain perfectly free drainage. In general, especially at the beginning of the disease, the entrance to the uterus is so relaxed that no effort in this direction is required. When necessary, drainage should be secured by packing lightly with antiseptic gauze. Some recommend that this be done in all cases; but if the passage be free and intra-uterine injections are used as suggested once daily, there is no apparent necessity for it and it is just possible that in some cases the gauze might act as an obstruction rather than otherwise.

After-treatment may depend very largely upon existing circumstances; however, an examination should be made at least once daily and if there be any foul discharge from the uterus, the intra-uterine injection should be repeated and the iodoform suppository placed in the uterus as before. Each sore should be observed at least once daily and either cauterized or dressed with an antiseptic dressing, as appearances may indicate. As long as there is any tendency to the formation of membrane, cauterization has a better effect than anything else. Patients seldom complain of any pain from its use. As an antiseptic dressing the powder before referred to composed of iodoform and boracic acid, answers the purpose very well. It has the advantage of being easily applied by an insufflator and of adhering to the parts for some time. When the sores do not heal readily, after the sloughs come away, I have found the daily application of finely powdered oleate of zinc especially useful. Daily inspection should be continued until all broken surfaces are either healed or are in a healthy condition although improvement may have taken place in other respects. If a single point be overlooked fresh infection may occur.

As to constitutional treatment no general rules can be laid down. Quinine is undoubtedly useful and should be given in four or five grain doses every five hours. It is claimed by some authorities that quinine in addition to its tonic properties, possesses the power of preventing the emigration of the leucocytes from the veins and capillaries, and is thus especially useful in these cases. As in all similar cases it is of importance to nourish the patient as well as possible, but as to how this can be done most effectually can be determined only by the circumstances in each case. Some authorities recommend the free use of stimulants in all cases from the beginning of the attack, but the legitimate use of stimulants in these as in all other cases appears to be, to withhold them until a stimulant is actually called for and to depend upon the various forms of food for nourishing the patient.

The first interesting feature in the history of the case referred to in this paper, is, its unexpected occurrence. In my judgment there was no legitimate reason to anticipate an attack of this kind under ex-

isting circumstances. The labor was normal, not of unusual duration or severity, was conducted on strictly aseptic principles, and completed without interference of any kind. Internal examinations were made very infrequently, external manipulation being relied upon very largely to determine the progress of the case. The hands were thoroughly prepared before any examination was made, and never entered the genital tract without being held in an antiseptic solution prepared for that purpose; moreover, the patient was a strong, robust young woman and apparently was not much exhausted by the labor. Within twelve hours after the completion of the labor, I attended another case of parturition, in which the circumstances were almost identical, excepting that the labor was shorter. The child had evidently been dead for some time, as it, as well as the retained discharges, had undergone decomposition to such an extent as to be extremely offensive. The manner of conducting the labor was the same in each case, and no greater effort to prevent infection was made in the latter than in the preceding case. This woman made an excellent recovery. In the first case, without any legitimate reason to anticipate such a result, a septicemia of so malignant a nature as to threaten destruction to life in a very short time was suddenly developed, whereas, in the second case in which some danger of septic infection might reasonably have been expected, recovery was rapid and without any interruption.

Another interesting feature in connection with this case is, that notwithstanding the violence of the attack, and the rapidity with which such extremely grave symptoms were developed, there was no well-marked chill at the outset, and no increase of temperature at any time previous to the slight chill on the morning of the fourth day. The second chill was decidedly more pronounced than the first, and yet the symptoms following it were not in all respects so alarming as at the beginning of the attack. This, I think, is a forcible illustration of how little reliance can be placed upon the occurrence or character of a chill as indicating the beginning or gravity of an attack of this kind, and of how easily one might be misled and valuable time lost. Another point of interest in this case is the fact that, notwithstanding the prolonged constitutional disturbance and the continuance of a moderately high temperature for some time, the secretion of milk was not wholly suppressed throughout the entire attack. The amount of milk secreted was such as to give hope that as convalescence progressed this function might be wholly restored. This, however, was not the case.

Still another feature to which I wish to refer, is the recurrence of the attack. This undoubtedly was due to the sore in the fold between the cervix and posterior vaginal wall being neglected before it was healed. This point is, under existing circumstances, the most difficult of inspection of any part of the vagina. It is also the most difficult to treat and keep in a cleanly condition, and so it is here that re-infection is most likely to occur. Unfortunately a knowledge of this fact does not always prevent its occurrence as in the present instance, but a result such as this should emphasize the necessity of keeping every portion of broken surface under observation until repair has taken place to such an extent as to prevent the possibility of infection taking place.

Another matter worthy of notice in this case is the

particularly loose and flabby condition of the uterus. While this condition, to a greater or less extent, is common to all cases of puerperal septicemia, in this case it was particularly marked, the external os and cervical canal being quite unrecognizable as such and the entire shape of the uterus being lost. The point to which I wish to call attention is that, in my opinion, this condition obtains to a greater or less degree in proportion to the gravity of the attack, and that the earliest indication of improvement is seen in the return of tone to the uterine muscles. The first indication of the uterine muscles regaining tone is seen in an attempt at contraction, which can first be recognized in the rounded outline of the external os. This occasionally precedes but is usually coincident with the first fall in the temperature. I am not aware that this statement has been made by an authority upon this subject; but, from my own experience, I am so convinced of its truthfulness that I have come to estimate the progress of the case, very largely from the appearance of the os and cervix as disclosed by the speculum.

ABDOMINAL HYSTERECTOMY IN THE TREATMENT OF SEPTIC PELVIC DISEASE AND FOR CANCER OF THE OS UTERI

BY J. C. IRISH, M.D., LOWELL, MASS.

In the treatment of pus-tubes and other pelvic abscesses, especially when due to an extension from the uterus of septic infection, removal of the tubes and ovaries has failed to cure the patient permanently in quite a large proportion of cases. After the operation the infected uterus has become an entirely useless organ, deprived of the support of the broad ligaments, and sometimes the seat of a permanent septic invasion. In this condition of disease it is without doubt the starting-point of many reflex disturbances.

Deprived practically of all support the uterus becomes displaced, congested, and the source of a very intractable leucorrhea. For these reasons hysterectomy, which adds little, if anything, to the danger attendant upon the removal of tubes and ovaries, is now being quite generally accepted as a substitute for oöphorectomy.

Therefore in the treatment of most of these cases the question of operative procedure is reduced to a choice between vaginal and abdominal hysterectomy. It is to the question of our choice between these two operations, not only in septic pelvic disease, but also in cancer at the mouth of the uterus, that this article refers. My conclusions will be deduced entirely from personal experience with the two operations.

In septic diseases of the uterine adnexa, Péan and his followers do vaginal hysterectomy. Following the lead of the French surgeons, several distinguished American gynecologists are advocating the vaginal operation as preferable to the removal of the infected uterus and its diseased appendages by the abdominal route. The trend of professional favor at this moment in the treatment of these cases seem to be toward vaginal hysterectomy almost to the exclusion of the abdominal operation.

Until the advent of the Trendelenburg table, in cases of cancer of the uterine neck, vaginal hysterectomy was the only operation practically possible. But now in these two widely different diseases, pus-tubes

and cancer of the os, we have the choice between vaginal and abdominal hysterectomy. From my own experience I believe that in all cases of pelvic disease requiring the removal of the uterus and in a majority of cases of cancer of the os, complete abdominal hysterectomy is the safer, simpler and more successful operation.

In cases of pelvic suppuration, extensive adhesions of omentum and intestines to the diseased structures is an almost constant complication and oftentimes a very serious one. These adhesions can certainly be dealt with much more easily through the abdominal incision, than through the vagina. With a patient nearly in the complete Trendelenburg posture we can most readily and carefully separate pus-sacs from surrounding tissues. Whenever the abscess has opened into the rectum or bladder the fistulous opening in either of these viscera is well within our reach for repair. I have had occasion three times to close such openings in the intestine, in all of which the closure was permanent.

When doing hysterectomy through the vagina such repairs would be impossible. In the abdominal operation, it goes without saying that we can ligate more easily the ovarian arteries, and the uterine arteries fully as safely and readily as is possible by the vaginal route.

In some of these cases of pelvic disease, vaginal hysterectomy would be impossible, and I know no way in which the greatest diagnostic skill can unerringly separate these non-operable cases from the others.

In general, in those patients where vaginal hysterectomy is possible, it is a more difficult operation than abdominal. The field of operation is left in a much more satisfactory condition after abdominal than vaginal hysterectomy.

After the removal of the uterus through the abdomen, we entirely close the abdominal cavity by a running stitch that unites the peritoneal flaps that we have made. The bottom of the pelvis can be readily cleaned so thoroughly, that, except in very rare instances, there will be no need of drainage through the abdominal wall. The latter being completely closed through its entire length, the danger of subsequent hernia becomes extremely small.

So that all the drainage we have in this case is the gauze entirely outside the abdominal cavity and brought out through the vagina.

While, after vaginal hysterectomy, the abdominal cavity cannot be entirely closed with safety, and the drain extending from within the pelvic abdomen out through the vulva is a necessity, and at the same time a danger as a possible carrier of infection, so in this matter of drainage, abdominal hysterectomy has manifest advantages.

In some cases of vaginal hysterectomy, complete ligation of the broad ligaments and the contained vessels cannot be done, then clamps must be used. The objections to them, and the dangers attending their use, have been too well established to require any enumeration.

In this comparison of the two operations in the treatment of pelvic disease, this can be said in favor of vaginal hysterectomy, that the immediate danger from shock is greater in the abdominal operation. I doubt, however, if a patient will ever die from shock, when the operation is being done through the abdo-

men for pelvic disease, except possibly in some of those cases where vaginal hysterectomy would be impossible. Extrusion of the bladder, which is a more serious inconvenience to the patient than ventral hernia, never occurs after abdominal hysterectomy, but follows vaginal hysterectomy in a larger proportion of cases than hernia does after an abdominal section through the median line. Convalescence after abdominal hysterectomy, so far as my own experience goes, has been more uneventful and rapid, than after the vaginal operation.

What I have said in favor of abdominal hysterectomy in the treatment of pelvic abscesses, will apply, to a great extent, to the operation that we should choose — whether vaginal or abdominal — for removal of the uterus for cancer of the neck.

In all cases where the uterus is high up in the vagina, and the latter narrow, or where the malignant infection has extended under the broad ligaments, or the uterine appendages are involved, the advantages of abdominal hysterectomy are at once apparent.

It is an easier operation to do, and the infected structures can be more easily and thoroughly removed. I would reserve vaginal hysterectomy entirely for cases of cancer of the os, where there was probably no extension of the disease beyond the uterine tissues, and where the uterus was very movable and the vagina capacious.

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

ONE HUNDRED AND FOURTEENTH ANNUAL MEETING.

THE sessions of the Sections in Medicine and Surgery were held at Mechanics Building on Tuesday, June 11th.

The Shattuck Lecture was given on Tuesday afternoon by DR. ROBERT T. EDES, of Jamaica Plain, on

THE NEW ENGLAND INVALID.

The Exhibits this year were of more than usual interest, by far the most striking and unusual, however, was an exhibition of pathological and anatomical water-colors and sketches by William J. Kaula. The drawings, many of which were to illustrate Prof. J. C. Warren's Surgical Pathology, and others of larger size to illustrate lectures on pathology, are remarkably accurate both in line and color. Such work as this marks a distinct advance in illustration of lectures and text-books over the old careless line-work.

The exhibits of surgical supplies, sterilized ligatures, sutures, dressings, etc., showed the remarkable perfection to which the preparation of sterilized materials has been carried of late, and the exhibits of instruments, sterilizers, etc., was well worthy of mention.

The One Hundred and Fourteenth Annual Meeting was held at Mechanics Building, Boston, June 12, 1895.

ANTITOXIN IN DIPHTHERIA.

The following papers on this subject were read:

"The Etiology of Diphtheria and the Use of Antitoxin," by DR. H. C. ERNST, of Boston.

"The Pathology of Diphtheria," by DR. W. T. COUNCILMAN, of Boston.

"The Prophylactic Use of Antitoxin," by DR. F. G. MORRILL, of Boston.

"The Preparation of Diphtheria Antitoxin," by DR. J. L. GOODALE, of Cambridge.

"The Clinical Use of Antitoxin," by DR. W. H. PARK, of New York City.

Discussion by DRs. C. F. WITHINGTON, of Roxbury; G. G. SEARS, of Boston.

THE ANNUAL DISCOURSE¹

was delivered at twelve o'clock by DR. ALFRED WORCESTER, of Waltham.

THE ANNUAL DINNER

was served at one o'clock, at the close of which the Anniversary Chairman, DR. H. L. BURRELL, introduced the first speaker, His Excellency Hon. F. T. Greenhalge, in the following words:

FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY:—Why do we gather on these annual festivals? That we may freely exchange counsel and advice, and that we may have relaxation from our daily cares. Our profession is one of the noblest which can engage man's energies if its functions are rightly conceived and its obligations fully realized.

A society that has among its past members men who have exercised a world-wide influence on the well-being of mankind, men whose names will endure for time, such as Jackson, Bowditch, Bigelow, Holmes, Waterhouse and Warren, must have ideals of development.

As medical men we are often too engrossed in our daily work to fully realize the breadth of our duty to mankind. In the community in which we live there is more respect paid to the rights and comfort of the individual than in any part of the world. We are justly proud of this standard. As medical men our first duty is the care of the individual, but we should not be warned into forgetting our broader, although less obvious, duty of adding by research to the knowledge of disease that we may improve all mankind.

The material, mental, and often the moral well-being of the world with all the possibilities for a larger usefulness and a richer, more fruitful civilization which such well-being implies, are directly influenced by our profession, especially in our capacity as medical societies.

A society like ours should establish and maintain good fellowship and honorable conduct among its Fellows. It should stimulate by emulation its members to their best work. It should foster the healing art, advance medical science and diffuse knowledge influencing the public health. Membership in this Society should be an assurance that the man is well educated and a gentleman.

The Society should never degenerate into trades-unionism. It must always stand ready, as it has so often in the past, to judiciously co-operate with the State in the greatest of all branches of our profession, preventive medicine.

Our obligations to the Commonwealth associate us closely with its government; and I beg to present to you one in whom we all delight in honoring on this occasion, an executive who conscientiously stands for the right, His Excellency, Frederic T. Greenhalge.

GOVERNOR GREENHALGE spoke as follows:

I understand from the remarks of the Anniversary Chairman that the standards are to be maintained and increased, and I regret that in the very fine innovations that have been made to-day it seems a sort of valedictory performance in that system of Anniversary Chairmen which has done so much to gladden your banquets in the past. It is like bidding a personal and an official farewell to the old *régime*, which has done so much to make matters pleasant and comfortable, and yet I myself have had the pain of parting with the Anniversary Chairmen on an official occasion. He was the surgeon-general, whom I delight to honor, and whom the Commonwealth of Massachusetts delights to honor. And I want to pay my humble, yet fervent tribute to the effective and splendid work done by that chairman in the task of bringing the militia to its present high state of efficiency, in regard to the ambulance system and the medical department generally. So, my friends, if the system goes out, it certainly has the advantage of going out in a blaze of glory.

I am glad, my friends, to be here. This is an ancient and historic society. I remember that in the old days members of your profession were not thought so highly of as they are to-day, and that seems to be one of the marks of progress which the present century has manifested. I can remember when you were called—at least in the books—medical men, and by the somewhat invidious title of "leeches"; and sometimes people who have to pay your bills think that this term has not become altogether obsolete. But you must always remember that a jibe at a learned profession is the only consolation of the ignorant.

It is important that the standards of the profession should be maintained. It is important that you should know who are members of your organization; that you should be able to say, when a man's name is mentioned in connection with that of the Massachusetts Medical Society, that he is a man to be trusted for honorable dealing, whose aim means well for the good of the whole Commonwealth. It is not so much a matter of money-making that may be important; not so much a matter of selfish emolument. This great Society means that whatever secret science has to teach, wherever progress can be made, that progress will be made, and those secrets will be learned by this representative body of men as soon as anywhere else on the civilized globe. Therefore, my friends, it is a source of congratulation that the legislation of Massachusetts has looked forward and not backward. It is well that a just discrimination should be made by the Commonwealth which will divide the untrustworthy from the trustworthy.

It is an inspiring and encouraging fact to come here and to find that, so far from your members having diminished, they have increased, and that probably 200 or 300 more come here to-day than have come on previous occasions. The questions that will be put to you are something like this: Has your work contributed to the good of the community? Have you contributed to longevity? I think the answer will be in the affirmative. Have you made life more worth living? Have you reduced to its minimum the rack and pain of suffering? Have you added to the comfort, the happiness, the enjoyment and the rational delight of mankind? Have you made death less fearful, and have you given every comfort and satisfaction which

¹ See page 585, No. 24, of the Journal.

the science within your reach was able to contribute?

These questions, I think, the statistics would answer in the affirmative as well. It does not make so much difference what school a man belongs to; but it makes all the difference in the world whether he is true to the newest and highest dictates of science. If these things are so with the members of this Society the Commonwealth may well bring its warmest greetings, and may well bid Godspeed to the members of the Massachusetts Medical Society, as I do in these brief words to you to-day.

The Chairman in introducing Dr. F. K. Paddock, said: In 1850 the office of Anniversary Chairman was created. Since that time it has been held by many good and distinguished men. To-day that office dies. The Anniversary Chairman, after forty-five years of life, is cut off in the prime of his manhood. His impulse on this, the last day of his life, is to occupy all of your time in demonstrating to you that he falls a martyr to the grasping ambition of the presidents of the Society, who have always envied his elevated station, temporary though it might be. The waning light gives way to the fixed light who is hereafter to preside at your dinners. The President of the Society will now speak to you.

DR. PADDOCK spoke as follows:

MR. CHAIRMAN AND FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY:—In pursuance of my official duty, during the last year, I have visited District Societies in the different sections of the State, and I recognize in this great throng to-day many familiar faces.

We are assembled to observe the one hundred and fourteenth anniversary of the organization of this Society; and on this occasion it gives me pleasure to assure you that prosperity and harmony prevail through the Commonwealth.

I am certain that the respect of the community at large for this organization is increasing from year to year and I feel confident that in the immediate future the great and general court will demand that every practitioner in the State shall be a part of this body, and thus restore the prestige which was denied it many years ago.

It is with pleasure and surprise that I have observed the rapid dissemination and inculcation of new ideas and methods through the State. A new departure in medical or surgical practice in Boston is utilized in a surprisingly short time by the profession all the way from Berkshire to Barnstable. The skill and resources of the rural practitioner are steadily improving, keeping pace with his city brother.

The conservatism which has characterized this Society in its recognition of "isms and pathies" has been wise and healthful in the past; but the conditions are different now, and a more liberal policy in the future may be of advantage.

I am sure you will all sustain me in the opinion that it is the aim of this Society to excel in every art and theory that prolongs life and gives health to mankind.

The waning light which has been so pathetically described by our eloquent Chairman, as illuminating his approaching death, will, I assure you, be like the light of the noonday sun as compared with the darkness which will obscure the proceedings at the next anniversary dinner of this Society; and you will

hasten to restore life and health to the Anniversary Chairman.

The Chairman then introduced Prof. Charles Eliot Norton in the following words:

Bound as we are by the necessities of our work to the material things of the world, it is well that we should keep fresh our interest in those things which offer us a wholesome relaxation from our daily cares and which do much more if their full significance is completely grasped, which may illumine those tasks and all the aspects of the world by the light of a rich spiritual nature, by giving its right influence in our lives to the noblest of our faculties, the imagination. Emerson has said, "A man is a beggar who only lives to the useful, and however he may serve as a pin or rivet in the social machine, cannot be said to have arrived at self-possession."

Fellows of the Society, it gives me much pleasure to present to you Dr. Charles Eliot Norton, Professor of the History of Art in Harvard University.

PROFESSOR NORTON said:

MR. CHAIRMAN, MR. PRESIDENT, MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY:—If a justification of the presence of a layman to take part in the celebration of your anniversary be required, it may surely be found in the fact that it is eminently becoming that some one from outside your ranks should express the gratitude of the community to the medical profession and offer to it the testimony of the general honor and respect.

No intelligent man can live to middle life without having frequent occasion to acknowledge his quite immeasurable obligations to individual members of your profession for services rendered to himself and to those dearer to him than himself.

The ideals of all the chief professions to which men devote themselves are noble and worthy of the devotion of high-minded men, but no other is loftier or more inspiring than that of the medical profession, for it is an ideal of immediate, unceasing, self-forgetful and self-sacrificing service. The pursuit of it tends to the development of character of the highest type. It is a mere commonplace that a good physician must be possessed of quick and exact observation, capacity of drawing rapid synthetic conclusions, sound judgment, firm decision, readiness to deal with sudden, unexpected emergencies, and that together with these, and not less essential, he must have a large understanding of human nature, tenderness of heart, and a spirit of intelligent and humane sympathy, not to be dulled by recurrent call for its exercise, nor refusing to be aroused because the individual appeal to it belongs to a general and common class.

While I name these qualifications I am describing no imaginary persons, but men whom I have known and honored, men whom you have known and honored; but why do I use the past tense? men whom you and I know and honor! The rolls of the profession in Massachusetts are full of exemplary names. I need but recall the Jacksons, the Wares, the Shattucks, the Warrens, the Bigelows, the Bowditches, the Wymans, the Cabots.

But much as we have owed the profession in the past it seems likely that we are to owe to it still more in the future. It was but the other day that Mr. Balfour, eminent alike in English politics and in English philosophy, was addressing an audience of medi-

cal men and said, "I cannot forget that great as is the debt that humanity in the past owes to those who have devoted themselves to the healing art, that it is increasing and, so far as we can venture to prophesy, seems likely to increase in a rapidly expanding ratio. The successful application of the scientific method in all the arts is one of the most remarkable characteristics of this and the last generation, and nowhere does that characteristic show itself more prominently than in the region of the great art of medicine. There science and practice are ever more and more joining hands and every day medicine is becoming less the work of the empiric, more and more of the scientific expert."

With this extension of knowledge, with the new methods of investigation opening illimitable vistas of discovery and indefinite but splendid prospects of advance, even with this great progress, a grave danger is associated.

The acquisition of the knowledge requisite for the practice of the profession whether upon its medical or its surgical side, becomes more and more arduous. The term of education is necessarily prolonged; the attainment of mastery requires more exclusive devotion to special pursuits; the profession divides itself, and many of the ablest practitioners are more and more strongly tempted to confine themselves to special departments of their art.

But the most thorough medical education, if it be an exclusively medical education, and the most complete attainment of special skill and knowledge in any one branch of the profession, whatever it may be, do not lead to the ideal of a good physician. Exclusively medical education is not enough. A good physician must know more than medical studies teach. It is not enough to know the signs and causes of disease and the remedies for it, he must know life in its largest sense, life, of which disease is but the perturbation. And the way to this is twofold: by experience and by culture; twofold and yet single, for it is culture which enables a man to put his experience to profit, to interpret it correctly, and to recognize intelligently the enormous variety of human character through which the essential unity of human nature manifests itself.

No man should be deemed fully qualified for the practice of the healing art unless his soul has been enlarged, and his mind disciplined by the studies which are justly termed the "humanities." In the busy practice of his profession the physician may find little time for such studies. The pursuit of them must be early begun, and happy for him if the love of them be early established.

Above all should the young student who proposes to become a physician devote himself during the brief period before he enters upon his strictly professional studies to those studies which tend to the culture and development of the imagination. The imagination is the most powerful and, if left untrained, the most dangerous of the faculties. It is the most useful and the most powerful if properly trained, for then it informs and animates the moral nature; it quickens and enlarges sympathy; it guides judgment; it moderates desire; it provides innumerable resources of refreshment and recreation; it secures sanity of soul.

A great part of every physician's duty is the exercise of influence over the imagination of his patients. "A wise physician," says Pluto, "cures the body with the mind." Imagination is the futile source not only of imaginary but of real disease, and

every physician knows by frequent experiences how large a part it plays in recovery from disease and in the maintenance of health. The country physician is constantly called upon to deal with the disordered imaginations of his patients, exposed to all the trials of life and wearing their hearts out in comparative solitude, while the city physician, here, for instance, in Boston, finds himself not less constantly confronted with the conditions of the imagination which reveal prehistoric modes of thought, and which exhibit in the wonder of faith cures and of Christian Science, close analogies to the mystic vision, the miracles and the *stigmata* of S. Francis.

I remember long ago hearing a story of a well-known printer in Philadelphia, Mr. Fry, who at one time was engaged in reprinting one of those encyclopedias of medicine in which different diseases are treated at length in independent volumes. He said he always opened with interest a new volume when it arrived from England in order to see what disease was to be prevalent in his office during the next two or three months.

But the culture of the imagination is requisite for the good physician not only that he may through it learn how best to deal with the troubles of his patients but that he may preserve his own health of body and mind. Every physician requires some intellectual interests beside those of his own profession, and there are no interests comparable to those which the imagination may supply. The means of culture of the imagination are easy, are not far to seek. One man may find them in his garden; another in his shelf of wisely chosen books, another, perhaps, even in his collection of postage stamps. Be sure only to take some means. It probably matters little what.

Best of all, perhaps, for true recreation is the study and the love of poetry. The guidance of the taste may safely be followed here. Happy if it lead to Shakespeare or to any of the greater masters of poetry!

I remember many years ago, that Sir John Simon, known to you all as the eminent surgeon to St. Thomas's Hospital, and still better as the man to whom England mainly owes her magnificent system of national preventive medicine, a man I hold as a high honor to speak of as an old friend, coming one day into my room and taking up from the table a volume of "Dante," turning to me, he said: "I used to know much of Dante. Let me see if I can recall something of him now." And then he repeated without an error one of Dante's sonnets in the original Italian, which he said he believed he had not looked at for twenty years. I have known few men who had a more thorough acquaintance with Shakespeare, with Milton, and with the other great masters of English literature than he.

And let me recall another illustration. When in the heat of war and under the pressure of multitudinous responsibilities of the heaviest weight, Governor Andrew, our great governor, was obliged to travel often between Boston and Washington, he told me that in order to refresh himself and to keep his mind smooth, open and tranquil he was accustomed to take with him a volume of poetry, often the "Golden Treasury," to occupy the hours of the journey in learning by heart some one of the pieces which it contained.

But, more than this, poetry may serve not only as the means of refreshing the wearied mind, it affords a never-failing source of comfort; and there is no man

who at times has more bitter disappointments and stands more in need of comfort than the physician.

The subject is leading me too far. I must stop! but I would end as I began with a word of gratitude which though spoken by my single voice, is the utterance of thousands upon thousands of your fellow-men.

The Chairman next introduced the Rev. James B. Doonan as follows:

FELLOWS OF THE SOCIETY:—As medical men, ministering to the ills that flesh is heir to, and appreciating as we do the important influence exerted by the mind on the diseased body, we know the great comfort which is brought to our patients by their spiritual advisors. Theology and medicine have always been closely allied; in fact, to the church we owe our first hospitals, and for centuries most of the practitioners of medicine were churchmen. Gradually a definition has been made between the man who ministers to our spiritual needs and him who cares for our temporal wants, until to-day we have hospitals which provide, not only for the care of the sick and unfortunate, but which are the great schools of our profession, out of which comes information which benefits and improves the whole human race. The work of the church and of medicine lie in parallel lines, frequently intersecting, never antagonistic, both striving for the good of man; and it gives me the greatest pleasure to present to you the Rev. James B. Doonan of Boston College, one who represents a most loyal ally in the care of poor suffering humanity and who is a representative of the conservative church.

REV. JAMES B. DOONAN responded as below:

GENTLEMEN OF THE MASSACHUSETTS MEDICAL SOCIETY.—An invitation to address an assembly such as, at this moment I face, when standing before the Massachusetts Medical Society, is an honor that might reasonably touch the self-esteem of any man. On the other hand, the gravity of the task that I have assumed by acceptance of your invitation is well calculated to temper any pride that may have been awakened. For what is personal in the summons you have made of my presence here this afternoon, I thank you with a cordial sincerity, which the simple language of my gratitude will not, I trust, obscure.

That which is personal, however, whether it be the grateful sense of the honor you have done me or the disturbing thought of my inadequacy to the task, is lost to view in the realization that it is rather as a representative of religion that you have called me before you to-day. The charge that you have committed to me is to speak in the name of religion, and to set forth the special relations which it holds to the great profession which constitutes the life-work of the members of your distinguished Society.

Whether one considers the lofty aims of that profession itself, the intellectual development demanded in those who embrace it, or, lastly, the high standard of moral worth exacted of those who enter upon the career of the physician, there is in any community no class of men whose opinions should command more respect or exercise more potent influence than in the great body of physicians.

With striking force, then, must avail your action in ordering that on this occasion, when custom calls for a declaration of the principles that underlie your work

and direct its operations, utterance of no uncertain sound should be heard in profession of your belief in the existence of God and in evidence of the respect in which you hold religion, the summary of man's obligations to that God.

The only intelligent purpose ever assigned by human philosophy for the existence of the world of wonders encompassing us, is primarily the manifestation of the wisdom, the goodness and the power of a Creator, and secondarily the happiness in and through these visible things, to what is greater though invisible, of Man himself.

The reasoning intellect, which stands outside of even so familiar an object as the time-piece, that marks for us the hours of the passing day, the designing mind and the cunning skill of a maker; which can descry the architectural thought of a Richardson, as one gazes in admiration upon his master-work in Copley Square, cannot surely miss the existence and the activity of a First Great Cause lying beyond and outside of this world of ours, whose beauty, harmony and strength, progressive stages of study daily reveal to us.

The geologist, who finds books in stones; the astronomer, who of all students of Nature, most nearly grasps the concept of the Infinite, as he plunges into the immensity of space and calculates the gigantic tracks of celestial bodies; the botanist, who, in the tiny leaf of the wayside flower, comes upon the principle of life, a thing so mysterious that no man yet has fully made answer to the question "What is it?" All these, gentlemen of the medical profession, must yield to you in the near reading of the great Creator's wisdom and power. To your study is daily subjected the master-piece of God's fashioning—a very microcosm of marvel—the human body. Wonderful it is for harmony of design, perfection of function, teleological accuracy, and for a beauty which places it peerless among the objects that enkindle the æsthetic glow of our being. In this more wonderful than in all else, because it is a tabernacle in which dwells a spirit—a reality which sight cannot clothe with form or figure, a substance so subtle that scalpel will not disclose it, so unponderable that the most delicate balance will not declare its presence. Yet, withal, the source of all that is best in man, the principle of his intellectual power and his moral greatness.

It stands to reason then, that men of your profession, to whom study has opened the doors of the temple of wisdom, must be farthest removed from the folly of such denial. No nation has ever attained to greatness, no civilization has ever flourished without religion. Pagan Greece, with her superb ascendancy in letters and art, pagan Rome with the resistless power of imperial sway, were religious nations. Misdirected as to object of worship and perverted as to application of its teaching, paganism held many conservative truths. Men believed in a God Supreme, in the immortality of the soul, in a future state of rewards and punishments.

From some quarters we hear the cry, that Christianity has achieved its work in building up our civilization; and those who utter this cry are even willing to admit the debt of gratitude owed to religion for the beneficent results accomplished. But the claim is further made that we can now move forward on the path of progress without Christianity, Science affording all sufficient light and motive for the advance.

Were Christianity to disappear from the world, doubtless many of its achievements would for a time endure, nor would our civilization in a day lose the impress that ages of Christian influence have left upon it. Daylight lingers, even when the sun has sunk below the horizon; not all verdure dies out in the tree the moment the woodman's axe has prostrated its majestic form. But let the time come when the great truths of Christianity cease to be believed, and desolation and disaster await our nation and the generation that rejects them. We cannot return to the paganism of æsthetic Greece or mighty Rome: the sunless night of total unbelief, or the chilling blasts of a cheerless agnosticism will constitute for our age its deadly peril.

Your worthy Chairman, in his introduction, gracefully emphasized the fact that religion and medicine run on lines that are parallel and act and re-act on each other with advantage that is mutual. It is not difficult to see the reason of this truth. The field of their respective activities are not of course coincident wholly; nor yet are they entirely disproportionate or out of common touch. The aims of both are not identical, yet are they akin and harmonious. Human life and human happiness are the lines within which both religion and medical science exert their activities. Man's physical well-being and the conservation of the life he has been appointed to lead upon earth form the subject-matter of medical science. Religion, on the other side, finds its province in consulting directly for man's moral well-being and for the right ordering of his life here with a view to its bearing upon a life that is not to end. But man is not a duality: he is one nature, one person. Consequently, we must expect to see the laws that govern him in the physical order affected by those that control him in the moral order. Such is the fact. Religion not only offers the man strong motives why he should hold himself subject to the laws of hygiene, but imposes moral restraints that act beneficially on his physical nature.

To every physician must come a time when he will be called upon to

"Minister to a mind diseased;
Pluck from the memory a rooted sorrow;
Eaze out the written troubles of the brain;
And, with some sweet oblivious antidote,
Cleanse the stuffed bosom of that perilous stuff
Which weighs upon the heart!"

In that hour what influence can he find so potent as religion, which opens up to man the designs of Providence in ordaining or permitting the trials that press upon him.

Advanced medical science of the day regards physical pain not merely as a suffering which it were kind to give a patient relief from, but as a malignant agency to be overcome, if the sufferer is to be restored to strength and health. Hence the beneficent use of anesthetics. But no one knows better than the physician the power of mind over matter: and the need to bring quiet to the former that relief may be bestowed upon the latter. Here again is evidenced the power of religion. Acting as a spiritual anodyne, it controls agitation, allays fears, restores confidence, and places the sick in that state of calm, most desired by the physician, waiting and watching for the outcome of his treatment.

Thus ever aiding, never antagonizing your skill and your science, religion awaits the final effort of your noble craft, for final some such effort must be, since it

has been appointed for all men once to die: and grateful for your services to the child of the human race who has reached his appointed term, she gently takes him from your beneficent hands and gives him back to the God, whose creature he is.

Strong, enduring and lasting, then, is the tie that binds religion and medicine. Let no misconception of the one or mistrust of the other set them asunder. United, they wield the giant power that can make the race of men happy for time and for eternity; parted, they would but seek to part man himself in the oneness of his life and drag him from the high estate to which God has called him.

The Chairman next introduced SIR WM. H. HINGSTON, Professor of Clinical Surgery, Laval University, Montreal, Canada, who thanked Professor Norton for his address, and for emphasizing the importance to the physician of imagination, and a thorough training in the liberal arts. The purely scientific special branches, bacteriology, anatomy and histology, are sure to put in their claims to time and strength, and apt to crowd out the study of literature and poetry. We do not need to go beyond the seas for the higher medical education. The higher education is what should be added to classical culture, the knowledge important for medicine. The profession of medicine should be entered upon only by men already skilled in the liberal arts.

After giving pleasant reminiscences of his associations with Dr. Holmes on the occasion of his former visit, the one-hundredth anniversary of the Society, the speaker again referred to the importance of general culture to the physician.

The educated mind alone can establish the connection between, and assign their relative importance to the different departments of medical science.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

JOHN L. AMES, M.D., SECRETARY.

REGULAR Meeting, Wednesday, March 20, 1895,
DR. GEO. M. GARLAND in the chair.

DR. RICHARD HOGNER read a paper on

INTRAVENOUS MEDICATED INJECTIONS ACCORDING TO PROF. GUIDO BACCELLI'S METHOD.¹

DR. CUMSTON: If I understand you, there was a difference in the pains and edema as you increased the quantity of the solution?

DR. HOGNER: There was no pain at all if the solution was injected directly into the vein, but if some drops were perivascular there was very severe pain.

DR. CUMSTON: I happen to have in my pocket a syringe which might prove of use in the injection which Dr. Hogner speaks of. It holds one cubic centimetre. It is simply a glass barrel with metal piston which has an asbestos packing, which can be easily rendered aseptic by boiling. The needle is of platinum, and is made aseptic by passing it through a flame.

DR. E. O. OTIS read a paper on

THE TREATMENT OF ADVANCED (HOPELESS) CASES OF PHTHISIS.²

¹ To be published in the Journal.

² See page 609 of the Journal.

DR. ARNOLD: I have had the pleasure of being associated with Dr. Otis and Dr. Fillebrown on the staff of the Free Home for Consumptives. This institution is supported by one of the charitable societies of the city, and draws its patients from the lower classes. We have 27 beds, and the cases are almost entirely of the class Dr. Otis speaks of, the hopeless cases. At first sight the treatment of those cases would seem to be monotonous and uninteresting. It certainly has been a surprise to me to find how much there is to do for them, and to see the great variety of the disease and how much experience we get from treating different symptoms. There is one drawback from the great variety of symptoms and from the fact that the cases are so commonly hopeless, and that is that in testing the effect of any one drug or system of treatment the opinion has to be made more from individual cases than from many statistics. I will speak of one or two points. I have been very much disappointed in creosote in its general use. I have found it of some use as a stomachic stimulant, but it has not seemed to me to influence the general course of the disease.

In speaking of antipyretics Dr. Otis mentioned pyretine. I have had a limited experience with that. In one case in particular it seemed to work favorably, with less depression and decidedly less sweating than any of the other antipyretics, of which I used both antipyrine and antifebrin in the same case.

In treating the pains that arose in different parts of the body, aside from the measures Dr. Otis has spoken of, I have found that salicylic acid or the salicylates in some form have been very useful.

Diarrhea has proved in some cases one of the most troublesome symptoms to control, and I think we are sometimes obliged to resort to morphine in quite large doses to control the activity of the bowels, particularly where it seems due to irritation from ulcers.

Strychnine has proved in my experience one of the most useful drugs that we have in treating cases in general, and not alone from its action on the heart; it has often given a great deal of relief to the breathing and to the distress in the chest.

There is another aspect to these advanced cases of phthisis, not connected directly with the treatment, which I should like to touch on: and that is the importance of the cases from the point of view of contagion, as foci for the dissemination of the disease. In inquiring into the history of the cases there, I found in several instances very clear proof that the case was acquired by contagion from some other member of the family. I think the advanced cases, where they are less able to take care of themselves, where the sputum is loaded with the bacilli, are decidedly more dangerous than the earlier cases of the disease. Particularly among the poor this question seems to be of great importance where the people are crowded together with improper accommodations. I feel like urging the medical profession to take some more active steps to arouse interest, not only among ourselves but in the community at large, to have something more done for the care of such cases. It seems to me it is of importance that those cases should be provided for in the public institutions, not simply as a matter of giving them proper care, but as a matter of protection to the community. The accommodations in Boston at present for such cases are painfully lacking. The larger hospitals are overtaxed in taking care of acute diseases

and cannot spare beds for cases which take so long a time. Except for The Consumptives' Home which was formerly under Dr. Cullis's care, there have been to my knowledge, with the exception of the small Channing Home, no institutions where these cases are taken and properly cared for. The Free Home for Consumptives in its present form is doing good work, and its function needs little said in commendation; and I certainly hope we shall see in the near future not only an increase there, but other accommodations for such cases.

DR. FILLEBROWN: In regard to the matter of the supply of air to consumptive patients, it seems to me that we must consider it in a somewhat different light when we are treating a number of patients collected together in an institution. I have noticed that the patients have suffered from the effects of cold draughts. In the institution it is impossible to renew the air sufficiently without opening the windows, either at the top or bottom, to an extent which admits of too much circulation; and it seems to me that in the treatment of consumptives in institutions we should have special regard to the temperature and the supply of air. Our variations are so great and so frequent that the out-of-door air cannot be depended upon to provide the proper influences, therefore I think it should be modified in temperature and moisture by suitable apparatus. In a private house, of course, we can arrange that a great deal better.

In regard to the matter of digestion, I endorse the views of Dr. Otis almost entirely, and perhaps cannot add anything to what he has already said. I have found the charcoal, bismuth and soda mixture to be very useful in those cases of distress after eating. Almost invariably it has had a good effect. In the cases of anorexia I have used nux vomica and the dilute mineral acids, with perhaps whiskey or the tincture of gentian. Liquid peptonoids with creosote, where there is an inability to take food, has in a number of cases been very effective. Whether it is due to the creosote or not I do not know, but the stomach tone seems to be restored to a certain extent and the appetite has returned. It seems to me that in the earlier stages of the hopeless cases, creosote, when administered in moderate doses has been followed by good results. I have given, as a routine treatment to those able to take anything of this kind, malt and oil with creosote in milk. This combination does not sound pleasant; but they have been able to take it, and I think it is about the best way. I have in mind the case of a girl who had very serious lesions of both lungs, the apex of one and the other whole lung; she had improved a great deal and was feeling so well that she left the Home and entered employment as a domestic. As a result she returned in a very serious condition. When I first saw her after her return I remarked to the nurse that I did not think she would last very long. We put her on creosote, malt and oil, and I was surprised at the next visit to find her up and about, saying she felt better. She has steadily improved in three weeks since her entrance into the Home, and how much is due to creosote I am not in a position to say. I wish to make this point that the creosote has been followed by improvement, either by its effect upon the stomach or its elimination through the lungs.

Dr. Arnold suggested to me the use of pyretine, and in my service I made quite extensive experiments

with it. I must say it is the best antipyretic I have used. It was hinted that it was simply a combination of acetanilide and bicarbonate of soda, and to test it I had the nurse mix me some acetanilide and soda. I had previously used the pyretine on a patient suffering from extremely high temperature, and it brought it down with doses of three to five grains, within an hour or two without any apparent depression, sweating or exhaustion. Upon giving the acetanilide and soda there were great depression and fearful sweating, and the patient requested that we should not give her any more of that. I have a patient now in the Home suffering with high temperature and discomfort, and have given her the pyretine with the same result. Two-and-a-half-grain doses, at intervals of an hour will produce a change in the temperature as much as is desired.

In regard to the cough I have resorted to all sorts of things. The compound of white pine, which is so popular now, I find very useful in some forms of cough. Patients like it and seem to think it relieves them; and I think in these cases we have to rely on the feelings of the patients.

Grindelia robusta I have used somewhat, and had good results where there was much coughing and little expectoration.

I agree with Dr. Otis that the manner of coughing has a great deal to do with the ease or amount that the patient coughs. They do not know how to cough, and suggestions in regard to that are of the greatest value.

The strapping of the chest I have relied upon almost entirely where the pains were severe and would not yield to the ordinary methods of counter-irritation. That seems to satisfy the patients, and undoubtedly it relieves the pain by restricting the movements of the chest.

The diarrhea has been easily controlled by the salicylate of bismuth and the chalk-mixture. In some cases it has been so severe that we have had to resort to opium, and I have used laudanum. It seems to me the astringent effect of that is greater than in other preparations. Occasionally we have had to resort to morphia suppositories. When diarrhea is due to digestive disturbance I have found that the charcoal, bismuth and soda helps them a great deal; also the salicylate of bismuth yields good results in many cases.

Digitalis seems to be the only drug that will affect the heart satisfactorily in these cases. I have used it a great deal, and have combined it with *strophanthus* and nitro-glycerine where there was any congestion in the lungs. I have one patient now who has a very irritable heart due to displacement by contraction of the left lung. He has suffered from dyspnea at times, in which attacks he is seriously ill, but almost invariably he has responded to *digitalis* in a short time. It seems to me that that is the best heart tonic. I consider *strychnia* valuable and my experience bears out what Dr. Otis claims for this drug in all cases.

The sweating has been controlled by atropia. A great many of these patients expect to sweat, and do not consider it very serious or discomforting. When it is so severe as to saturate the sheets and the clothing, they call for some treatment, and I have every reason to be satisfied with atropia.

It seems to me we must, as Dr. Arnold says, come to the point of recognizing the importance of treating these cases of consumption in an institution. The

worst cases are among the people who have not the care at home that is sufficient, and those are just the ones who need to be taken into a Home. We ought to recognize the importance of this for the welfare of the public in general, if not for the care of these patients. They are not a source of danger to others in an institution, as ample provision is made to do away with the sources of contagion.

DR. BARNES: I should like to ask Dr. Otis regarding the humidity of the atmosphere at which he keeps the patients' rooms? It seems to me the entire ignoring of this question in our public institutions and in our houses is something that we ought to take into consideration as physicians. We take air at zero into our houses through the cold-air boxes or the indirect system of steam-heating, and raise it to 70°, we have increased its capacity to take moisture two and a half times at least and with the exception of a small water-pan in the furnace, sometimes filled and sometimes not filled, no provision is made for moisture. Practically we convert a winter into a June temperature, and in that conversion we get a humidity of 30 or 40 in our houses, whereas with the normal June atmosphere it is 70 to 80. I think we all observe the comfort and agreeableness of a kitchen atmosphere in contrast with that of the upper rooms of our houses, and I have long been of the opinion that that comfort and that agreeableness was due to the tea-kettle which furnishes an abundance of moisture and enables us at 68° or 69° to be very comfortable, where in steam-heated apartments 75° or 80° is often required and then with feelings of discomfort from cold. Some years ago I resided at a house on Beacon Street where I was unable to get my room above 68°, and I found by hanging a wet towel over the radiator that 68° was a very comfortable temperature, while 72° or 74° in other rooms of the house would seem quite chilly. I do not know that in any of our institutions any consideration is given to the question of humidity, and I was very much surprised in visiting the Institute of Technology some years ago, to find no provision made for supplying moisture to the air, after passing over the coils of steam-pipes. This system of heating does not differ materially from the system employed for kiln-drying lumber.

I wish Dr. Otis would say something to us about the advantages or disadvantages of a high or low humidity of the air for lung patients; for it seems to me to be of consequence, materially affecting their comfort, if in a temperature of about 70° the humidity is from 30 to 40 or from 70 to 80.

DR. OTIS, in answer to questions, said: I have not experienced any untoward results in the use of *strychnia* in those advanced cases of phthisis. Hemorrhage occurs not infrequently, but I have not been able to trace any connection between the use of *strychnia* and the hemorrhage.

Regarding the care of the sputum, people are becoming pretty well educated now as to its danger and as to the methods of dealing with it, still one often meets with carelessness and ignorance regarding the danger from it and the way of avoiding it, not only in private cases, but in the health-resorts where numbers of phthisical patients live in boarding-houses and hotels. The physician needs constantly to watch his patients and their care-takers to see that no laxity in this respect creeps in.

With regard to moisture in the air, I will not go

into the consideration of the part moisture plays in the atmosphere as a matter of climatic treatment, because I have spoken of it elsewhere³ in discussing climate in general.

As to the amount of moisture in sick-rooms and hospital wards, especially devoted to the treatment of this disease, it would be well, I think, if along with the temperature thermometer a wet and dry bulb thermometer should be used so that we could have an accurate register of the moisture as well as the temperature.

The oil of peppermint treatment has not been tried I believe — at least, I have not used it — in the Consumptive Home; the cases are all advanced ones and hardly suitable for this method of treatment.

DR. GARLAND: I recently received a letter from a patient whom I had sent to New Mexico, saying he was worse, that his cough had returned quite violently. I wrote describing this method of treatment, and asked his wife to prepare it and let him wear it. I received a letter this week saying it had worked like a charm in allaying his cough and mitigating many of the throat discomforts. This is only one case. But I believe it has been tried in a large number of cases with great success for alleviating the severe cough of phthisis and clearing out the nostrils. I think often the cough in phthisis comes from trouble in the nostrils as well as in the throat. Before I heard of this method I was in the habit of moistening the nostrils with a little peppermint for ordinary head colds. When this matter came up it occurred to me that its action might be largely local on the turbinates and on the congested mucous membrane of the upper air district; at all events, it does relieve the cough, and sometimes without the necessity of internal medication.

DR. GREENLEAF: I recall the treatment referred to by Dr. Prescott. It is that of Carossa. Peppermint by inhalation is combined with internal treatment, the theory being based on its antiseptic action, which it shares in common with other volatile oils. The combination used internally contained peppermint, creosote, glycerine and one or two other ingredients. I modified the use of the inhaler somewhat by using a small wad of absorbent cotton done up in cheese cloth which admits the air rather more freely than cotton cloth yet permits of saturation by the peppermint. I notice that there is a difference whether the peppermint is used in private or in hospital practice where patients are crowded together. In hospital practice the patients converse so much that they breathe through their mouths more than private patients do and the results are not as good.

I should like to call attention to one or two points in Dr. Otis's paper. We are not accustomed to associate digitalis and strychnia with the treatment of hemoptysis, but in certain cases there is no reason why we should not use these drugs, and we may with considerable advantage in selected cases. Of course, cases that are associated with extensive breaking down of tissues are scarcely to be treated in that way; but where they result from small oozing due to venous stasis, the use of digitalis is admirable. I have had occasion to use it in other classes of cases of hemorrhage due to venous stasis, and it works very well. I think our teachings hitherto in confining the use of digitalis so largely to cases of cardiac disease without thinking of its effect on the circulatory organs in other diseases

are erroneous. Strychnia used in large doses has attracted our attention in the last few years, as a valuable respiratory stimulant. Dr. Otis's remarks call to mind the value of using any of these remedies from their physiological effect and not merely as routine treatment of so many minims three times a day.

ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

(Continued from No. 24, p. 602.)

THURSDAY. — AFTERNOON SESSION.

A CONTRIBUTION TO THE STUDY OF THORACIC TUMORS,

by Drs. WILLIAM PEPPER and ALFRED STENGEL, Philadelphia, was read by title.

ETIOLOGY OF IDIOPATHIC HYPERTROPHY OF THE HEART,

by Dr. JAS. T. WHITTAKER, Cincinnati.

Hypertrophy independent of valve disease or obstacle to the circulation in the heart itself. The term is a misnomer. The condition is more frequent than is commonly believed.

Hypertrophies are due —

(1) To increased resistance in the vascular system. For example, arterio-sclerosis.

(2) To diseases of the heart muscle from infection, degeneration, etc.

(3) To affections of the nervous system.

The hypertrophy of age, of work, of plethora, of pregnancy, of alcohol.

Hypertrophy from Bright's disease, from diseases and deformities of the chest, emphysema, kyphosis.

Hypertrophy from myocarditis, syphilis, gout and diabetes.

Hypertrophy from irritation of the vagus, from abuse of tobacco, from excess in venery, etc.

DR. J. H. MUSSEY: I have recently had several cases in which the occurrence of dilatation and the immense development of a mitral regurgitant murmur — in persons who previously had hypertrophy of heart, due to vascular changes — gave relief to the cardiac symptoms, to the violent palpitation, precordial distress, and, indeed, in three instances to attacks of angina. One patient, who had an aortic lesion, had a very severe attack of angina extending over a period of four or five weeks, so that her life was despaired of, but the development of the mitral murmur has relieved her of pain and other cardiac symptoms. This has occurred to me so often that I have been rather glad to welcome the development of the murmur of mitral regurgitation or dilatation in individuals who have had symptoms due to arterial tension and to the consecutive hypertrophy.

With the occurrence of this murmur, the type of the individual changes, he is broken down physically, but lives comfortably for several years afterwards without return of the hypertrophy or symptoms due to the high arterial tension.

I might also record an instance under my care three months ago, of a naval officer who was a constant smoker. The man, only fifty-two years of age, had an attack of tachycardia, palpitation and some anginoid symptoms. I suspected that tobacco was the cause of

³ Climatic Therapeutics in the treatment of Pulmonary Tuberculosis, Boston Medical and Surgical Journal, July 19, 1894.

it, but he protested that he had smoked since the age of fourteen. I consented to the use of tobacco again, when the attacks recurred and were quite serious. The final disuse of tobacco has caused the attacks to cease. The man has hypertrophy of the heart, but without high vascular tension.

THE TRANSMISSION OF MITRAL DIASTOLIC MURMURS.

by DR. J. P. C. GRIFFITH, Philadelphia.

The murmur of mitral stenosis is generally described as limited sharply to the mitral area or its immediate vicinity. Although usually confined to the region of the apex, it is not at all infrequently heard much beyond the ordinarily prescribed limits. The extensive transmission of the murmur more frequently obtains than is supposed even by those who admit its possibility. This is illustrated by the fact that seven cases related in this paper were all examined by the author within the last three months. In three cases the murmur was audible in the back; in one it extended two and half inches beyond the left posterior axillary line; in four it reached the anterior axillary line, and in two the mid-axillary line. In all it was audible very high up in the axilla.

DR. TYSON: I examined the first case which Dr. Griffith mentions, and I can confirm all he has said with regard to the extent to which the murmur was transmitted. In connection with this, I wish to present a morbid specimen illustrating in a most striking manner the enormous dilatation of the left auricle which is associated with this condition. The case was admitted to my wards in the Hospital of the University of Pennsylvania. A woman of twenty-eight, with a previous history of lung obstruction and bloody, frothy expectoration. Along with this, there were some other symptoms which pointed to pulmonary disease rather than to cardiac disease. I must admit that, according to the notes of the clinical examination, I recorded a mitral systolic murmur, which of course may have been present; but the physical condition was one in which we would naturally expect a presystolic murmur. The dilatation was so very extreme and the heart so feeble that perhaps there was not impulse enough to push the blood through this narrow orifice with the production of a murmur.

DR. J. T. WHITTAKER: It is important to determine, not so much the extent of the murmur, as the point of the greatest intensity. The extent of the murmur does not by any means tell the extent of the lesion. We can have a very loud murmur set up by a very slight lesion, and we can have some very extensive lesions in the valves without any murmur at all. A number of such cases have been reported. The intensity of the murmur is not an indication of the gravity of the disease.

DR. CHARLES CARY: It seems to me that all of these cases have to be explained on absolute physical ground. Where there is a presystolic murmur which is due simply to the flowing of blood producing a flapping of the valve, without there being any strong power behind it, it is not going to produce any alteration in the size of the auricle, and in such cases, there would not be much sound transmitted. Where, however, there is a positive and marked stenosis of the mitral orifice, so that there is as a result a marked hypertrophy of the auricle, then the enlargement brings the blubbery, flapping sound in more immediate contact with the chest; and it can run almost in any

line, depending on the size and the force of the muscle which drives the blood through the auriculo-ventricular opening. Under these circumstances you would get marked transmission of sound. It is rather difficult to understand as a physical fact, why, if there is a sufficient amount of deformity to produce a very marked presystolic or obstructive murmur, there should not be an accompanying mitral regurgitation. Sir Andrew Clarke puts the mitral presystolic or mitral stenosis murmur as one of the most frequent of the murmurs. He states that it has to be in most cases accompanied by regurgitation, because the deformity about that valve would almost of necessity lead to the backing of blood into the auricle.

DR. J. H. MUSSEY: I have been familiar with the work of Dr. Griffith, and can confirm what he has said. In a case under my care, that of a middle-aged woman, a presystolic murmur was heard very loudly, at the angle of the scapula posteriorly; and in connection with it, a reduplication of the second sound was noted in the upper axilla, as well as in the precordial region. In one instance this reduplication was heard in the upper axilla and not in any other portions of the chest.

DR. MCPHEDRAN: The restriction of the murmur described by most authorities is incorrect. I have noted in many cases the murmur more widely distributed than usually described by authors. I think that in these cases the murmur depends upon the tension of the current of blood in the pulmonary circulation, and not upon a condition of the left auricle. I think it is ventricular and not auricular.

DR. A. H. SMITH: It has long seemed to me that perhaps murmurs which we class as diastolic are in some cases systolic; that is to say, in conditions where there is disease at the auriculo-ventricular orifice, the mitral curtains are necessarily more or less stiffened at their base and consequently do not coapt perfectly in the very first instant of systole. The valve may be perfectly competent ultimately, but may not be so at the very moment the ventricles contract, and there is a regurgitation in that first instance of systole, which regurgitation ceases when the pressure behind the valves arrives at a certain point. It does not seem probable, when we consider the mechanism of the valves, that even under the most healthy conditions the mitral valve closes so instantaneously as not to permit of a slight amount of regurgitation. It is like any check valve, which presupposes a previous flow in order to move it into its seat.

DR. C. G. STOCKTON: Does Dr. Griffith mean by this sound that which we ordinarily call the diastolic or the presystolic murmur?

DR. J. P. C. GRIFFITH: I do not think any explanation has ever been given why a murmur is loud at one time and not at another time; nor why a patient with a slight lesion may have a big murmur, and one with a big murmur may have a slight lesion. In a single case you can have on different days a difference in intensity, and even on certain days no murmur whatever. It is my own experience that we can base absolutely nothing on the intensity of the murmur with regard to the severity of the lesion. These murmurs in my cases were nearly altogether pure murmurs of mitral stenosis. In two cases there was also the murmur of mitral regurgitation. Under the term diastolic, I mean, as I tried to explain, any murmur which occurs in the diastole from the time of the closure of the second sound, up, till we get the impulse.

That was gone over very carefully by Dr. Bristowe a few years ago, who showed that the murmur of mitral stenosis may be one day heard about the middle of the diastole, another time at the beginning of the diastole, and again in the presystole. To me, this is all the same murmur. Some of the older writers divide it into the diastolic and presystolic and then the accentuated sound; but clinically I do not see how we can make any very sharp distinction.

THE USE OF THE DIFFERENTIAL STETHOSCOPE IN THE STUDY OF CARDIAC MURMURS,

by DR. ANDREW SMITH, New York.

The differential stethoscope, which in its simplest form differs from the ordinary binaural stethoscope simply by having two thoracic extremities instead of one, each connected with its respective ear piece, enables us to hear separately two sounds produced at the same time in different localities. It is useful when we find that a murmur is produced at each of two cardiac orifices, but are unable to determine whether the two murmurs occur synchronously or alternately. This doubt may arise whenever the distinction between first and second sound is lost. This distinction is likely to be lost whenever the heart's action is considerably accelerated, while at the same time the distinctive quality of the sounds is marked by the presence of murmurs. In such cases the differential stethoscope enables us to decide whether both murmurs occur at the same time, or first one and then the other. It also determines whether murmurs produced at different orifices by the the same act of the heart are, or are not, exactly synchronous; an important point in the study of the action of the valves both in health and disease.

DR. J. T. WHITTAKER: The instrument would be very valuable in some cases if we could find individuals perfect in both ears, to use it. There is unfortunately, a difference in the two ears of individuals, and sometimes a very great difference, as in the case of Addison, who was entirely deaf in one ear but became so acute of hearing in the other ear, that he was the finest auscultator in London.

After all, in these cases, it is not so much the character of the murmur or the situation of it or the reduplication of it, that is of importance, but rather the condition of the muscle of the heart. Of the factors that go to make that picture of heart disease, the murmur is the most deceptive and affords the least valuable information. It is more important to determine the condition of the heart muscle as to its dilatation, and that is determined by its frequency of action.

DR. CHARLES CARY, Buffalo, read a paper on

THE CAUSE OF THE EXAGGERATION OF SOUNDS OVER THE RIGHT UPPER CHEST, BOTH IN HEALTH AND DISEASE.

(1) All authorities describe a disparity in the physical signs, both in health and disease, between the superior lobes of the lungs.

(2) It is not satisfactorily accounted for by any author whose work has come under the notice of the writer.

(3) The right bronchus gives off a branch to supply the upper lobe immediately at but a short distance from the bifurcation of the trachea; this branch is not represented in the left side of man. In some animals this branch to the upper right lobe springs from the

trachea itself, two or more inches above the bifurcation.

(4) Our common text-books on anatomy, with perhaps one exception, make no mention of this striking difference in the two sides.

(5) Exaggerated sounds of voice, breathing, percussion and fremitus on the right side under like conditions are to be accounted for by this bronchus, which serves as a much more direct transmitting medium.

DR. J. P. C. GRIFFITH: I would like to ask Dr. Cary how commonly present this arrangement of the bronchus is.

DR. CARY: I have made a great many castings of human lungs, and lungs of cats, rabbits, dogs, sheep and calves; and in all of these, although the arrangement differs somewhat in the different species, the right superior bronchus does not fail to come off very much higher than on the left side, and in some cases it comes off from the trachea. In dogs it is arranged not unlike that of the human lung. In all of the human lungs that I have been able to make castings from, that is the uniform arrangement. I have seen it come off immediately at the origin of the right bronchus.

TWO CASES OF FAT NECROSIS,

by DR. C. G. STOCKTON, Buffalo.

Two cases of fat necrosis were given in detail, both males, both Swedes, and coming under the author's care within two weeks of each other. The autopsies showed a very similar condition present in each case — a condition rather at variance with what is usually found in such cases. In both there was well-marked disseminated fat necrosis, and in neither was there well-marked pancreatic change. Beyond the presence of a very limited number of areas of fat necrosis in the interstitial tissues of the gland and the occurrence of hemorrhages small in number and trifling in degree, the pancreas in neither case showed more change than is often seen in the perfectly healthy pancreas taken from the cadaver and preserved in the same way. The histological alterations in the pancreas are probably accounted for by the condition of the surrounding tissues.

DR. R. H. FITZ: I would take exception to the interpretation which Dr. Stockton seems to place upon his cases, in that he does not seem to attach that etiological importance to disease of the pancreas which the recent experimental work in this country and elsewhere seems to demand. In this connection, I wish to call attention to the fact that Dr. Whitney of Boston, formerly a member of this Association, has produced typical fat necrosis by experiments on the pancreas of dogs. Quite recently, Hildebrandt has reported numerous positive results in experiments on cats. These observations are all that is necessary to show that multiple fat necrosis associated with pancreatic disease is the result of such disease, a view which is in direct opposition to that of Balser and many German writers, and which seems to be the one favored in Dr. Stockton's communication.

DR. J. E. GRAHAM made a brief reference to a case of his own almost identical with one reported by Dr. Stockton.

DR. STOCKTON: I am very glad indeed to have the opinion of Dr. Fitz on these cases. I was prepared to hear him express himself as he did. The clinical appearance of these cases was identical with what I

had seen before in a case of pancreatitis without fat necrosis, and I had no way of determining before autopsy the difference between the cases. The conclusion reached by Dr. Williams, who made the autopsies, was entirely by histological and bacteriological methods. Dr. Williams began his investigation with the belief that he would find changes dependent upon pancreatitis. He was surprised to find that little change was evident in the organ in either case.

There is one point in the second case which I had hoped Dr. Fitz would notice and speak of, and that is the presence of necrotic matter in the abdominal wall. It has escaped my mind if anything of the kind has been noticed before.

DR. FITZ: With reference to the occurrence of fat necrosis in the tissues of the abdominal wall, instances have been reported of fat necrosis being found as a rule in the subperitoneal fat, and in such cases, usually, similar subperitoneal patches of fat necrosis were found in the adjacent mesentery or omentum. The appearances of the colon described by Dr. Stockton suggested that a fistulous communication was about to be established between it and the cavity containing the fatty *débris* (presumably an omental bursa and the colon), as several cases have been reported of evacuation of such material from the lesser omental cavity into the stomach or into the intestine, portions of the sloughing pancreas even having been discharged through such opening.

(To be continued.)

Recent Literature.

Text-Book of Abdominal Surgery. A Clinical Manual for Practitioners and Students. By SKENE KEITH, F.R.C.S., Ed., assisted by GEORGE W. KEITH, M.B., C.M. With illustrations. Philadelphia: J. B. Lippincott Company. 1894.

The name of Keith is so associated with abdominal surgery that any book bearing this name is not to be lightly passed by. The authors have depended largely upon their own experience and methods, but these have been modified by their intimate relation with Dr. Thomas Keith.

The book is divided into two parts: first, surgery of the abdomen; second, surgery of the abdomen peculiar to women. The authors have adopted a style which is of peculiar value to this book. It is the illustrating of diseases by recording typical cases. While reading the book one constantly feels that what is written is the result of experience, and that the work is not simply a compilation of modern ideas. There is hardly a foot-note in the book, so that it cannot be considered an epitome of the subject—not but what due credit is given where it belongs. There are a few plates here and there, and diagrams which are copied from various sources, due acknowledgment being rendered.

The book is a model of its kind; it enters into the details of operations enough to make them perfectly clear. Sound surgical principles and accurate symptomatology are a marked feature of the work. We always welcome books of personal experience; and this is one which we feel sure should be added to the library of every surgeon.

THE BOSTON

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THE ALLEGED EXALTATION OF FACULTY IN "SECOND STATES."

IN that popular novel, "Trilby," the principal interest centres in a remarkable phenomena of hypnotism. The heroine of the story when in her normal state is an indifferent singer; has, indeed, a fine voice, but no ear; in fact, can hardly tell one note from another. When in the hypnotic state and under the training and "suggestive" promptings of her tutor—when, as the daily contemporaries would put it, she has been Svengalized—she has both "ear" and "voice," becomes an accomplished and popular vocalist, and obtains wide celebrity. When in the natural state, she forgets her songs—words and musical expression—her notes are discordant and the breakdown is complete.

This, the capital part of the story, has been pronounced improbable and absurd. It is improbable; but there is something to be said in its defence. It is not wholly absurd, though no historical occurrence of the kind may be on record. That in some well-attested cases there is a wonderful exaltation of faculty under hypnotic influence and in "second states" (*dedoublement de la personnalité*) seems undeniable. Instances may be cited from Ribot,¹ Charcot,² Janet,³ and many others. It is not contended that hypnotism ever imparts new faculties or acquisitions; at the most it can only—in perhaps exceptional cases—heighten such as already exist. If Trilby had possessed no voice or "ear" for music (delicate appreciation of musical tones) when she came under the spell of Svengali's baton, the hypnotic state could not have made her a singer, able to entrance audiences.

Binet and Féré⁴ dispute the assertion so often made⁵ that a somnambulist is an unconscious automa-

¹ *Maladies de la Personnalité*, chap. iii.

² *Clinique de la Salpêtrière*, ii, xxix.

³ *Automatisme psychologique*, p. 80, etc.

⁴ *Animal Magnetism*, p. 147.

⁵ *Vide* Carpenter, *Mental Physiology*.

ton — a puppet moving only as its strings are pulled — and allege examples of subjects who, during the hypnotic state, could perform intellectual feats of which they were incapable of in the waking state. Even natural dreaming is at times accompanied by exaltation of faculty, and mathematicians in their dreams have solved problems to which they had devoted the fruitless study of many days. Thus, Condorcet saw in his dreams the final steps of a difficult calculation which had long puzzled him; and many think that Coleridge's "Kubla-Khan," composed during sleep, may be ranked among his best efforts. The phenomena of the revival of supposed extinct memories during the delirium of fever is sufficiently well known.

Pierre Janet,⁶ who believes in the essential identity of hypnotic somnambulism and states of double personality not brought about by hypnotic influence, relates some remarkable instances of complete recovery in somnambulism of sensibilities (many of these patients were anesthetic, anosmic, etc.) and of memories which seemed to be lost. Lucie and Leonie, Marie and Rose regain under hypnotism their lost senses and their memories. "If" says Janet, "somnambulism is a second existence, it is not necessarily a feeble existence without spontaneity, independence, and originality."

The case of Marguerite D. related at length by Georges Guinon in Charcot's "Clinique"⁷ is an instance of heightened activity and heightened intelligence during the somnambulant state. Marie H., an inmate of the Salpêtrière, in her normal state does not know how to read or write or count. Can do coarse sewing and stitching, but cannot embroider, do lace work, or crochet work. In the second, or "vigilambulant" state, she can read and write and count, do crochet work and embroider — acquisitions taught her since she came to the Salpêtrière and in the "second state," which is her better state.⁸

As concerns the fact that the acquisitions made in the state of vigilambulantism are dormant — not manifest — in the ordinary waking state, Guinon observes that this may be because the notions acquired in the second state are less profoundly implanted than those of the normal state, but a perfectly satisfactory explanation is wanting.

Ladame describes an entire change of personality in a patient of his, of which a report appears in the *Annales de la Société Médico Psychologique*, January, 1888. In the second state the patient was more active and alert than when in the normal state; she was also free from anesthesia and other hysterical stigmata which characterized the normal state. When in the latter state she always lost at a game of cards, while in the second personality she invariably won.

In the patient of Bonamaison, an hysterical female, related in Charcot's "Clinique,"⁹ the mental faculties were more exalted in the second state than in the first.

"The expression of the countenance is different. The eyes are more brilliant, the manner more engaging; she converses and laughs with more animation. Very docile in the normal state, she becomes in the second state wilful and capricious. In this state she can do the finest needle-work and embroidery with a dexterity utterly foreign to the normal condition. The intelligence and memory are in fact exalted. She remembers multitudes of facts which are quite forgotten in the normal state. I have often heard her sing when in the somnambulant state an English ditty learned in her childhood and of which she does not know the first word when in her normal state." Guinon regards this as a case of double personality (*dedoublement de la personnalité*) of hysterical nature.

Dufay's patient¹⁰ in the somnambulant state is much more active, and her senses seem endowed with extraordinary hyperacuteness. "She looks for and finds objects in full darkness. She threads a needle in the dark, and with her hands under the table. She talks fluently while working, but somewhat after the manner of children, using *me* for *I*. 'Quand moi est bête' (when I am in the brute state) signifies 'when I am not in somnambulism.'"

There are a few other cases of a similar kind on record, as those of Azam, Camuset, and Verriest. These phenomena of double personality are almost always connected with hysteria. Without venturing here any interpretation of these singular psychological phenomena (a work very well done by Pierre Janet in his last treatise, "Accidents Mentaux des Hystériques"), we may refer to one more instance of heightened intellect — during the second state — the patient M., of Jules Janet, at the Hôpital Pitié, who was reduced to the last extremity by a prolonged attack of gastric hysteria. There was general anesthesia and the limbs were in a state of partial catalepsy; there was retention of urine by spasm of the sphincter. When brought into the hypnotic state, all these infirmities disappeared. Appetite, digestion, strength returned, and the patient seemed entirely well, only to fall back into her anesthesia and other morbid states when she came out of the hypnotic state. It was found necessary to keep her in a condition of induced somnambulism. This was done by the Janets for a space of five years. During this period she pursued successfully a course of professional study and passed difficult examinations. When she is in the first state she forgets a large part of these acquisitions, and the five years she has passed seem a blank. The induced somnambulism has become to this patient a second existence far more complete than the first.¹¹

COMPULSORY VACCINATION IN SPAIN. — A committee of the Spanish Chamber of Deputies has reported in favor of making vaccination compulsory in Spain. It is expected that the proposed measure will encounter some opposition when it comes under discussion in the Chamber.

⁶ *Automatisme psychologique*, p. 178, Paris, 1890.

⁷ *Clinique des Maladies du Syst. Nerv.*, II, p. 252.

⁸ *Loc. cit.*

⁹ Charcot: *loc. cit.*, p. 198.

¹⁰ La notion de la personnalité, *Revue Scientifique*, 1876.

¹¹ Pierre Janet: *Etat Mental des hystériques*, p. 212.

SHOULD A PRELIMINARY COURSE IN THE LIBERAL ARTS BE REQUIRED FOR ADMISSION TO OUR MEDICAL SCHOOLS?

PROF. CHARLES ELIOT NORTON, speaking at the recent dinner of the Massachusetts Medical Society, emphasized the importance to the medical man of general culture, of ability to get occasionally out of the ruts of medical thought — and how deep these are only the doctors know — and take their pleasure in the wider fields of literature, art and philosophy. The requirements of modern medicine, nay, even of a single specialty, are so exacting, and even the most seemingly limited field is so wide in its important relations, that the conscientious student feels that all his time is not enough even for its mastery, and an imperfect mastery at that. All his time he must give; unceasing work day and night would not be enough. He devotes himself to his task with dogged persistence, works year in and year out to utter weariness, becomes narrow and crabbed, acquires a kind of mental wry-neck from looking at life from the single vantage-point of his chosen specialty, talks and thinks only of his chosen work until he is capable of nothing else. Perhaps when his life draws to a close he may be satisfied with himself, perhaps not. But sooner or later he is brought into contrast with another worker in the same field. He has worked hard and late at night also, and his work has been done with enthusiasm and at high pressure; but instead of giving all of his time to it he has found a little each day for rest and healthy recreation, a little to give to his duties as a citizen, and a little to music, to good literature, to history, to philosophy, to the study of life in its wider aspects. When he returns from his relaxation to his medical work he comes to it with a vim, and snap, and energy born of his relaxation; his views are more comprehensive and human; he sees things in their broader relations. At the end of the same number of years he has probably a firmer grasp of his special subject than his brother who has done nothing but follow his single bent.

So wide and far-reaching are the relations of medicine to science, to literature, to art, to human life, that we may truly say, the broader the culture of the man, the better physician will he make. The training and discipline of a course in science or the liberal arts will, beside furnishing a man with an avocation, equip him with the ability to do greater and better work in his medical studies.

It is well recognized that in this country we have more doctors than the community needs, more than can make an honest living by the practice of medicine. Our medical schools, however, are each year more crowded, and larger classes are turned loose upon the community. The stress of competition and pressure of want drives some each year to the adoption of what is called low standards, that is, in plain language, to professional dishonesty and quackery, either open or overt. We have too many doctors. We want better doctors and less of them.

Now, how shall the standard be raised? In the first place, would it be raised by restricting the admission of candidates to the graduates of colleges or the higher scientific or technical schools, or men who could show evidence of having done a commensurate amount of work under private tutorship? Certainly it would. The men who lead the classes and do the hard work in our medical schools are now, with few exceptions, the graduates of colleges and scientific schools; and the leaders in medical science and practice are recruited with striking uniformity from the men of liberal education.

The requirement of a liberal education, then, for admission to a medical school would tend to decrease the number of medical candidates, and to raise the average standard of ability in the school and the profession.

We have a right, then, to ask why such action is not taken at once by the faculties of our medical schools. The answer is, that it has not been done for two reasons: first, that the students if required to finish a course in the liberal arts would be so old in beginning their long course of medical study that they could not qualify for practice before the age of twenty-seven or twenty-eight, and, second, that the medical schools are dependent on the tuition fees for their actual running expenses, and could not therefore afford to take action which would reduce the size of their classes.

With regard to the first objection, we can only say that if hard, earnest work were made a requisite for graduation at our colleges and preparatory schools, and their standards were not lowered so as to allow men to pass whose degree represents only a minimum of work, and means nothing to any one except to their parents — proud in the liberal education of their progeny — the degree in the liberal arts could be easily secured at an average age at least two years younger. Many of the brighter men in our colleges do two years' work in one, and secure early graduation. And that, we notice, without seriously injuring their health. It is keeping the brighter men back to the pace of the loafers and dunces which makes the average age at graduation so high.

With regard to the second objection, namely, poverty of the schools, we can only say the more true the greater pity. That our best medical schools should be forced to sacrifice the best interest of the profession they educate in order to maintain their own existence is truly a shameful compromise. The need of endowments for our schools is a crying one. If some of the money spent in founding new medical schools were put in the form of endowments for old ones, it were far better spent.

If the rich men of to-day could be made to realize the great importance of this matter, and to understand that unless they endow the medical schools their descendants will be likely to fall into the hands of inferior physicians, our schools might be placed above this shameful necessity.

MEDICAL NOTES.

APPOINTMENTS AT JOHNS HOPKINS UNIVERSITY.—

At the Johns Hopkins University Dr. Simon Flexner has been advanced to Associate Professor of Pathology and Dr. William S. Thayer to Associate in Medicine.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

—A Section on Gynecology has been organized in the College of Physicians of Philadelphia. Dr. Charles B. Penrose was elected Chairman, and Dr. John B. Shober, Clerk for the ensuing year.

UNIVERSITY OF PENNSYLVANIA.—

The one hundred and twenty-ninth annual session of the Medical Department of the University of Pennsylvania, the seventeenth annual session of the Dental Department, and the eleventh annual session of the Department of Veterinary Medicine having just come to an end, the Annual Commencement was held at the Academy of Music, June 13th. The valedictorian was Prof. H. C. Wood. A class of 250 was graduated in medicine. A portrait of the late Prof. William Goodell, a bust of Prof. Joseph Leidy and a portrait of Prof. Horatio C. Wood were presented, and were duly accepted by the Board of Trustees. The new Provost, C. C. Harrison, Esq., was installed into office by the Governor of Pennsylvania and the Board of Trustees. The first official act of the Provost was the presentation of a permanent fund of half a million dollars, to be known as the "George Leit Harrison Fund."

THE CLIMATIC ADVANTAGES OF CAPE MAY.—

The Government weather reports show that the mean relative humidity of Cape May is but 77, as compared with 80 for Atlantic City. The average temperature for the year is a little over one degree higher for Cape May, the difference between the temperature of the two places being slightly greater in the winter than in the summer months.

A DECISION AS TO A PHYSICIAN'S LIABILITY.—

The *Cincinnati Lancet-Clinic* is authority for the statement that a late Iowa Supreme Court decision makes a physician liable for damages accruing from his having dismissed a case too soon.

PROFESSOR ESMARCH, of Kiel, was on May 28th elected correspondent of the Academy of Medicine of Paris.

A PROFESSOR OF PATHOLOGY FOR DUBLIN.—

The Board of Trinity College, Dublin, have given notice that on June 22d they will elect a Professor of Pathology in Dublin University for the first time.

CONGRESS OF THE FRENCH SURGICAL ASSOCIATION.—The Ninth Congress of the French Surgical Association will be held at Paris, at the Faculty of Medicine, on Monday, October 21st, under the presidency of Dr. Eugene Boeckel. The subjects for discussion will be "The Surgery of the Lung," M. Reclus; "On Surgical Interference Early or Late in Solutions of Continuity of the Skull," M. Heydreich.

THE INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.—

The second session of the International Congress of Gynecology and Obstetrics will be held at Geneva during the first two weeks in September, 1896, and not as has been announced in some journals in 1895. The subjects for discussion in Obstetrics are "The Relative Frequency and Varieties of Pubic Deformity Peculiar to Different Countries," and "The Treatment of Eclampsia." The subjects in Gynecology are "The Operative Treatment of Retro-deviations of the Uterus," "Pelvic Suppuration and its Treatment," and "Methods of Suturing the Abdominal Walls, with the Object of avoiding Abscess, Hernia, etc."

STRYCHNINE POISONING THROUGH THE MEDIUM OF CIGARETTES.—

The *Medical Press and Circular* quotes from a Russian journal an account of a chemist who carried loose in his pocket two capsules containing five grammes of strychnia, and six cigarettes. A severe convulsion, with cyanosis, trismus opisthotonus, which nearly proved fatal, was the result. When the chemist felt the earlier symptoms, restlessness and agitation coming on, he examined the capsules, and found that one of them had burst, and its contents were adhering to the card-board mouth-piece of the cigarettes. This is an excellent story; but a chemist who could not taste strychnia when placed in his mouth in quantity sufficient to poison him, and who under the circumstances did not throw the cigarettes away, must have been possessed of a palate which would enable him to smoke a very poor quality of tobacco.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—

During the week ending at noon, June 19, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 70, scarlet fever 27, measles 96, typhoid fever 11.

ADDRESS AT YALE UNIVERSITY.—

Dr. T. Mitchell Prudden delivers the Annual Address in Medicine before the medical faculty and medical students of Yale University on Tuesday, June 25th.

NEW YORK.

REORGANIZATION OF THE ANTI-VACCINATION SOCIETY.—

At a meeting of about fifty persons held at the Fifth Avenue Hotel on June 5th the "Anti-Vaccination Society of America" was revived and reorganized.

A WEDDING IN AN HISTORIC CHURCH.—

On June 4th Dr. William L. Vroom was married in the historic old Paramus Church, near Ridgewood, New Jersey. This is said to be the first wedding ceremony held in the church since Aaron Burr and Theodosia Prevost were married there on July 2, 1782.

DIVISION OF THE DEPARTMENT OF CHARITIES AND CORRECTION.—

On June 5th the Governor signed the bill dividing the Department of Charities and

Correction of New York City into two separate departments, and providing for them Commissioners of Charities and one Commissioner of Correction, each removable at the Mayor's pleasure. This is a reform measure which has long been desired, as it draws a sharp line between those public institutions which are of a penal character and those which are charitable. The new commissioners are to be appointed for a term of six years each and the formal separation of the two departments is to take place on January 1, 1896.

Miscellany.

MILK-BORNE THROAT ILLNESS: PHENOMENAL EPIDEMIC.

DR. KENWOOD records a somewhat unique outbreak of throat illness in Finchley in November last, followed by what was undoubtedly a prevalence of true diphtheria. The throat illness was of short duration, thanks to Dr. Kenwood's efforts to trace the cause so soon as cases began to be notified, he having concurred in the conclusion already arrived at by the private medical attendant of many of the patients that the malady was not diphtheria. Acute symptoms set in rapidly, and the cases tended to group themselves in one particular neighborhood, houses being in several instances invaded by multiple attacks, and houses of all classes and sanitary conditions being affected, the one community of this condition being, as Dr. Kenwood soon discovered, their milk-supply. His suspicions were strong by the fourth day of the outbreak, and twenty-four hours after the issue of a handbill warning all persons to boil their milk, the epidemic was stayed as suddenly as it had started. Not only could Dr. Kenwood exclude all other known causes of diphtheritic disease, but it was seen that better class houses, those using most milk, were most largely attacked — though children were not mainly sufferers — adults over twenty years of age being in the proportion of two to each child patient. Nothing was discovered amiss with the throats of the milkers of the cows supplying the implicated milk, but three of the cows were found to have diseased teats, and one had a chronic abscess on her udder. Of the 17 per cent. of total houses supplied by the milk, there were as many as 94 per cent. invaded in the period November 8th to 18th. Dr. Kenwood comes to the conclusion that climatic conditions preceding the outbreak, together with the cold, damp soil and the season of the year, sufficed to give rise to throat ailment, which, by reason of the milk infection, acquired an aggravated property and marked infectiousness — one of its prominent features throughout. Meanwhile, and while the throat illness was in progress of development, there began on November 13th a series of true diphtheria cases, which increased to 38 by the 25th, there being 28 houses invaded, and 25 of the patients being persons who had a few days previously suffered from the minor throat malady. Secondary infection seemed in every case improbable, and a progressive development of diphtheria from the former illness appeared most probable, bacteriological investigation with material from the cases of throat trouble having satisfied Dr. Kenwood that the milk throats were not those of diph-

theria. Whence the diphtheria came Dr. Kenwood feels unable to say, but he opines that the milk-caused throat trouble laid the foundation for the subsequent diphtheria by rendering the throat incapable of resisting the graver malady. The case is one of exceptional interest to sanitary workers, and certainly deserves a place among milk outbreaks. The mildness of the disease — whatever its true nomenclature — may be gathered from the fact that only one death was registered from diphtheria in Finchley in the whole of the fourth quarter. Incidentally, Dr. Kenwood raises the question of the desirability of frequent skilled inspection of animals in dairies and cowsheds by some competent body, and we commend the suggestion to the central authorities. — *British Medical Journal*.

Correspondence.

BICYCLE SADDLES.

BOSTON, 76 MARLBOROUGH ST.,
June 18, 1895.

MR. EDITOR: — I have had some experiments made with bicycle saddles such as Dr. Chadwick refers to in his paper in the last number of the JOURNAL.

I have found that the saddle without the anterior projection, although theoretically desirable is impracticable. It does not give a secure seat.

Yours, etc.,
CHARLES W. TOWNSEND, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 8, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and group.	Measles.	
New York . .	1,956,000	935	406	20.35	10.56	5.50	5.39	4.51	
Chicago . .	1,600,000	—	—	—	—	—	—	—	
Philadelphia . .	1,139,457	—	—	—	—	—	—	—	
Brooklyn . .	1,043,000	463	172	15.18	7.92	6.16	5.06	1.98	
St. Louis . .	540,800	—	—	—	—	—	—	—	
Boston . .	501,107	225	56	9.68	22.44	—	5.72	.88	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Washington . .	285,000	—	—	—	—	—	—	—	
Cincinnati . .	325,000	151	53	13.25	11.22	1.32	—	4.62	
Cleveland . .	325,000	80	25	13.75	13.75	2.50	2.50	—	
Pittsburg . .	272,000	—	—	—	—	—	—	—	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	28	8	17.85	14.28	7.14	—	—	
Charleston . .	65,165	—	—	—	—	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	100,410	22	6	4.55	4.55	4.55	—	—	
Fall River . .	92,233	28	13	28.56	—	25.00	—	—	
Lowell . .	90,613	—	—	—	—	—	—	—	
Cambridge . .	79,607	25	11	16.00	8.00	4.00	8.00	—	
Lynn . .	65,123	—	—	—	—	—	—	—	
Springfield . .	50,284	15	5	33.33	13.33	13.33	—	13.33	
Lawrence . .	49,900	19	10	16.78	5.26	—	—	5.26	
New Bedford . .	47,711	21	9	9.2	23.80	9.52	—	—	
Holyoke . .	45,348	—	—	—	—	—	—	—	
Brookton . .	33,939	4	1	—	25.00	—	—	—	
Salem . .	33,155	—	—	—	—	—	—	—	
Haverhill . .	32,925	10	1	—	30.00	—	—	—	
Malden . .	30,209	6	1	33.33	—	—	—	—	
Chelsea . .	29,806	—	—	—	—	—	—	—	
Fitchburg . .	29,383	4	2	—	25.00	—	—	—	
Newton . .	28,837	9	2	—	—	—	—	—	
Gloster . .	27,293	—	—	—	—	—	—	—	
Taunton . .	26,954	17	1	15.52	5.88	—	15.52	—	
Waltham . .	22,058	6	2	16.66	—	—	16.66	—	
Quincy . .	19,642	—	—	—	—	—	—	—	
Pittsfield . .	18,802	4	3	25.00	25.00	—	—	—	
Everett . .	16,585	2	0	—	—	—	—	—	
Northampton . .	16,331	4	1	—	25.00	—	—	—	
Newburyport . .	14,073	—	—	—	—	—	—	—	
Amesbury . .	10,920	4	0	—	50.00	—	—	—	

Deaths reported 2,171; under five years of age 817; principal infectious diseases (small-pox, measles, diphtheria and

croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 345, acute lung diseases 248, consumption 252, diphtheria and croup 97, diarrheal diseases 92, measles 70, scarlet fever 25, whooping-cough 15, typhoid fever 21, cerebro-spinal meningitis 12, malarial fever 6, erysipelas 5, small-pox 2.

From scarlet fever New York 17, Cleveland 3, Boston 2, Brooklyn, Fall River and Lawrence 1 each. From typhoid fever New York 5, Boston 4, Cincinnati and Cleveland 3 each, Nashville and North Adams 2 each. Brockton and Pittsfield 1 each. From whooping-cough New York 8, Brooklyn 5, Cincinnati and Cambridge 1 each. From cerebro-spinal meningitis New York 9, Cleveland, Springfield and Lawrence 1 each. From malarial fever New York 3, Brooklyn, Boston and Nashville 1 each. From erysipelas New York 3, Brooklyn 2. From small-pox Cincinnati 2.

METEOROLOGICAL RECORD.

For the week ending June 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.		Baro-	Thermom-		Relative		Direction		Velocity		We'th'r.		Rainfall in inches.		
		meter	eter.		humidity.		of wind.		of wind.		*				
			Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.	
S..	2	29.83	82	96	69	40	43	42	N.W.	W.	9	12	C.	O.	.04
M..	3	30.04	56	60	52	70	86	78	E.	E.	16	7	C.	O.	.03
T..	4	30.19	54	57	51	86	88	87	N.E.	E.	6	7	R.	O.	
W..	5	30.04	64	73	56	95	89	92	S.	S.	4	20	O.	O.	
T..	6	29.98	70	77	62	86	55	70	W.	W.	11	12	O.	O.	
F..	7	30.27	60	65	56	62	80	71	N.E.	N.E.	15	8	O.	C.	
S...	8	30.31	58	66	50	36	45	40	N.E.	N.E.	18	12	C.	C.	
															0.13

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 8, 1895, TO JUNE 14, 1895.

CAPTAIN JAMES E. PILCHER, assistant surgeon, will be relieved from duty at Fort Niagara, N. Y., upon the expiration of his present sick leave, and will report in person to the Commanding Officer, Columbus Barracks, Ohio, for duty at that station.

CAPTAIN LOUIS BRECHEMIN, assistant surgeon, will be relieved from duty at Columbus Barracks, Ohio, upon the return from leave of absence of MAJOR WILLIAM E. WATERS, surgeon, and will proceed to, and take station at Baltimore, Maryland, as attending surgeon.

CAPTAIN HARRY O. PERLEY, assistant surgeon, upon the completion of his examination, for promotion, will proceed to Hot Springs, Arkansas, and take charge as Commanding Officer of the Army and Navy General Hospital, relieving LIEUT.-COLONEL ALFRED A. WOODHULL, deputy surgeon-general.

LIEUT.-COLONEL WOODHULL, on being thus relieved will report in person to the Commanding General Department of the Colorado, for duty as medical director of that department relieving LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general. LIEUT.-COL. HUNTINGTON, on being thus relieved, will report in person to the surgeon-general for duty in charge of the Museum and Library Division of the Surgeon-General's Office, relieving LIEUT.-COL. JNO. S. BILLINGS, deputy surgeon-general.

CAPT. JOSEPH T. CLARKE, assistant surgeon, is relieved from duty at Fort Omaha, Nebraska, and ordered to Fort Washakie, Wyoming, for duty, relieving CAPTAIN HENRY I. RAYMOND, assistant surgeon.

CAPT. RAYMOND, on being thus relieved, is ordered to Fort Niagara, N. Y., for duty at that post.

CAPTAIN PHILIP G. WALES, assistant surgeon, now on temporary duty at Fort Niagara, N. Y., upon the arrival of CAPT. RAYMOND at that post, will return to his proper station.

CAPTAIN WILLIAM J. WAKEMAN, assistant surgeon, will be relieved from duty at Fort Thomas, Ky., upon the arrival there of CAPT. ROBERT J. GIBSON, assistant surgeon, and will upon the expiration of the leave of absence granted him, report for duty at Fort Huachuca, Arizona.

PROMOTIONS.

To be assistant surgeons with the rank of captain after five years' service, June 6, 1895:

FIRST LIEUTENANT FRANK R. KEEFER, assistant surgeon.
FIRST LIEUTENANT THOMAS U. RAYMOND, assistant surgeon.
FIRST LIEUTENANT HENRY D. SNYDER, assistant surgeon.
FIRST LIEUTENANT ALLEN M. SMITH, assistant surgeon.
FIRST LIEUTENANT ASHTON B. HEYL, assistant surgeon.
FIRST LIEUTENANT JOSEPH T. CLARKE, assistant surgeon.

CAPTAIN CHARLES RICHARD, assistant surgeon, is relieved from duty at the U. S. Military Prison, Fort Leavenworth, Kansas, to take effect June 30, 1895, and will proceed to comply with the order for him to take station at St. Louis, Missouri.

Leave of absence for two months, to take effect about July 1, 1895, is granted COLONEL FRANCIS L. TOWN, assistant surgeon-general.

CAPTAIN HARRY O. PERLEY, assistant surgeon, will report in person to COLONEL CHARLES H. ALDEN, assistant surgeon-general, president of the examining board appointed to meet in this city, at such time as he may be required by the board for examination as to his fitness for promotion, and upon the conclusion of his examination to return to his proper station.

Leave of absence for one month and twenty days, to take effect on or about August 10, 1895, is granted MAJOR LOUIS M. MAUS, surgeon.

CAPTAIN EDWIN F. GARDNER, assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits in Boston, Massachusetts, and will report in person to COLONEL CHARLES H. ALDEN, assistant surgeon-general, president of the examining board appointed to meet in this city, for examination by the board as to his fitness for promotion, and upon conclusion of his examination, will report for duty at Fort Grant, Arizona.

Leave of absence for three months to take effect when he shall be relieved from his present duties, on or about June 30, 1895, is granted CAPTAIN CHARLES RICHARD, assistant surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING MAY 31, 1895.

J. B. HAMILTON, surgeon, granted leave of absence for five days, May 15, 1895.

G. W. STOVER, surgeon, granted leave of absence for one day, May 22, 1895.

F. W. MEAD, surgeon, to proceed to Portland, Maine, and assume command of service, May 18, 1895.

J. J. KINYOUN, passed assistant surgeon, granted leave of absence for seven days, May 20, 1895.

R. M. WOODWARD, passed assistant surgeon, granted leave of absence for thirty days, May 23, 1895.

G. B. YOUNG, passed assistant surgeon, detailed to make physical examination officer Revenue Cutter Service, May 24, 1895.

M. J. ROSENAN, passed assistant surgeon, to proceed to Staunton, Va., for special temporary duty, May 17, 1895.

NORMAN SEATON, assistant surgeon, to rejoin station at Baltimore, Md., May 25, 1895.

EMIL PROCHAZKA, assistant surgeon, to proceed to Cleveland, O., for temporary duty May 25, 1895.

APPOINTMENTS.

DR. M. H. RICHARDSON has been appointed Assistant Professor of Clinical Surgery in the Harvard Medical School, and DR. FRANKLIN DEXTER, Assistant Professor of Anatomy.

RESIGNATION.

DR. A. M. SUMNER has resigned his position as visiting physician at the Boston City Hospital.

RECENT DEATH.

H. W. WILLIAMS, M.D., M.M.S.S., died in Boston, June 14, aged seventy-three.

BOOKS AND PAMPHLETS RECEIVED

Diseases of the Nervous System. By W. R. Gowers. Reprint. 1895.

Thirty-fourth Annual Report of the Cincinnati Hospital for the Fiscal Year Ending December 31, 1894.

Some Impressions of Gynecology in Europe. By Hunter Robb, M.D., Professor of Gynecology, Western Reserve University. Reprint. 1895.

Original Articles.

THE IMMUNIZING EFFECTS OF ANTITOXIN.¹

BY F. GORDON MORRILL, M.D.,

Visiting Physician to the Children's Hospital, Boston.

BEFORE describing the results obtained from 438 immunizing injections of antitoxin at the Children's Hospital, I will briefly explain the reasons which have rendered such an extensive use of the serum necessary.

The policy of the institution has always been to decline to admit cases of such diseases as are generally regarded as infectious; and the building originally included but two small rooms for the isolation of such cases as might appear among the patients in the house. After a time (as might be naturally expected in any large congregation of children), endemics occurred, and larger, but (in the light of recently acquired experience) insufficient quarters were provided.

During the year 1894, cases of diphtheria occurred so frequently as to necessitate the closing of the hospital, and disinfection of the wards, on three separate occasions; to the great inconvenience of all concerned, and with serious detriment to the usefulness of the institution.

It was thought at first, that the infection was introduced by the parents or friends of the patients; and blouses and disinfectant washes for the faces and hands of all visitors were prescribed. But in spite of these precautions, fresh outbreaks occurred, and we were reluctantly forced to the conclusion that the Klebs-Löffler bacillus had installed itself as a permanent and most unwelcome guest within our walls, and stood in no need of an introduction.

Furthermore we convinced ourselves that the chief source of trouble was confined to one ward, where grave defects of ventilation were discovered. Some time elapsed before this last conclusion was reached; for while cases of diphtheria were more frequent in this ward than elsewhere, the fact that the majority of the children were in the habit of meeting in the play-room, had led to such a distribution of the infection as to give rise to cases in all parts of the hospital. The type which the disease assumed was seldom frank; children with coryza or slight tonsillitis and scarcely any constitutional symptoms, would perhaps fatally infect others, and in many instances repeated bacteriological examinations of the secretions alone showed when the trouble began and ended — no membrane or other clinical evidence of diphtheria being present at any time.

January 13, 1895, there were nine cases in the infectious wards, four or five of which had been transferred from the house within forty-eight hours.

The question of closing the hospital for the fourth time was discussed, and it was decided to first try immunization with antitoxin, in the hope that this course might enable us to maintain open doors and go on with our work. The staff was so kind as to give me *carte blanche*, so far as the diphtheria was concerned, and within thirty-six hours, thirty-nine patients who remained in the house, and three nurses who were on duty in the contagious wards, received each an injection of five cubic centimetres of the serum

prepared at the Pasteur Institute of New York, according to the formula of Roux.

The apparent result of this first attempt was to instantly arrest any further spread of the disease. Patients in the contagious wards were disinfected and returned to the house as soon as negative reports of the cultures of two specimens taken forty-eight hours apart, were received from the bacteriological laboratory of the Harvard Medical School. No patients were admitted with any suspicious symptoms in their noses or throats; and all new-comers received an injection of five cubic centimetres on entrance. Specimens were obtained frequently from all patients, and reports of the cultures were all negative until January 29th, when a boy who had reacted perfectly well to an immunizing dose, was found guilty of harboring the Klebs-Löffler bacillus, and was at once transferred to the contagious wards. The specimen from which this positive culture was obtained, was taken sixteen days after immunization; and while there was no certainty that the bacillus had not been present for an indefinite time in this particular case (through an oversight, no previous culture having been made) it was thought best to inject antitoxin again in all cases which had not been immunized within ten days. Cultures were now made at the bacteriological laboratory of the Harvard Medical School, of specimens from every nose and throat in the house, and negative reports obtained in every case but one — that of a boy who had been returned to the house from the infectious wards after two favorable bacteriological examinations.

A rule was now made that all new patients should be injected in the bath-room before being allowed to enter the wards for the first time, and the dose of antitoxin was increased to ten cubic centimetres for children ten years of age or over. I do not believe that the injections have been omitted or deferred a dozen times on account of the condition of any child's health, and I have seen but one instance in which danger was suggested by the use of the serum — a case which I shall refer to later on. The mere inspection of noses and throats was soon found to be a very slight safeguard against the introduction of the bacillus, for children with apparently normal mucous membranes were frequently discovered to have bacteriological diphtheria a day or two after entering the hospital, and emergency cases were often found to be in the same plight. One of the latter developed diphtheritic membrane; and while all this went to prove the reliability of antitoxin as an immunizing agent, bitter experience had rendered us timid, and the rules for admission were amended so far as to exclude all applicants until they had been reported as free from the bacillus, excepting cases of the greatest urgency. Meanwhile, all patients found guilty of secreting (and perhaps excreting) the Klebs-Löffler were transferred to the infectious wards, there to remain until negative reports of their cultures should set them free.

No signs of the enemy were present again in any patient whose mucous membranes were free at the start, until February 15th, when a boy who had been twice immunized — the second time on January 29th — and whose cultures had always given negative results, was found to be infected. Injections were at once given in all cases which had not been immunized within two weeks, and the rule established, to repeat them every fortnight.

¹ Read before the American Pediatric Society, Hot Springs of Virginia, May 27, 1895.

March 12th, a patient who through an oversight had been given no antitoxin since February 16th, was found to have the bacillus; but we had now become quite accustomed to its presence, and so long as it had not been detected in any child who had begun with a clean record, in a shorter space of time than seventeen days after immunization, we felt pretty safe so long as the injections were regularly given every two weeks. The next day, however, a positive culture was obtained in the case of a patient who had been injected February 28th. This eclipsed any previous records, and showed that fourteen days could not be surely counted on, so the period allowed to intervene between the immunizations was shortened to thirteen days. Meanwhile an estimate of the applicants for admission whose cultures were positive, showed that over 20 per cent. had the bacillus in their throats or noses. Emergency cases came thick and fast (emergency is an elastic term from a surgical standpoint) and when the observation rooms in which such cases were kept (pending reports from the bacteriological laboratory) happened to be full, they went into the common wards. Some of these proved to have bacteriological diphtheria, and one developed clinical evidence of the disease. There is not the slightest doubt that many patients in the house were thoroughly exposed, aside from the infection present in the building itself. Our contagious wards were now full, and the question of continuing to admit patients, and allowing such patients as might present bacteriological but no clinical evidence of the disease to remain in the open wards (or even to be transferred to them from the contagious quarters) was discussed. I thought at the time, and I still think that this could have been done with safety so long as immunization was regularly kept up. There had been but few days during the past month when the wards had been free from the bacillus either alone, or as a companion to membrane. A large majority of the staff agreed with me; but we refrained from pursuing a course which might injure the hospital by giving rise to distorted rumors.

So a vote was passed to the effect that every patient with the bacillus present, whose culture had not been tested by injecting a guinea-pig, should remain in the infectious wards, and admissions to the hospital suspended; for if measles or scarlet fever broke out among the children we should find ourselves badly crippled. Everything considered, I am sure that the staff is entitled to the credit of showing a considerable degree of deference to the somewhat freely expressed opinion of outsiders, who know but little about the actual situation. Fortunately the bacillary tide began to ebb at this time, and we were spared the guinea-pig test, which often consumes a fortnight's time, and may lead to no really definite conclusion in the end.

Things now went along smoothly until March 25th, when an unmistakable break-down occurred in a child who had been antitoxined on the 10th, and again (by mistake) on the 16th. Negative cultures had been obtained on the 4th and 19th, but the girl had perfectly well-marked clinical diphtheria, and the diagnosis was confirmed by bacteriological examination. Within twenty-four hours bacilli, but no membrane, were found in two other cases which had been immunized on the 16th. But in spite of these exceptional cases (occurring as they did nine and ten days respectively after being injected) it was not thought best to shorten the interval between the immunizations, as I

had good reasons for doubting the reliability of the serum used in these instances. April 4th, but two patients remained in the infectious wards, and as the service was becoming less active we no longer made surgical patients wait for bacteriological examinations before admitting them to the house. Two or three proved to be infected (inasmuch as the bacillus was present in their throats and such cases must be regarded as infectious no matter how robust their general health may be until their cultures have been proved benign by the guinea-pig test) and were allowed to remain in an open ward; the epidemic was on the wane, the infectious wards were quite empty, and we did not care to reopen them. In short, we did now what we might have safely done weeks before, and for better reasons. No bad results followed this course, and I am sorry it was not pursued at an earlier date. Children who had the bacillus but no symptoms requiring special care, might far better have remained in the house and passed their time in being cured of the affections they entered the hospital for originally, than have gone to the infectious wards and increased the work of the staff and nurses. Certainly nobody who is familiar with the conduct of children in hospitals — their close intimacies, the manner in which toys are used by all — can believe that the risk of infection would have been materially increased over what already existed if they had been allowed to remain.

An analysis of all the cases, shows that of a total of 438 immunizing injections given between January 13th and May 13th, 109 were of Gibier's serum; 104 of Behring's; 74 of Aronson's; and 151 of the antitoxin prepared by the Massachusetts State Board of Health. The largest number administered to one child was seven. Many of these patients were under treatment for acute diseases at the time of injection: croupous and broncho-pneumonia, grippe, tubercular peritonitis, empyema, typhoid, or such surgical troubles as naturally find their way to a children's hospital. No special symptoms were noted as produced by the serum with regard to the existent diseases at the time of injection excepting in one or two suppurative hip cases, in which there was a temporary improvement in the appetite and general condition. In a few cases of desperate illness the antitoxin was omitted, or postponed until the patient's condition improved; but as a rule, all fared alike. I have failed to observe any dangerous symptoms arise from immunization excepting one case—a boy, aged two, with leucocytosis and a large spleen, upon whom two preceding doses had produced no ill effect, had a temperature of 105.4° F. and considerable edema about the point of injection (given in the abdominal wall in this instance), and certainly appeared very sick. Cold baths and brandy soon made him better, however, much to my relief. Of course, the results of an analysis of our cases are by no means claimed to be conclusive. They are, however, sufficiently well based to permit their being regarded as suggestive. As a rule, the temperature goes up less than a degree a few hours after immunization, and in 75 per cent. of all cases this is all there is to be seen. Erythema around the point of injection occurred in 23 cases. In four it was very extensive, and closely resembled erysipelas — in one instance the child was isolated. The average duration of this symptom is three days; in some cases it lasts only a few hours. It usually appears on the first day after antitoxin, and

never later than the eighth. Urticaria occurred 28 times. The frequency, severity, time of appearance, and duration of this symptom varies greatly with the brand of serum employed. That of Gibier (Pasteur Institute of New York), produced it in 22 per cent. on the (average) seventh day, and lasting (an average of) two and a half days. Behring's caused it in but one case, appearing on the eighth day and lasting three days. Aronson's gave rise to no urticaria. The serum of the Massachusetts State Board of Health produced in about four and a half per cent. an eruption, appearing on the (average) second day, and disappearing in a day and a half. This serum at present very rarely gives rise to anything cutaneous, although at first urticaria was of pretty common occurrence. In three instances the erythema was papular, and very closely resembled measles. In two instances an eruption like scarlet fever was present. Occasionally a child whose skin remained clear after the first or second or third immunization, broke out with an erythema, or an urticaria after a subsequent injection. The same brand of serum may produce an urticaria, an erythema, or no skin eruption whatever in the same subject, as proved in more than one instance where repeated injections were given. Pain (at times intense) was noticed about the point of injection in sixteen; edema in seven; axillary or inguinal glands enlarged in three; general malaise (in one instance a mild delirium) in three. Pain in the articulations in less than one per cent. Nausea, with or without vomiting, in two per cent. Diarrhea (ephemeral) in less than three per cent. Increased frequency of micturition was noted in rare instances. The urine of 82 children was very carefully examined with reference to the effects of antitoxin on the kidneys, and the result of 540 examinations may be briefly stated as follows: In 20 per cent. no change whatever was detected. Of the remaining 80 per cent., those which had been free from albumin previous to immunization, showed a slight trace — in most instances the slightest possible amount, which could be detected only when placed in front of a dark background. This within twenty-four or forty-eight hours after injection. In cases where albumin had been present before the use of antitoxin, there was a very slight increase of the amount. In no case was there any diminution in the amount passed, or any evidence of failure to eliminate properly. Repeated microscopic examinations revealed nothing more than an insignificant amount of renal irritation in any case; and when the albuminuria was produced by antitoxin, it disappeared in a period varying from two or three days to a fortnight.

With regard to the protection afforded by antitoxin, our experience has tended to show that the serum, when fresh, can be relied upon to immunize against anything resembling clinical diphtheria thirteen days, and very probably for a longer space of time. Moreover, in no instance was the bacillus detected in the nose or throat of any child who started with a clear record in a shorter space of time than that just mentioned. This last point (if eventually established) is of practical importance as showing that an immunized child is not only safe from diphtheria, but is also safe as concerns others for a definite length of time. I am by no means sure that daily examinations of cultures from every case might not have shown the fallacy of the theory; but the fact that quite numerous examinations were made, with the results described,

certainly deserves mention. In the cases which broke down in eight and ten days after being immunized, the serum used had become decomposed. The color differed from that usually presented, but so slightly at the time of injection that it was used without hesitation. Forty-eight hours later it was of the color of milk.

Regarding the use of antitoxin for curative purposes, our experience, while decidedly favorable, has been too slight to warrant the expression of an opinion. Statistics at the Children's Hospital, if made up from the standpoint that the mere presence of the bacillus in the nose or throat constitutes diphtheria, would justify the extremely favorable and entirely fallacious statement, that our mortality has been less than three per cent. For of 34 patients who have been inmates of the infectious wards, only one died; and all of them received antitoxin — the great majority, however, never more than one small injection, for the purpose of immunization upon entrance, before the reports of their cultures had been obtained. Assuredly one might as well claim, that the existence of the pneumococcus in the saliva implies the presence of pneumonia, as to call all cases which have the Klebs-Löffler bacillus, diphtheria. Equally absurd is it to treat such cases with antitoxin, unless some clinical evidence of the disease is present. I have convinced myself that full doses of the serum has no influence on the mere presence of the bacillus after it has once obtained a foothold. The more ardent supporters of the treatment, will greatly endanger its reputation if they present claims based on statistics such as I have described. On the other hand, I do not doubt that equally enthusiastic opponents of antitoxin will bring forward abundant proof that it does no good whatever. I can well remember something of the kind being done in the case of salicylic acid, and kindred preparations, by conscientious men, who showed by apparently flawless statistics, that cases of acute rheumatism did better under the old treatment by alkalies; but the remedies whose merits they denied, have stood the test of time wonderfully well, and if taken away from us to-day would be badly missed.

Results of the serum treatment, if they are to inspire confidence, must be based upon such cases as are clinically diphtheria, and the diagnosis of which is confirmed by bacteriological examination. Care must be taken to exclude all cases in which a membrane, which to all appearances is identical with that of diphtheria is present, but which is due to the work of other germs. Instances of this sort are far commoner than was formerly suspected — I have observed four (two at the hospital and two in private practice) during the past six months.

In the present state of our knowledge, the Klebs-Löffler bacillus may be said to resemble an idle but extremely competent workman, who under certain unknown conditions may suddenly accomplish a wonderful task. He gives no warning of his intentions, and does not trouble himself to put on working clothes — at least none of a sort which can be recognized under the microscope.

Even such cultures as have every appearance of virulence may prove to be benign when tested, and when they look doubtful may promptly kill the injected guinea-pig. Every active diphtheritic germ is undoubtedly a Klebs-Löffler, but every Klebs-Löffler is by no means an active diphtheritic germ. On the

contrary, it does not, as a rule, harm those who afford it shelter. Of 34 patients who have passed through our infectious wards at the Children's Hospital during the past six months, but seven have had anything resembling what used to be called diphtheria before the birth of the bacillus was announced in the journals, and two of these cases were caused by other germs. But I cannot doubt, that the bacteriologists who have given us so much of inestimable value during the past few years, will before long extricate us from the dilemma caused by our uncertainty of the sanitary status of a person who has only bacteriological diphtheria. Until this knowledge is vouchsafed us, we must continue to regard such a one as a dangerously indefinite quantity; and in an institution like the Children's Hospital, this implies the absolute rejection of a large number of cases, and the disaffection of many others, who cannot be admitted until reports of their cultures have been obtained; for after such alterations shall have been effected during the coming summer as will render the building safe, and immunization is no longer a routine, no case can be permitted to enter which is open to suspicion of harboring the bacillus.

Another thing: Are we justified in admitting a child on the strength of a single negative report? As to the reliability of these reports, there are defects in the present method of obtaining specimens for bacteriological examination (and very probably in any possible method) which render occasional errors unavoidable. I do not wish to be understood as questioning the skill and accuracy of the gentleman at the bacteriological laboratory who make the cultures. If there are no bacilli in the specimens handed in to them, we cannot reasonably expect positive reports; and I merely state an obvious fact when I say, that the wires used for obtaining specimens, may be justly compared with a hook which is lowered into a dark pool in the hope of jiggling fish. If the fish are plenty, there is a strong probability of success — if scarce, the chances are fewer. And whether they are plenty or scarce, the element of luck must be taken into account. Of course, if membrane is present and the wire pushed under the outer edge, there is but little probability of failure.

To arrive at an estimate of the frequency of errors due to the uncertainty of bringing away bacilli on the wire when they are present, I have taken the bacteriological reports concerning patients in the infectious wards, from whom specimens were examined at short intervals, and called such negative reports erroneous as are immediately preceded and followed by positive cultures. Of 253 reports 26 were incorrect — a little more than 10 per cent. Under these circumstances I think two negative reports of specimens taken twenty-four hours apart should be obtained — nor can we then feel absolutely safe.

Some of the patients in the infectious wards were very slow in getting rid of their bacilli. One case was lodged and fed at the expense of the hospital for two months, for the sole reason that we failed to obtain two negative reports in succession. He was in robust health, and a particularly noisy and troublesome boy. Finally he was discharged, much to the relief of all concerned.

Various means were tried in cases of that kind to hasten the departure of the bacillus. Good results were finally obtained by atomizing strained lemon juice into the noses and throats six times per diem.

Cases which had resisted equally frequent applications of peroxide of hydrogen yielded promptly to this treatment. It is not a pleasant procedure. Children do not like it — but neither does the bacillus. At first it occasions considerable irritation about the nostrils and upper lip; but tolerance is soon established, and the end justifies the means. Since finishing this paper (May 13th) a sufficient number of injections of anti-toxin have been given at the Children's Hospital, to bring the total close to five hundred, and with no fresh evidence to alter the views which I have expressed. I think that the fact that we have not had a single abscess resulting from so many injections, speaks well for the careful attention to cleanliness on the part of the internes of the hospital, Messrs. Hall, Wylie and Washburn, whose good and painstaking work deserves mention.

In conclusion, I wish to express my thanks to Drs. Ernst and McCollom for the unvarying courtesy with which they have borne the severe strain upon their patience which the many hundred cultures made at my request must have caused them.

INTRAVENOUS, MEDICATED INJECTIONS ACCORDING TO PROF. GUIDO BACCELLI'S METHOD.¹

BY RICH. HOGNER, M.D., BOSTON.

At the Medical Congress held at Rome in 1894, Professor Baccelli delivered a lecture² on intravenous — or as it is also called, endovenous — corrosive-sublimate injections, about which, among other things, he says that the method has been adopted widely in Italy, and that all who have had experience with it agree that it is "harmless, rapid and searching in its effects."

After Baccelli had reminded his hearers that it was he who "originated the idea of injecting medicament directly into the veins for malaria," he continued:

"Professor Nothnagel considers intravenous injections especially needless, inasmuch as one can treat subcutaneously with the same effect and without inconvenience, but Professor Nothnagel speaks without having had experimental acquaintance with the subject, while the tests up to this time, with their results, plainly show his *a priori* views."

Baccelli began with intravenous, medicated injections on animals; and when he found them not only harmless but to be "the most energetic, safe and rapidly working therapeutic agent against malignant diseases," he began in his clinic to apply them, in doubtful cases, to human beings, and with "fine results"; a success, moreover, which has been confirmed in the Italian clinics and in those of private practitioners in Italy. As there are only a very few reports of the use of the method in other lands, the following trial thereof may justly be described.

The intravenous medicated injections have been used by Baccelli, so far, only for malaria and syphilis — neutral solutions (ten per cent.) of quinine hydrochlorate, also corrosive-sublimate solutions (one to two per cent.); but Baccelli believes that the breach is opened, and that his method will spread widely, so much the more, as besides what has already been said

¹ Read before the Clinical Section of the Suffolk District Medical Society, March 30, 1895.

² Guido Baccelli: Ueber intravenöse Injectionen mit Sublimat. Berliner klin. Woch., 26 März, 1894.

about the method, "it should not be ignored," he says, "that all pharmaceutic remedies finally are distributed — no matter how first applied — only by means of the circulating fluid in the body's organs."³

In favor of the intravenous corrosive-sublimate treatment for syphilis, may be mentioned:

- (1) The small quantity of Hg used.
- (2) The possibility of rapidly fighting the syphilitic symptoms which point to direct blood-poisoning.
- (3) The prompt and searching effect on the walls of the vessels, which are the specially favorite place for syphilitic changes.

The technique of the method consists in choosing a vein, in the arm-pit fold, the hand, the leg or the foot — wherever, in fact, it is desired to make the injection. Bind the limb, centripetally, with a convenient bandage or rubber band, so that the vein will swell as much as possible. Make the fingers and the skin aseptic as for an operation, also inject, with a convenient syringe, the medicament solution chosen. From the beginning to the end, aseptic! "If the injection is made," says Baccelli, "after this manner, then no local phenomenon will appear." If one has injected corrosive-sublimate solution, the patient will get the taste of mercury in the mouth after a few seconds or minutes, and the salivation will result from a small quantity after five or six minutes.

The corrosive-sublimate solution used, is:

R Hydrarg. chlor. corros.	. . . . .	1.00 or 2.00
Sodii chloridi	. . . . .	3.00 or 6.00
Aq. destill.	. . . . .	1,000.00

Of the weaker solution (one per cent.) one cubic centimetre, or one milligramme corrosive sublimate, is first injected; and then the doses are increased in strength — two, three, four, up to eight milligrammes corrosive sublimate at a time and in a day. With four milligrammes the strong solution is used, so as to avoid injecting too great a quantity of fluid. Of the stronger solution (two per cent.) one cubic centimetre contains two milligrammes corrosive sublimate, wherefore eight milligrammes — *dosis maxima*! — contain four cubic centimetres of the two-per-cent. solution.

Baccelli used immediately, in urgent cases, four to five milligrammes in his corrosive-sublimate treatment. With my experiments bandages were sometimes used after the injection, sometimes not; however, it is better always to use a little bandage afterwards.

The sign that the lumen of the vein has been reached, is, according to Baccelli, the cessation of pain from the injection and the absence of subcutaneous swelling.

A perivascular corrosive-sublimate injection is, moreover, so painful to the patient, that one would not willingly undertake so severe a treatment.

I have just used Baccelli's intravenous corrosive-sublimate injections in the case of a woman living in East Boston. She is twenty-seven years old, thin but rather strong, and the wife of a working-man. She has been married seven years; has had two children, who are six and four years old; also has had a miscarriage at the seventh month, in September, 1893, as she said, without apparent cause. In the beginning of pregnancy, brown "rosy spots" broke out all over her body, but disappeared in time, before the miscarriage, after which the body was said to be "white" again. At the time of delivery she was attended by

an "old woman." The husband and the rest of the family showed no signs of syphilis. A month after the miscarriage another eruption appeared on the forearms, face, neck and legs — the chest was comparatively free — in size from a half-dime to a twenty-five-cent piece, in color reddish-brown on the skin, which here and there became confluent in still larger pigmentary spots, varying greatly in form and located on both the flexor and extensor sides of the arms and legs. The skin was not scaly, was without increased secretion, and did not itch. No other disease symptoms, except some swollen glands, were apparent. No sore on the genitalia or anus. Two months later a dimness appeared before the eyes. On examination, on the 24th of January, 1894, besides the above-named symptoms, numerous synechiæ on the capsula lentis. Ordered hydrargyri iodidum rubrum .01 + gm., and potassi iodidum .50 gm., three times a day; and after the patient had continued a while with this without the eruption growing paler, ordered daily inunctions of two grammes Hg in four grammes lanoline per day. Theiritis had besides been treated with atropia and tepid wet dressings.

The patient was not seen for several months, not till the 15th of June, when she said she had used 60 packages (120 grammes) Hg, during several interruptions, necessary for mercurial stomatitis. The condition on the above-named day was as follows: Almost unbearable pains in the legs, especially at night. The parts of the body before named were covered for the most part with irregular, more or less pale, brownish pigment spots. On the forehead, under the roots of the hair, and under the outer corner of the right eye, besides an increased brownish-red, somewhat scaly, papulous eruption; also on the outer side of the right forearm. On the outer side of the right lower leg was found a somewhat excavated granulated sore the size of a half-dime, and on the front of the left leg a similar one about the size of a fifty-cent piece, also, immediately under it, a sore of the size of a cent, resembling an ulcer, which had undergone a deep scraping a few days before. There was a greater or less reaction of all sores, but they showed slight tendency to heal. Aside from a slight stomatitis and a lack of appetite, there was nothing further noticeable in the patient's condition.

As the case in question showed great obstinacy in yielding to the anti-syphilitic treatment so far employed, then, following Baccelli's advice, to "use the intravenous injections of corrosive sublimate in such forms of syphilis as showed themselves passive towards the usual specific treatment," and gaining the patient's consent, we decided to begin with injecting corrosive sublimate directly into the blood and ambulatorially.

June 15th. After making my hands aseptic with lysol solution, the patient's left elbow (upon which a vein shone forth through the skin) was cleansed with lysol, then with corrosive-sublimate solution (two per cent). An elastic band, cleansed in lysol, and as thick as a quill, was placed so tightly around the arm that the cubital veins swelled to their greatest extent. A common Pravatz syringe was then cleansed in lysol solution and in Baccelli's weaker corrosive-sublimate solution, very carefully; after which the syringe (one cubic centimetre) was filled with the same solution (one milligramme corrosive sublimate). The needle was then inserted in the vein, and a few drops of blood escaped around the needle; then the liquid was in-

³ Not "all," not the insoluble ones; for example, bismuth or gastritis, etc.

jected very slowly but continuously. After one-half of it had been injected, the patient complained of numbness in the arm. The band was removed, after which the numbness disappeared and the rest of the liquid in the syringe was injected. No attendant subcutaneous swelling appeared. The injection was painless. The liquid injected was at summer heat ($+30^{\circ}$ to $+32^{\circ}$ C.). No taste of mercury in the mouth; no salivation. When the needle was withdrawn, another drop of blood followed. No bandage was placed on the arm. It may be added the patient's subcutaneous veins were unusually small and were with difficulty caused to swell.

June 16th. No reaction from yesterday's treatment. After the same preparation as then, an injection of three cubic centimetres (of three milligrammes corrosive sublimate) was made in a right cubital vein, with a ten-cubic-centimetre graduated syringe, armed with a fine morphine needle. The needle was not withdrawn immediately after the injection, but was left in the vein some seconds, while the patient was questioned as to how she felt; for the intention was, if possible, to inject a few more milligrammes of sublimate. In the mean time, a bloody liquid forced its way into the syringe. Consequently, the injection was not continued, but the needle withdrawn.

June 18th. Injected three milligrammes corrosive sublimate. In all respects the same as yesterday, including the penetration of blood into the syringe at the close of the injection.

June 19th. Injected four cubic centimetres of the weaker solution, that is, four milligrammes corrosive sublimate. As soon as two cubic centimetres had been injected a little pause was made, in order to change the direction of the needle, upon which blood forced itself into the syringe; it seemed to coagulate into the minutest particles, not instantly, but after several seconds. Was somewhat undecided as to continuing the injection; but as in Italy the method was proven harmless, and as it seemed to me at the moment probable that the injected corrosive-sublimate liquid had, though being very slowly injected, a similar effect on the blood in the walls of the vein with which it came in contact, two cubic centimetres more corrosive-sublimate solution were injected, on which a cloudy precipitate followed, also some uncoagulated blood. The corrosive-sublimate solution entered more quickly than the blood. All of the blood from the vein (about one-third of a cubic centimetre) followed the lower wall of the syringe; and although the syringe was held inclined from below upwards, it was impossible not to inject some of it as the operation continued. There was no disadvantageous results from the injection.

June 20th. The symptoms have not altered. The pains at night are particularly severe. The dose was increased to six milligrammes corrosive sublimate, or three cubic centimetres of the strong solution. Six hours after the treatment yesterday, the patient had slight chills and perspired freely, also felt weak. (The heat has been oppressive, and nearly every one has been affected by it.) Patient slept unusually well during the night.

June 21st. Injected three cubic centimetres two-per-cent. solution, or six milligrammes corrosive sublimate. The instant the needle entered the vein, blood appeared in the syringe. Before it was visibly coagulated it was injected together with the named quantity

of the solution. She had again felt pain in the legs during the night, but felt well otherwise. As the syphilis did not appear to be especially affected by this treatment, ordered simultaneously *potassii iodidum*, per os.

June 22d. So far the injections had been made into different veins in the elbow folds, and twice in precisely the same spot with intervals of times between. Injected now four cubic centimetres strong solution (eight milligrammes corrosive sublimate) into a vein in the right wrist, volar side. The needle appeared to be in the vein, yet, though the syringe was held inclined from below upwards, and the solution was not instantly injected, no blood was seen, as happened so often before, to enter the syringe. Accompanying the injection was a swelling alongside the vein, for about two centimetres, and the patient complained of pain. As it was evident the needle had come perivascularly, the injection was suspended after half a cubic centimetre, (one milligramme corrosive sublimate) had been used.

June 23d. After yesterday's treatment an appreciable swelling appeared on and around the spot pierced, also the skin was "black and blue." Injected to-day nine milligrammes corrosive sublimate in a vein in the left wrist. No inconvenience from it, more than a "queer taste" in the mouth about half an hour later, which lasted several hours.

June 25th. Complained of pain in the right elbow, where one of the veins, which had received two injections into almost the same point, felt rather hard for the distance of one centimetre with the ligature around the upper arm, scarcely any swelling of the vessels where a former injection was made is noticeable. An unused vein on the back of the left hand, swelled enough, however, and here an injection of five cubic centimetres strong solution (ten milligrammes or one centigramme corrosive sublimate) was made. Stronger metallic taste in the mouth than formerly; otherwise about the same as yesterday.

June 26th. No tenderness in the teeth. The gums redder, without being swelled, however. No diarrhoea. General condition good. Syphilitic symptoms show a good tendency to disappear, although one cannot call the condition satisfactory in consideration of the strong treatment. The patient, who has been for some time taking one and a half grammes *potassii iodidum* per day, has to increase the dose to two grammes per day.

June 27th. Injection of five cubic centimetres (one centigramme corrosive sublimate) in the right foot's dorsal vein. Some drops of the fluid came, in the beginning, perivascular.

June 28th. Patient says her foot was very painful after treatment yesterday. Foot was very swollen and red on her arrival home. She felt later creeping and cramp in her body, and wanted to sink down every time she rose; had nausea; felt numbness in her body; had something like trembling in her face, hands and legs. Teeth tender (but not loose). Has stomatitis to-day; feels weak, but only the symptoms of the foot and mouth—of those already named—remain, the former of which is red, swollen on the back and tender up to the tibio-tarsal joint and above, precisely as during an acute, mild phlegmon. Ordered no corrosive-sublimate injection, no *potassii iodidum*. Lying still. Lead water compress.

June 29th. All symptoms decreasing. Patient takes *potassii iodidum* again, but in small doses, because she appears not to tolerate large ones.

July 6th. Foot no longer red; some swelling and tenderness in the tibio-tarsal joint. The pain in the left leg, which disappeared a while, has returned since. The potassii iodidum mixture was exhausted four days ago. The old papulous eruption seems to have disappeared, but new eruptions appear to be coming. Ordered hydrargyri iodidum rubrum and potassii iodidum in pills.

July 16th. Has not taken any pills for three days, because diarrhea set in. The more recent syphilids are worse than two weeks ago, and, besides, small balls and holes appear in the right leg. The right foot is perfectly free from tenderness or swelling. Began again with intravenous corrosive-sublimate injections, without accompanying iodine treatment. Injected five milligrammes corrosive sublimate into the left-arm fold. Immediately following the insertion of the needle, blood appeared in the syringe. By holding the instrument much inclined downwards, the solution (which was at once injected and hindered the entrance of more blood to the syringe) could be injected without the blood—which kept to the lower side of the syringe—entering the vein again; anti-septic bandage afterwards.

July 17th. On the middle of the left forearm injected four cubic centimetres, strong solution (eight milligrammes corrosive sublimate), of which nearly half came perivascularly; followed by swelling. Massage; bandage.

July 18th. Upper half of the left forearm swollen, red and with increasing local temperature. The facial papulæ were cauterized with solution corrosive sublimate in alcohol (one to five); besides this no other treatment than cold compresses on the forearm.

July 21st. Patient, who has had to remain for three days on account of the swollen arm, and so did not have any syphilitic treatment, was found better in the left arm, but new eruptions had appeared on the right cubital region. After putting the band round the right upper arm, a vein on the middle of the under arm appeared somewhat swelled. On attempting to penetrate the vessel, a little blood entered the syringe through the needle; but when the liquid was injected, perivascular swelling appeared, for which reason the needle was instantly withdrawn and a new attempt was made with a vein on the back of the left hand, with the result that five cubic centimetres (ten milligrammes, that is one centigramme corrosive sublimate), could be injected without pain and which expanded the vessel nearest above the needle to considerable extent, but which disappeared after some seconds. The swelling, therefore, was not perivascular or subcutaneous, but depended on the injecting fluid not being carried away quickly enough, hindered by the band which strangled the upper arm and which was not removed till the injection was entirely finished. Bandage applied. Patient said afterwards that she got the metal taste in her mouth immediately after leaving office. After a few hours, headache and diarrhea, which latter continued the following day a little. After coming home (making it an hour after the treatment) the patient noticed that her *right* forearm was swollen, but no pain was felt. The left hand and arm seemed to be normal.

July 23d. The right arm very slightly swollen, and several ecchymoses in the skin where the band sat, also for some distance down.

As all veins suitable for injection seemed to have

disappeared the intravenous treatment had to be given up entirely. Some improvement, though very slight, has taken place in all respects. Ordered potassii iodidum.

August 19th. The sore on the left leg is half healed, but new eruptions of small gummata have appeared on the right leg. Ordered syrup Giberti in increasing doses, as large doses as possible.

September 3d. Patient improving very little.

It cannot be denied that Baccelli's treatment of syphilis with intravenous corrosive-sublimate injections showed itself harmless, even in this case. The maximum dose should not exceed eight milligrammes.

The patient received, however, one centigramme three times; twice without any injury at all, but once when one centigramme corrosive sublimate was injected on two following days, the latter injection of one centigramme was accompanied with alarming symptoms of mercurial poisoning. The symptoms, however, decreasing very soon.

Several times, in spite of all attentions, the injections became perivascular instead of intravascular, with the consequent pain and swelling, which sometimes compelled the suspension of the treatment; but finally the marvellous fact appeared that the veins became smaller and at last were not large enough or available for injections, which perhaps shows, as Baccelli says, "the prompt and searching effect on walls of the blood-vessels," although in this case almost too strong.

In the case before us, the intravenous treatment did not act so "quickly" or "powerfully," but the patient seemed to be able to bear very much, almost one centigramme corrosive sublimate intravenously. She did not get salivation or stomatitis after nine milligrammes, only a taste of mineral in the mouth, which quickly disappeared, which, however, is so much the more remarkable, as she got diarrhea after comparatively small doses of mercury and potassii iodidum per os. We have clearly a case of very rebellious syphilis, rather refractory against mercury; but the intravenous treatment showed itself, however, to be of use, and, finally, although slowly, caused a change in the disease for the better.

There is no doubt but the intravenous, medicated treatment of diseases is a step forward, and to be resorted to in some cases, when other methods fail.

Dr. Kezmarsky⁴ has recently published two cases of venous sepsis, treated with intravenous injections of corrosive sublimate, one to eight milligrammes, *pro dosi*, and, as it seems, with good results.

Last November I had a similar case:

Mrs. A., forty years of age, delivered by a midwife from her fifth child, took ill the following day with fever and very great pains in the *articulationes ileosacrales*. She was given a pelvic girth and (per os) some phosphorus, and was getting along better every day, when on the sixth day she got chills and (suddenly) increase of fever. When I saw her at this time she had all the symptoms of venous sepsis, with almost no local symptoms by palpation and touch of the pelvic organs. Lochia were normal or perhaps a little fetid. The tenderness in the joints was gone. The condition of the patient was half soporous, and so bad that I found it hopeless and too dangerous to curette. She was given an intra-uterine washing of lysol solution, one per cent., and an intravenous in-

⁴ Centralbl. f. Gynäk., 1894, No. 33.

jection of corrosive sublimate (three milligrammes à la Baccelli).⁵

The seventh day of the disease no washing, because the lochia were not fetid at all, intravenous injection of five milligrammes corrosive sublimate; the eighth and ninth day of eight milligrammes. The eleventh and twelfth days diarrhea. No corrosive-sublimate injections; quinine, ergot, opium. The thirteenth day eight milligrammes corrosive sublimate intravenously, and an intra-uterine washing, because of a little fetid lochia. During all these days the temperature was very irregular, from $+38.5^{\circ}$ to $+40.5^{\circ}$ C. Pulse 124-130; very weak. The patient sometimes had chills. She was weaker for every day, but somewhat less soporous.

The fifteenth day, no injection. The temperature at 6 p. m. $+38.6^{\circ}$ C. Following morning $+40.6^{\circ}$ C. When I could not find any especially good result from the intravenous corrosive-sublimate injections, I omitted them, especially as they could be made only in the dorsal veins of the hands, which swelled in the case more than the cubital veins, and it was very difficult always to prick on the same vessels.

As the very poor patient had no nurse and no help in her home, she was on the seventeenth day sent, although much weakened, to the hospital, where she died after four days. The autopsy gave "grayish" endometrium with numerous colonies of staphylococcus and some other bacilli therein and in the liver, the blood, etc., also in the infarctions of the kidneys, spleen and valvulæ cordis.

The result might perhaps have been different if the intravenous corrosive-sublimate injections had been given earlier and from the beginning stronger. It cannot be denied, however, that the idea may in some degree be a rational one, that to sterilize the blood, or rather to somewhat weaken the bacilli as to the organism itself, is more easily to overcome the infection; and it seems to me that the scraping and antiseptics of the endometrium combined with intravenous corrosive-sublimate injections, perhaps may at present be the most rational treatment of puerperal fever; so much the more as the intravenous injections do not seem to destroy the antibacillar or antitoxic power of the blood, but only co-operate to overcome the infection.

As we know, Baccelli first employed intravenous injections, namely, neutral quinine hydrochlorate solution, for malaria, with very good results; and when cases of febris intermittens pernicioza, defying the usual treatment, are found, as talked of in our Section last spring, then this treatment may be vouchsafed for in some words.

In a letter to me, dated Rome, July 5, 1894, Baccelli gives the following formula:

R Quininae hydrochlorati,	10.00
Sodii chloridi	0.75
Aque distillate	100.00

Adding that the solution should be warmed to boiling point, then cooled to $+37^{\circ}$ or $+38^{\circ}$ C.;⁶ also be injected to the amount of five grammes of liquid (0.50 grammes quinine hydrochlorate). The injection is performed as above described.

Baccelli's closing words about the subject, "Attenzione alla antiseptici," are to be remembered.

⁵ All the following injections were made without inconvenience with a solution of chamber-temperature, that is, of about $+18^{\circ}$ C.

⁶ A little under this temperature the quinine is mainly precipitated.

THE CAUSES OF SUDDEN DEATH.¹

BY THOS. M. DURELL, M.D.,

Medical Examiner, Lecturer on Legal Medicine in Tufts Medical School.

IN the discharge of his official duties the medical examiner is called upon to view the bodies and to examine into the cause and manner of the death of such persons as are supposed to have come to their death by violence. A large proportion of the number of cases that are investigated each year by the examiners are cases in which a simple view of the body is made, without autopsy. This is an unfortunate state of affairs; still it is the law, and we must abide by it. On this account the matter of post-mortem diagnosis is of vital importance to us; and it is for this reason that I have presumed to bring to the notice of this Society a matter which has been discussed and written upon until one may fairly ask, What new can be said upon it? For all this, one can never be called upon to view a dead body without being confronted by the same difficulties that have annoyed the medical expert for all time.

The saying of Dr. Holmes upon the subject of phrenology is often suggested to me in this connection; you will remember that he said "that one could tell about as much about what was inside a skull by feeling of the outside, as one could by feeling of the outside of a bottle without smelling of the cork."

We have all felt for a long time the almost uselessness of views without autopsy; but under the existing laws we are obliged to do the best we can; and I think that experience has shown that the examiners have become wonderfully expert in this direction with the limited means at their disposal.

The language of the statutes is very wise, and has suggested a means of solving a part, at least, of this difficulty. I refer to that part which I have already quoted, namely, "to examine into the cause and manner of the death."

A careful inquiry into the manner of the death is of the utmost importance; for this manner of death is the real clinical history of the case, if I may be permitted to use that term as applied to a death history. By these means we have been enabled to learn some few things, and I trust that I may in this paper add my mite to the grand total.

It is a popular belief, not only among the laity but among the profession as well, that the cause of sudden death is either a disease of the heart or an apoplexy; but we certainly know now that there are very many other causes than these, and we also know that persons do not die very suddenly from a cerebral hemorrhage, and that in these cases there is always a period, longer or shorter, of unconsciousness with stertorous breathing.

The causes of sudden death as given by Tidy, are as follows:

(1) Disease of the heart (especially fatty and brown degeneration), aortic regurgitation, interstitial abscess, rupture of the heart or of its valves, diseases of the pericardium.

(2) Diseases of the blood-vessels (especially aneurism and thrombosis), large effusions of blood into the brain or its membranes (cerebral and meningeal apoplexy).

(4) Pulmonary apoplexy and hemothorax.

¹ Read before the Middlesex South District Society.

- (5) Sudden bursting of visceral abscesses.
- (6) Ulcers of the stomach, duodenum or other parts of the alimentary canal.
- (7) Extra-uterine pregnancy, peri- and retro-uterine hematocele, rupture of the uterus.
- (8) Rupture of the urinary bladder or of the gall-bladder.
- (9) Cholera and certain zymotic diseases.
- (10) Large draughts of cold water taken when heated.
- (11) Mental emotions.
- (12) Accidental swallowing of foreign bodies.

In regard to death from diseases of the heart I shall say nothing except to call attention to the very able paper read before the Massachusetts Medico-Legal Society on October 4, 1893, by Dr. William T. Councilman, in which the writer calls attention to the very important part which the coronary arteries play in causing disease of the heart. He says that "the coronary arteries stand in casual relation with the pathological conditions known as fibrous or chronic myocarditis"; and further on he says "that the only condition of the heart not connected with disease of the coronary arteries which may be followed by rupture is fatty infiltration."

It is not my purpose to attempt to deal with the vast majority of the causes of sudden death; but I shall simply confine myself to some few that have been of great interest to me personally and which are not dealt with much in the text-books. One of these causes is pneumonia; and the more I look into the matter the more I am convinced that a large number of deaths occur—sudden deaths within the meaning of this paper—each year from this cause, which are not recognized as such, and in which other causes are given in the death-certificate. We all know that it is not an uncommon thing to find upon examination of the chest, of persons who do not appear very sick and who are walking about and attending to their business, large patches of consolidation at the base of the lungs. Now in a large percentage of the cases with which we have to deal we have added to this the elements of alcoholic excesses and consequent exposure to wet and cold—elements in themselves very conducive to the growth of the germ of pneumonia. These cases present a history which is very characteristic and which is as follows:

A man is brought into a police-station and locked up for drunkenness. He may or may not complain of feeling sick; but at any rate there will be nothing about his appearance that would lead one to think that he had any serious illness. In the morning he is found dead in his cell. Or again, a person may come home and complain of slight illness, go to bed, and be found dead in the morning. In either event autopsy is very liable to show that death was due to pneumonia, the probable explanation being that during the night, with the combined favorable elements of alcohol and exposure, the process spreads upwards rapidly from the base, involves the apex, shuts off the supply of air, and causes death.

The following cases illustrate this matter; the first I was permitted to see by the kindness of Dr. F. A. Harris, of Boston.

Woman had been a hard drinker, and had been to the Island. On January 9th, she came home, and complained of not feeling well. She was helped up to her room in the attic, threw herself on the bed, and, after a gasp or two, died.

Upon autopsy it was found that the whole right lung was in a state of gray hepatization, and that the left lung was engorged with blood. This was all that was found.

J. K., age twenty-four years. Taken to the station-house and locked up for drunkenness. Had a slight cough, and complained of not feeling well. Was found dead in the morning. Autopsy showed complete consolidation of the left lung, with commencing trouble at the base of the right.

H. R. After a mild spree returned home; complained of feeling cold, and went to bed. Was found dead in the morning. Autopsy showed pneumonia.

Mrs. Ann F., age fifty years. Was apparently well on going to bed on the night of December 5th. Was found dead in bed in the morning. Autopsy showed complete consolidation of both apices, and an older process at the base and throughout the right lung.

Another and quite common cause of sudden death in the same class of persons is edema of the brain from alcoholic poison.

And just here let me say that it is a very unwise and unsafe thing to make a diagnosis of alcoholism without an autopsy. A case which I saw a good many years ago illustrates this. A man was found in an outhouse apparently asleep. He was roused with difficulty, and was finally taken to the police-station. Here there was a question of opinion as to whether his condition was due to alcohol or opium; at any rate he was sent home, and died. At the autopsy, there was found an occlusion of the middle meningeal artery, and no evidence of alcohol or opium. And in this connection let me say that the odor which is found in alcoholic cases is not the odor of alcohol, but resembles that of molasses.

Several cases of my own illustrates this condition of death from edema of the brain.

John C. S., age thirty-five years. July 9th was found dead in bed, with blood on his face and on the bed-clothes. His wife was in the bed with a cut on her head, and so drunk that nothing could be learned from her. Two men who were in the house the night before said that S. had been drinking heavily, but that he appeared all right at 10 P. M. Autopsy showed no evidence of violence, but showed the most marked condition of edema of the brain. The blood evidently came from the cut on the wife's head.

Edward S., age thirty-one years. Found dead in the loft of a barn. Had been drinking heavily for some time, but was apparently no drunker than usual at 10 P. M., when he was last seen. He was found dead at 6 A. M. Autopsy showed edema of the brain and no other cause of death.

J. H., age twenty-eight years. Arrested for drunkenness, and taken to police-station. Died during the night. Autopsy showed extensive edema of the brain.

P. McM., age twenty-six years. Had been drinking hard for some days. The night before his death he ate his supper at about 7 P. M., and went out. He was not seen after this. In the morning he was found dead on the floor of the front entry. Autopsy showed edema of the brain, and nothing else.

The following cases show several rather unusual causes of sudden death.

Ellen D., age forty-seven years. Had been as well as usual up to April 23d. On this day, while at work, she was taken with hemorrhage from the mouth, and died in a few minutes. The amount of blood lost was enormous. Upon autopsy the stomach was found full of blood, and the cause of this was found to be cirrhosis of the liver.

John M., age forty years. On his way home from a drinking-bout he fell down and vomited into a slight depression in the ground, and was literally drowned in his own vomit.

Chas. D., age twenty years. Came out on a horse-car from Boston between eleven and twelve o'clock. Had evidently been drinking, but could walk unaided. After he left the car he was seen to lean against a fence and then fall to the ground. When he was found he was dead. Autopsy showed the presence of a large piece of meat in the trachea. He had evidently attempted to vomit, and in the process this piece of meat had lodged in the trachea.

Andrew D., aged fifty years. Had been drinking, and became unconscious. His wife, who had also been drinking, attempted to bring him to consciousness by placing a cloth wet in strong ammonia-water over his mouth and nose. He died from the effects of the ammonia; and upon autopsy his larynx and trachea looked as if the mucous membrane had been scarified.

P. V., aged fifty years. Had been well up to Saturday night. In a quarrel with his wife she is said to have thrown a shoe at him which struck him in the abdomen. No attention was paid to the matter, but on the following night he died suddenly. Autopsy showed no marks of violence externally. Then was found a single ulceration of the descending colon, with perforation; fecal matter in the cavity of the abdomen; peritoneum not opaque but with injection of the vessels.

L. B., aged fifty years. History, during previous ten years, of abdominal pain. After a severe attack of pain he suddenly died. Autopsy showed perforation of gall-bladder, and escape of numerous stones into the peritoneal cavity.

G. R., age twenty eight years. Robust health. Was being treated for a common sore throat; suddenly he grasped his throat, ran around the room, and expired in two or three minutes. Autopsy showed absolutely nothing, with the exception of edema of the larynx and the cardiac and pulmonary appearances of asphyxia.

One might go on almost indefinitely relating curious histories of sudden death; and the one lesson that can be learned from a connection with these cases is the absolute necessity of making an autopsy in all cases of sudden death.

Medical Progress.

REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BOSTON.

GENERAL PARALYSIS.

General Paresis a Toxine Disease.—Bannister contributes to the April number of the *American Journal of Insanity* an excellent article on the present theories of the etiology of general paresis. Three views are held by authorities as to the relations of syphilis and paresis: (1) That syphilis has no part in the etiology of the disorder. This was the prevailing one in the early history of the affection, but statistics of late years have rather given place to another view. (2) That syphilis constitutes a predisposing cause in a large number of cases, but that paresis could not itself be considered as syphilitic. This is probably the dominant view at the present time. There is considerable range of opinion among authorities of this group as to the etiological importance of syphilis, the general opinion being that the specific infection simply prepares the way for the causal factors, mental strain, worry, traumatism, intemperance, etc., to bring on the disorder. (3) That paresis is almost invariably or always of syphilitic origin, and in its extreme form that it is in itself only a late manifestation of syphilis—an effect of the syphilitic poison.

Bannister believes, from the present trend of opinion, that the view that paresis is in almost every instance, if not in all, a result of syphilis, will become before long the prevailing one. A review of statistics and data of a dozen authorities mentioned in this article show syphilis in from 75 to 95 per cent., of cases. The fact that paresis can be indisputably caused from comparatively recent syphilis and that this is in all respects undistinguishable from the usual type is now generally recognized, which fact supports the view of the generally syphilitic character of the disease.

Other facts supporting the specific origin of paresis are those of conjugal paresis, as lately reported by Dr. Dewey and others, in which husbands seem to communicate the disease to their wives; also cases of precocious paresis in which it appears at puberty in subjects of hereditary syphilis. The relative influence of profession or occupation is also significant in this connection. Members of certain trades and professions seem to have an especial liability to paresis, as military men, railroad men, and commercial travellers. That this is not simply due to the hardship and hazards of the life they follow, is indicated by the fact that 70 per cent. of the female paretics at Kankakee were wives of men of these classes.

After successfully answering the objections offered against this view of relation of syphilis to paresis, Bannister presents his theory that paresis is the result of the action of a poison on the nervous system, and that poison is a specific toxine, needing only certain conditions to prepare the way for its activity. We have, therefore, in paresis a disease that in its typical form may unquestionably follow syphilis; that according to the last statistics is preceded in from 70 to 90 per cent. of all cases by syphilis; which seems to be communicable from husband to wife; that abounds in great cities and is rare in rural districts; that occurs early in persons of hereditary syphilis; and that is especially frequent in classes of men and women in whom syphilis is common.

The Etiology of General Paralysis.—Houghberg¹ has made an important contribution to the question whether general paralysis is caused by syphilis. One group of psychiatric physicians, including most of the French, do not give any high importance to syphilis as a cause of paralytic dementia, laying more stress upon the abuse of alcohol, excess in venery, and injuries to the head.

Those who support this view do not take sufficient pains to make sure whether their patients really have had syphilis or not. On the other hand, the psychiatric physicians of Scandinavia and Finland hold that general paralysis is a disease entirely caused by an earlier infection of syphilis. The German alienists, with Mendel, for the most part take a middle position. Although they admit that syphilis is an important factor in the production of so-called paralytic dementia, they do not consider it to be the sole cause.

Houghberg's own observations, which are, by the way, confirmatory of Bannister's opinions, were made upon 107 patients, 98 of whom were males and nine females. The details are given at length in a paper of 82 pages. He found syphilis to have been undoubtedly present in 81 per cent. of his cases, and probably so in 11.2 per cent., thus raising the proportion

¹ Allgem. Zeitschrift für Psych., 1 Band, 3 and 4 Heft.

to 92.2 per cent. This is the highest ratio recorded by any observer save Dengler, who found syphilis in 28 out of 30 cases, equal to 90 per cent.

Houghberg arrived at the following conclusions:

(1) General paralysis is a disease which especially affects the town population of Finland. It does not affect women of the better classes.

(2) The importance of syphilis as a factor in progressive paralysis seems to be very great, especially when we consider that venereal disease plays no longer part in the causation of other forms of insanity.

(3) General paralysis, which comes on most frequently between the ages of thirty and forty-five years, makes its appearance from four to five years after the syphilitic infection.

(4) The symptoms of constitutional syphilis which precede general paralysis are of a mild character.

(5) Compared with syphilis, the other assigned causes, such as hereditary predisposition, affections of the mind, abuse of alcohol, and excess in venery, play but a subordinate part.

(6) In paralytic dementia known to have followed syphilis, there were no distinctive symptoms from the cases in which syphilis was presumed to be absent. No benefit was derived from antisyphilitic treatment, nor were any alterations of a specially syphilitic character found on examination post-mortem.

Pathogeny of General Paralysis.—Kowalevsky² has a toxic theory of general paralysis: It is well known that progressive general paralysis is believed by some authorities to be the result of an interstitial and by others of a parenchymatous encephalitis. He believes both to be equally well-founded opinions, but gives as the fundamental cause of this initial alteration of the neuroglia in certain cases and of the nervous elements in the others, an intoxication of internal or external origin.

Whenever cerebral function is exaggerated, there is an internal or external toxic influence at work. The products of non-assimilation which accumulate then in the nerve cells of the brain greatly alters and finally destroys them. Then follows irritation of the neighboring vessels by this toxic material, and also proliferation of the neuroglia. At the same time he does not hold that cerebral hyperactivity or intellectual overstrain can by itself alone exercise a destructive action upon the nervous elements unless the soil be prepared by other conditions, such as hereditary syphilis or hereditary instability of the nervous system.

Toxic influences of external origin which may produce general paralysis are quite numerous. First and foremost comes the syphilitic virus, then a number of toxic substances such as alcohol, lead, mercury, etc. Each of these agents may give rise to a different clinical variety of general paralysis. General paralyzes of traumatic origin have in equal degree auto-intoxication for the cause. However, we must admit that traumatism by determining a circulatory disturbance of the brain modifies cell-nutrition and makes room for the production of compounds of pathological origin, which play the rôle of veritable toxins. To some of these cases an intoxication of external origin is superadded to this auto-intoxication, when the subject of the traumatism is a syphilitic, an alcoholic, etc. In these cases the trauma, by modifying the resistance of the brain,

favors the injurious action of the alcohol, the syphilitic toxine, etc.

Syphilis of the Nervous System and General Paralysis. Raymond³ gives histories of three cases which he believes to throw light on the relations of general paresis to syphilis.

The first, a woman with history of syphilis, presented the symptoms of general paresis (with the exception of extravagant delusions), combined with those of tabes. Death in a series of epileptiform seizures. At the autopsy were found meningeal hemorrhage, multiple foci of cerebral edema, and syphilitic meningomyelitis of the spinal cord and brain.

In the second, in a man with history of chancre, but not of secondary symptoms, there was rapid development of symptoms, both of tabes and general paresis. At the autopsy, lesions of diffuse syphilitic meningo-encephalitis, and typical posterior sclerosis of the spinal cord. Evidence of former gummata of the kidneys.

The third, a man, contracted syphilis at the age of twenty-five, and two years later developed paraplegia, which improved under specific treatment to such a degree that he was able to walk; anesthesia disappeared, but a spastic condition persisted. Two years later he had three transitory attacks of aphasia, which left no mental impairment. Death at the age of thirty-two, of pulmonary tuberculosis. At the autopsy there were found a focus of sclerotic myelitis in the upper part of the dorsal regions of the spinal cord, with ascending and descending degeneration of the ordinary character; slight arteritis obliterans of the internal carotids and the left middle meningeal artery; and a general diffused inflammatory condition of the capillaries of the cortex.

From these cases he thinks the conclusion justified, that in general paresis of syphilitic origin the lesion is primarily vascular, affecting especially the arterioles and capillaries. If, as in his last case, the lesion does not progress to such an extent as to impair the nutrition of the nerve cells, no cerebral symptoms may be noticed, but when they degenerate, symptoms of general paresis make their appearance.

He gives account of two other cases, in which subjects of syphilis have shown symptoms calculated to excite suspicion of general paresis, in one case for six, in the other for fifteen years, without progress of the malady.

PSYCHOPATHIC FAMILIES.

From observations in this direction Perugia⁴ deduces the following conclusions:

(1) The morbid types are not transmitted in psychopathic families in identical forms, but become aggravated in their transmission through the generations.

(2) Suicidal insanity only is constantly transmitted to descendants in the same form.

(3) Among the various insane types the periodical form is relatively frequent.

(4) The somatic signs of degeneracy are much more frequent than in non-hereditary lunatics, but are not aggravated proportionately to the psychic degeneracy.

(5) Very often sexual abuses, alcoholism, morphinism, and onanism are concomitant causes aggravating the heredity in these families.

(6) Bodily diseases attack the hereditarily insane with more than ordinary frequency.

³ American Journal of Insanity, October, 1895.

⁴ Revista Sperimentale, xx, p. 68.

² Bull. de la Soc. de Med. Ment de Belgique, 1894, No. 74.

(7) Maternal heredity is propagated to the greater number of descendants.

(8) Psychopathic families have a fatal tendency to intermix and fuse among themselves, thus reinforcing the heredity.

(9) The psychopathic heredity affects both sexes equally.

(10) Psychopathic families, especially those in whom the heredity is bilateral, are doomed to extinction, as much by their great mortality in infancy as the sterility of their marriages.

TREMORS IN THE INSANE.

Cristiani⁵ concludes from experimental researches that in insanity generally of all the various forms we may meet with tremors, independently of other factors, due solely to the altered functions of the psychic sphere. These tremors are of the "intention" kind, ceasing during repose. They cannot be referred to any single form of mental disorder, but are solely connected with the two fundamental symptoms of excitement and depression. In excitement the tremor is vibratory, more frequent, arhythmic and unequal; in depression it is undulatory, slower and more rhythmic. The tremors of the insane have a pathogenic mechanism and a semiotic significance that may be stated to depend on a functional dissolution of the nerve centre; and a weakness, incoördination and dissipation of the psychomotor energy was presumed to be absent. No benefit was derived from antisiphilitic treatment, nor were any alterations of a specially siphilitic character found on examination post-mortem.

LOCAL ASPHYXIAS IN THE INSANE.

Kiernan⁶ calls attention to the coexistence of the phenomena of Raynaud's disease with insanity, and recalls a former article of his own in which he pointed out its association with certain special types of mental disorder.

Sixteen years ago in an exceedingly brief discussion of trophoneuroses in the insane, in an article (*Journal of Mental and Nervous Disease*, April, 1878) intended to bring psychiatry into more intimate relation with neurology, he pointed out that all these phenomena occurred in hebephrenial stupor, in stuporous insanity, in melancholia attonita, in katatonia, and in certain cases of parietic dementia. He called attention to a marbling of the extremities and to a gangrenous condition of the same, as a result of parietic dementia.

In nearly all the stuporous states, whether the stupor be that of stuporous insanity or resulting from absorption in a delusion, as in paranoia or melancholia, or occurring in hebephrenia, or katatonia, or stuporous epilepsy, or parietic dementia, manifestations of the Raynaud disease type occur. The pain, due to the disease, felt by melancholic, paranoiac, hebephreniac, parietic dement or epileptic, forms the basis of a persecutory (electric, witchcraft) element in a delusion. The disease is exceedingly frequent in the stupor which sometimes succeeds cases of acute mania. In four of such cases which came under his observation in the Cook County Insane Hospital, and in ten he observed at the New York City Asylum for the Insane, the condition in the feet proceeded to gangrene, and when the patients recovered, as they all did, one or more toes were injured. In such cases,

amyl nitrite by the nose, and quebracho hypodermatic injections have been of service. The condition disappears on recovery, but in certain cases may lead to blood-poisoning and secondary gangrene.

In his discussion of the mechanics of these conditions, together with that of the edemas, etc., observed in the insane, Dr. Kiernan adopts the term "vasomotor ataxia" given by Dr. Solis Cohen, as the expression of its underlying condition. Between the typical constrictive variety, as shown in Raynaud's disease, and "local asphyxias" common in the insane, which include both local relaxation and contraction, there are numberless varieties, including demographism, which in its less pronounced phases, is a very slight removal from the normal.

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

THE annual meeting was held at the Medical Library, Boston, on Tuesday, June 11, 1895.

The meeting was called to order at seven P. M. by the President, DR. FRANK K. PADDOCK. One hundred and thirty-seven Councillors indicated their presence by signing the roll.

The Secretary read the names of 137 Fellows admitted since the last annual meeting, and of 36 whose deaths had been recorded.

The Treasurer, DR. FORSTER, presented his report, which was accepted, showing the receipts of the Society for the year ending April 15, 1895, with the balance on hand at the beginning of the year, to have been \$13,659.96, and the expenditures \$9,103.53, leaving a balance of \$4,556.43.

DR. DRAPER, for the Committee on Membership and Finances, reported the names of seven Fellows whom the Committee recommended to become retired members; of four to be allowed to resign; and of thirteen to be dropped for non-payment of assessments.

The report of the Committee was adopted.

It was also voted, on recommendation of this Committee, that \$2,500 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications reported that DR. W. W. KEEN, of Philadelphia, has been appointed to deliver the Shattuck Lecture at the annual meeting of the Society in 1896.

The Librarian, DR. BRIGHAM, presented his report.

The Committee on Nominations reported, and the following were chosen officers of the Society for the ensuing year: President, Dr. Franklin K. Paddock, of Pittsfield; Vice-President, Dr. A. Martin Pierce, of New Bedford; Treasurer, Dr. Edward J. Forster, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Boston; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Boston. Dr. Henry P. Bowditch, of Boston, was chosen Orator for the annual meeting of the Society in 1896.

Voted, That the next annual meeting of the Society be held in Boston on the second Wednesday in June, 1896.

Standing Committees were appointed as follows:

Of Arrangements: Drs. A. Thorndike, A. K. Stone,

⁵ *Revista Sperimentale*, xx, 1, 1894.

⁶ *Medical Standard*, November, 1894.

J. G. Mumford, M. V. Pierce, P. Thorndike, J. E. Goldthwait.

On Publications: Drs. B. E. Cotting, O. F. Wadsworth, G. B. Shattuck.

On Membership and Finances: Drs. F. W. Draper, J. Stedman, E. G. Cutler, L. R. Stone, A. H. Johnson.

To Procure Scientific Papers: Drs. H. P. Bowditch, F. H. Zabriskie, H. L. Burrell, S. B. Woodward, L. Wheeler, C. W. Townsend.

On Ethics and Discipline: Drs. G. E. Francis, F. C. Shattuck, C. G. Carleton, E. Cowles, J. F. A. Adams.

On Medical Diplomas: Drs. E. J. Forster, H. E. Marion, E. N. Whittier.

On State and National Legislation: Drs. F. K. Paddock, H. P. Walcott, H. P. Bowditch, T. H. Gage, S. D. Presbrey.

ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

(Continued from No. 25, p. 627.)

FRIDAY. — MORNING SESSION.

DISCUSSION ON DIPHTHERIA ANTITOXIN.

W. H. WELCH: The decision as to the efficiency of the diphtheria antitoxin is in the hands of the clinician and not of the pathologist.

The soundness of the experimental basis for the antitoxin treatment of diphtheria has been attacked, particularly by Hanseman. It is impossible to take this position unless one denies absolutely, as Hanseman does, that the Klebs-Löffler bacillus is the cause of diphtheria. His position is not justified by the facts; and all of his arguments are equally applicable to the cholera bacillus, and even to the tubercle bacillus and to most of the specific bacteria of infectious diseases. The results of these experiments upon animals are among the most striking ever performed in the laboratory. Nevertheless, we have even more striking results, probably, in the application of the tetanus antitoxin in the treatment of animals inoculated with the tetanus bacillus; although in the application of the tetanus antitoxin to the treatment of human cases the results are distinctly disappointing, so disappointing that it is doubtful whether it has a future in its present form. One cannot argue altogether from the effects upon animals as to the benefit to be derived in the human being. The reason the tetanus antitoxin is inefficacious in the human being is because doubtless the toxine of tetanus is accumulated to such an extent before recognized that the antitoxin comes in too late.

There are two prominent theories as to the mode of action of the antitoxin: the one can be called the chemical, and the other the vital theory. The chemical theory is that the antitoxin directly, in a chemical sense, neutralizes the toxine. The vital theory is that each acts through the agency of cells, that the antitoxin does not in a chemical sense neutralize the toxine but acts upon the cells so as to render them tolerant of the toxine. It seems to me that there are certain points which come out as the result of the application of the antitoxin in diphtheria which speak strongly in favor of the vital theory. One fact is that this method of treatment does not prevent the post-

diphtheritic paralyses. They are apparently as common, if not more common, with the antitoxin treatment than without it. The contention of some is that a larger number of severe cases survive, and therefore there will be naturally a larger number of post-diphtheritic paralyses. These paralyses, as all evidence goes to show, depend upon the action of the toxine; and it seems to me that we have here an argument opposed to the view that the antitoxin in a direct chemical sense, is an antidote to the toxine. It speaks to my mind that they act antagonistically upon cells, and that the toxine is not kept from exerting an injurious action upon a certain class of cells. Another point to be borne in mind is the quantitative relation between the antitoxin and the toxine. In a given case of diphtheria, we have no means of knowing with any precision, how much toxine is in the blood, and therefore we do not know how much antitoxin to give. It doubtless happens often that we give an insufficient quantity. We must bear this in mind in considering discrepancies of different observers.

The question is not decided as to whether the antitoxin exerts a specific influence on the pseudo-membrane. Does it tend to become sharply demarked and roll up from the mucous membrane? Many say it does; others say not. Such discrepancies may readily be explained by the fact that in one class of cases or in one instance the dosage is correct, the amount of antitoxin given is sufficient to antagonize the toxine, while in another it is not.

Another point to be borne in mind is one that has been emphasized by Behring, namely, that the benefits of this treatment are very doubtful when the antitoxin has been introduced after the third day of the disease. That has been borne out by experiments on animals. It is very difficult indeed to obtain any positive results twenty-four hours after the injection of the diphtheria culture or the diphtheria toxine, so that we are not to expect brilliant results if the treatment is not begun early.

There are certain points which pertain to diphtheria itself, as it occurs in human beings, which are worth calling attention to. Bacteriologists at present are in favor of calling all cases of sore throat diphtheria, where the Klebs-Löffler bacillus is demonstrable. That means that a considerable number of cases which clinicians have not regarded as diphtheria are now classed by bacteriologists in this group. The diphtheria bacillus occurs in healthy throats occasionally, and in the mildest forms of anginas as well as in the more severe pseudo-membranous inflammations. Now if we see very mild cases put down as diphtheria, cases with very favorable prognosis, of course, the statistics will turn out far more favorably than otherwise. On the other hand, there are certain other cases of pseudo-membranous inflammation which the clinician cannot in any way distinguish from diphtheria and which bacteriological examinations show are due to some other micro-organism, usually to the streptococcus. Now, if no bacteriological examination is made, and these cases are included in the statistics of diphtheria, they result unfavorably to the antitoxin treatment, because the healing serum neutralizes nothing but the toxine of Löffler's bacillus. As to the proportion of these cases, which have all the appearances, clinically, of diphtheria and which are not genuine diphtheria, statistics differ. We must regard such statements as that 30 or 40 per cent. of the pseudo-membranous

anginas which the physician would regard as diphtheria are not true diphtheria, with a good deal of scepticism. In my opinion perhaps not 10 per cent. of the cases are not genuine diphtheria.

Then, of course, the diphtheria of the human being differs from experimental diphtheria. In the experimental diphtheria, we have pure uncomplicated infection due to one organism. In people we often have a complication. The human cases are often complicated with streptococcus septicemia, with pneumonia, and with great mechanical obstruction in the larynx and lower air-passages. Such cases are very unfavorable for the operation of the healing serum treatment.

As regards the statements as to the direct effect of the healing serum, they are very various; but those who favor the treatment are of the opinion that there is a direct and specific effect manifested, but in no instance are these effects different from those which may occur as the result of the natural course of the disease. Thus, you have not any such direct specific manifestation of the action of the diphtheria antitoxin which forces you to believe that something has happened which would not necessarily have happened in the course of nature. The cure is a natural cure; and why should it not be? The natural cure is a cure by antitoxin. This is only a hastening of a natural process.

What conclusion can now be drawn from the elaborate statistics which we have now before us of cases treated with the serum? There are three classes of opinions based upon these statistics. According to one class they prove nothing. According to another, they leave the matter in doubt; they speak neither for nor against the efficacy of the treatment. Others believe that they decide the question, that they cannot be interpreted otherwise than as supporting the claims of Behring. The objections urged against the statistics are, in the first place, that statistics in general prove nothing, that nothing can be demonstrated as regards the efficacy of treatment in such diseases as diphtheria simply by statistics. Then it is urged that these statistics include a very large number of light cases of the disease; that the bacteriologists, call these very mild cases of angina, diphtheria, and if they appear in any large number in the statistics, the result is much more favorable than previously when the diagnosis was purely clinical. It is said that the agitation of this subject in the public press leads the parents of children having mild sore throats to take them to places where the healing serum is administered, and the treatment is begun at an earlier stage than it would have been before this agitation.

As against this argument, it can be urged that these statistics are many of them classified so that you can tell the number of cases, for instance, with laryngeal stenosis, the condition of the throat with reference to false membrane, and so on. There are definite statements that the group of cases does not include a particularly large number of mild cases, etc. It seems to me that the results, which are recorded to the effect that when the treatment is begun before the exudate had extended to the larynx, before there are any symptoms of croup, there is no subsequent involvement of the larynx or only in a very small proportion of cases, are very significant, and furnish a very strong argument in favor of the efficacy of the treatment.

It is also urged that the epidemics of diphtheria at

the present time are of a mild character, that the mortality of cases which are not subjected to this treatment is lower than in ordinary seasons. That is not in accordance with the statistics which have been collected with very great pains by a student of Bollinger, showing that in some cities, especially in Vienna, there has been a constant increase year by year of the death-rate from diphtheria.

It is contended that cases which have been treated strictly according to the directions of Behring, the treatment commenced on the first, second or third day of the disease, have continuously progressed in the spread of the membrane and the development of severe symptoms, and terminated fatally. If there were many of such cases, they would be a strong argument against the efficacy of the treatment. A comparatively small number of such observations would outweigh enormous statistical figures; but I fail to find any considerable number of such cases. There seem to be some well-authenticated cases of that character; and it seems to me possible to explain such cases, if we assume that the action of the antitoxin is not that of a chemical antidote but is upon cells. If the antitoxin acts through the agency of cells, we can understand how there may be individual difference and circumstances under which the cells would fail to respond altogether, through idiosyncrasy to the action of the treatment. Then we must consider the possibility that the serum is not of the right quality in these cases.

I think some importance is to be laid upon the clinical impression, quite aside from the statistics, of such men as Baginsky, Widerhofer and Ranke, who have had large experience. They are personally impressed by the observations at the bedside. When one reads the reports of these men, one cannot fail to see, as far as this particular point is concerned, that the impression they receive at the bedside is distinctly favorable to the treatment.

There is a new kind of argument recently introduced, based upon the result of autopsy, particularly upon the work of Ballisto (?) and Klebs (?). They have made autopsies in a number of cases treated with the healing serum. They state that of those cases of diphtheria which were treated without the healing serum, one-quarter of the autopsies presented lesions of fresh diphtheria, whereas only a hundredth of the cases treated with the healing serum gave the lesions of a fresh diphtheria. They conclude from their autopsy-material that Widerhofer (?) is perfectly correct in his conclusion as to the effect of the treatment in Vienna.

Behring was mistaken in saying that the antitoxin was as harmless as common salt solution. There is evidence that it does cause some albuminuria. The discussion of this treatment has called attention to the necessity of a careful examination in diphtheria, and it would appear that albuminuria is present in diphtheria in the vast majority of cases, according to some statistics 67 to 68 per cent., according to others 100 per cent. The arguments for the injurious effects of the blood-serum should be based upon the distinction between the subcutaneous introduction and its intravenous introduction, as Dr. Meltzer has pointed out. The skin eruptions, the affections of the joints, general prostration and cases of diarrhea, which occasionally follow the use of the serum, but which are not permanently injurious, should lead to discretion in the use of the serum; but they do not, of course, outweigh the benefits of it.

I shall say nothing about immunization. I will simply say, in conclusion, that it seems to me there is a sound experimental basis for the use of the treatment; that the natural interpretation of the statistical results is in favor of the efficacy of the treatment; that it does undoubtedly exert a specific effect upon diphtheria; that it reduces the mortality from one-third to one-half; that when the treatment is begun during the first two days of the disease, the mortality is very low indeed; that it is the duty of the physician to make use of the treatment; that the injurious effects of the treatment are unquestionable in certain instances, but that they are not of the nature of permanent injury so far as we are at present informed, and while they should lead to care in the use of the remedy and care in the dosage, they do not outweigh the benefit which results from its specific action.

DR. MASON: Dr. Welch has stated so clearly and fully the arguments for and against the antitoxin treatment that I will not dwell upon those points. I will simply present facts in relation to the series of cases which we have had under treatment in the diphtheria department of the Boston City Hospital, where we began to use serum December last. This department is a large one. It receives annually one-third to one-fourth of the diphtheria cases which are reported to the Board of Health in Boston. The material is large, and includes a large proportion of the worst cases, cases which are sent to us, often as a last resort, for tracheotomy, intubation or other treatment. The series of cases we have had to judge from the past year have been severe cases. About one-third of all these have come for intubation or tracheotomy. Each of the hospital staff takes his turn of a period of one or two months as it may be. The cases I mention have been under the care of several physicians. I speak therefore for my colleagues.

The mortality for a series of years was from 40 to 50 per cent. or thereabout, one year amounting to 52 per cent. From December 12, 1894 to May 14th of the current year, 306 patients were admitted. There were 81 deaths, or a mortality of 26.4 per cent., which is a reduction of one-half in the mortality. The operative cases numbered 31, with a mortality of 19, or 61 per cent., which was a reduction of about one-third in the mortality of previous years from tracheotomy and intubation. Comparing that series of cases with the cases for a like period in the year previous, from December 12, 1893, to May 12, 1894, the mortality for this series was 44 per cent. This gives a reduction of about 20 per cent. in the mortality between this year and last year.

There is another way in which, perhaps, the efficacy of this serum may be approximately tested, and that is the results upon the death-rate of the city at large. Of course, that could perhaps be open to more fallacies than the hospital figures; but in the city of Boston, the mortality during the last four months (January 1st to May 1st), has been 14 per cent. of diphtheria as against 41 per cent. in the previous year. Still, allowing for these sources of fallacy, I think the showing appears to be very favorable.

Not only are we impressed with the special effect of the treatment upon individual patients, but also by the general appearance of the diphtheria ward, the appearance of comfort and contentment upon the part of the children. Instead of going into a ward with dread as we have done in former years, to find a large num-

ber of pallid, strangling and moribund children, we now go into a ward presenting a very different appearance; and I dare say that all of our physicians undertake this service now with much greater confidence and satisfaction than they ever had before. The effect on membrane is certainly noticeable in many cases. The membrane does not curl up, but it does become more effectually limited. I think the suggestion that this mode of cure does not differ from the course of nature will hardly be borne out by the observation of cases. They do pursue a much more rapid course than in the natural progress of the disease, that is, in the severe forms. The patients get rid of the membrane sooner, are able to sit up in bed, perhaps the next day; they lose their pallor; the fetor disappears; and their convalescence ensues very promptly.

With regard to the number of light cases, upon which statistics are based, I think this criticism hardly applies to our hospitals. The cases are bad, and the average severity of the cases is great, as is shown by the number which require intubation or tracheotomy at the outset. Under this mode of treatment, the proportion of tracheotomies and intubations has diminished materially, and the result of these operations has been more favorable to the extent of perhaps one-third. Of course, a much more favorable result can be expected where the serum is administered on the first, second or third day. We seldom see our cases before the third day.

Paralyses have occurred, but I think in a smaller proportion of cases than before. We know nothing as to the cause of the paralysis in diphtheria.

The nature of epidemics, as Dr. Welch states, varies. Cases may be more severe in one year perhaps than in a previous year; but if we consider the fact that for ten or twelve years there has been a very large mortality and the type in Boston has been a very severe type, I think that this year we cannot consider that as an important element.

As far as my own opinion goes and that of my colleagues, this treatment is most valuable. The ultimate test, of course, must be the result of clinical experience.

DR. JACOBI: I am certainly favorably impressed with the effects of the treatment; but, as Dr. Welch has pointed out, small numbers of cases, even the number that we have now, are not sufficient to allow us to come to any final conclusion about it. We do not want hundreds, but thousands of cases, in different years and different seasons, in order to get to a final conclusion. There have been seasons in which other treatments have been just as successful. I know of 40 cases of diphtheria in which the bacillus was found, 39 of which got well one after another without antitoxin. I know of years where a dozen cases would get well under other treatment. When I offered antitoxin to a number of my younger medical friends in New York, some of them took it and some of them refused it. They said they were perfectly satisfied with the results of mercurial treatment such as had been in vogue in New York since 1848, where fairly large doses of bichloride are given, largely diluted, at short intervals.

We must not forget that there are almost none of those who have published large numbers of cases but have added something to the antitoxin treatment. One of the most enthusiastic men is Baginsky. In all of his 525 cases he combines the antitoxin with his old local treatment — frequent mild disinfectant washes

to the nose and throat — and insists in not giving them up. My advice to those in New York, who have asked it, has been not only to use the antitoxin treatment but to continue the mercurial treatment as well. I am a practical man. As such, I want to save my patients; and knowing how much I have succeeded in doing in the course of a long number of years with careful mercurial and other treatment, I have deemed it unwise to discontinue such treatment. Is it due to this or to the antitoxin alone, that in all the cases that I have used antitoxin recovery has taken place. I would rather have double treatment than insufficient treatment.

Regarding the existence of albuminuria in diphtheria, we ought not to forget that albuminuria is a very common symptom, as has been known these thirty years past. In Baginsky's cases (525) he directly makes the point that he had less albuminuria in the antitoxin cases than he had in those treated in previous years. He also proved by his statistics that the nephritis was less frequent in the cases treated by antitoxin.

There is one point, particularly, in Baginsky's cases that struck me very forcibly. He says that in the last five years he has seen 2,000 cases. In these there were 523 laryngeal operations; so certainly they were not favorable cases. He states that a large number of his intubations would require tracheotomy following the intubation, and these were mostly fatal cases. Now he states that since the antitoxin treatment, not only is the number of operations very much less, but the results of intubations and tracheotomy are exactly contrary to what they were formerly. While formerly they intubated reluctantly only, they now prefer intubation to tracheotomy; and in a large number of cases intubation has taken the place of tracheotomy; and where they did intubate, only in a small number of cases was tracheotomy required afterwards. This proves to my mind that the claim that membranes limit themselves very soon and are thrown off very soon is sustained by facts, and that therefore intubation is so favorable because these cases have to wait but a short time before the membrane is thrown off.

I want to place myself on record here as a heretic. I do not repeat Hausman's opinion, but I simply state the opinion that I had before and after Hausman — that we have been too much in the hands of our friends the bacteriologists. It is well known that the diphtheria pseudo membrane is the same morphologically; when you have the bacillus or the coccus present you have the same sort of exudation, the fibrin, a few blood-cells, leucocytes, and epithelium changed in the characteristic way. Now, then, if that be so, then I should say that the characteristic of diphtheria is the pseudo-membrane. We should be very poorly off if we should have to rely always on a culture to be made before making a diagnosis. I am not prepared as yet to accept the postulate, for it is nothing else but a postulate, that the diagnosis of diphtheria must necessarily include the presence of a bacillus. The bacteriologists claim that you must call diphtheria those pseudo-membranous processes in which you find the bacillus. That has been accepted, and the result is that nowadays everybody speaks either of a diphtheria or a pseudo-diphtheria.

I am prepared to say that it is only the bacillus cases that are amenable to the antitoxin treatment; therefore, I do not say that in every case a culture should not be made in order to justify the antitoxin

treatment. I say that every doubtful case should be treated with the antitoxin. I cannot accept that we have to deal with diphtheria only when we find the bacillus.

DR. J. S. BILLINGS: It is only by statistical methods that the efficacy of any remedy can be settled. The experimental methods in the laboratory will first suggest the treatment and then we must get the evidence by statistical methods prepared over a long time and through various seasons. At present the figures given for the treatment by antitoxin are not sufficient to give absolute and positive results. If you apply the chances of error to these death-rates, you will find that their importance vanishes. Two hundred cases with forty deaths, and three hundred cases with ninety deaths, come within the limits of each other.

As has been pointed out by Dr. Welch, it is difficult to compare the recent carefully observed cases with those which were observed prior to the introduction of bacteriological methods. To compare the mortality in the lump is something like trying to compare the mortality of typhoid fever at this time of accurate knowledge with the mortality of low fevers in 1810, when typhoid, typhus and relapsing fevers were all mixed up together. Now, however, we are in a fair way to get definite information and definite statistics.

It would be very bad for public hygiene if the antitoxin treatment is to be relied upon alone. One of the difficulties that I have in dealing with many of the statistics that are furnished is that there is no statement as to what has been done in the way of local treatment. Dr. Jacobi says he uses both methods. Baginsky also uses the two. Where that is done, such statistics should be put apart by themselves, and the cases where the reliance is solely on the antitoxin should be put out by themselves, and the results compared.

We have not solved, by any means, bacteriologically or otherwise the problems as to the spread of diphtheria or its difference in mortality in different epidemics. Twelve years ago diphtheria was rife throughout the Northwest. It swept away 60 to 70 per cent. of the children under five years of age. The mortality, collected by the very imperfect statistical methods in the year ending June 1, 1880, was simply enormous. Now, using the same methods, ten years afterwards, we find that the mortality from diphtheria is extremely small in all that region. It has increased very greatly in the East, and markedly so in the cities. For instance, it is more prevalent in the cities and towns in Massachusetts than it was ten years ago. The reason for this we know nothing about as yet.

DR. MASON: Of course, local treatment is not abandoned in our hospitals; and general treatment, as stimulants and tonics, is also continued. It may have some bearing upon that if I state that since the use of the antitoxin treatment, the expenses of the hospital for local agents, such as peroxide of hydrogen, have diminished \$700.

DR. A. C. ABBOTT: With regard to Dr. Jacobi's complaint that the clinicians have allowed themselves to be too much in the hands of bacteriologists in the study of diphtheria, it seems to me that their reasons for allowing themselves to occupy this position are very good. It is very well known to those who have followed the subject closely, that until the bacteriologist made his appearance the knowledge of diphtheria from a clinical standpoint was in a very chaotic condi-

tion. The reliance that was placed upon differentiating diphtheria from other pseudo-membranous inflammations of the throat on pathological and anatomical grounds was very uncertain. Thus, as Dr. Jacobi has said, there are conditions in the throat that on anatomical grounds cannot be recognized. Fortunately the bacteriologist made his appearance, and found factors concerned in the production of these processes that not only differed one from the other biologically, but also in the more important point, in the production of disease. The secondary occurrences in diphtheria are definite pathological manifestations; secondary occurrences that are found in the few fatal cases of pseudo-membranous inflammation of the throat due to streptococci, are of a totally different nature and are associated with the immediate presence of bacteria at the points of secondary deposit. Of course, it is too well known to require dwelling upon that the cases which bacteriologists recognize as non-diphtheritic are not by any means as fatal as those recognized by them as diphtheria. If we are to have statistics of any value on the subject, we must have some fixed point to go on, and the standpoint taken by the bacteriologists is the only one that supplies that want.

DR. G. M. STERNBERG: A word in reference to the nature of the experimental evidence upon the lower animals. The experimental evidence in regard to tuberculin on the lower animals was very unsatisfactory, and is still unsatisfactory. But in the cases of the diphtheria infection, it is demonstrated beyond peradventure that susceptible animals are cured by the timely administration of doses of the serum. The thing has been tested in laboratories all over the world, and in this laboratory by Dr. Reed. Two guinea-pigs, for example, are inoculated with a fatal dose of the diphtheria cultures. One of them gets a dose of antitoxin, the other does not. The one that does not get it dies, the other recovers. That has been done over and over again; and, as you know, that is the way it is tested before it is sent out. The results are almost as definite as a chemical experiment in a test-tube. In a healthy animal of a given weight, a given dose of antitoxin will neutralize a given dose of toxine.

Very interesting experiments have been made by various men on the presence of antitoxin in the milk of an immune animal. A goat is immunized and has the antitoxin in considerable quantity in its milk, although not in so large a proportion as in the blood, perhaps one-fifteenth as much in the milk. It is given off constantly as in the blood. This, of course, raises the question as to whether there is any continuous production of the antitoxin. From the milk it may be obtained in the form of a dry powder.

DR. F. H. WILLIAMS: I began using antitoxin last September, and soon noted the very marked improvement in many severe cases in which it was used early, within twenty-four or forty-eight hours. Sometimes one can see the membrane loose in the pharynx twelve hours or so subsequent to the administration of the antitoxin. In some cases it seems to me the convalescence is less rapid and less satisfactory than without it. I have noticed in a few cases some swelling of the joints, which persisted on one case for more than two months. Doses of half a grain of morphia were hardly sufficient to overcome the pain which the patient suffered.

As has already been stated other means of treatment should not be overlooked. In some cases local

treatment may be serviceable, although in many cases it is not required.

I want to show here a syringe for injecting antitoxin, which is a modification of the syringe which I got up some years ago for another purpose. This syringe is made of glass and is packed with asbestos. To sterilize it it is only necessary to boil it in water. To prevent the breaking off of the needle, I have put a piece of rubber tubing, between the needle and the syringe, which allows of considerable motion without breaking the needle. This syringe is less expensive than the ordinary syringe, and can be kept perfectly clean.

One word regarding the bacteriological test. Other things being equal, the prognosis is decidedly more favorable in cases where we do not find the bacillus than where we do. As regards the prevention of diphtheria, it seems to me, that we have in the bacteriological test, a very valuable agent. For some time past I have been in the habit of having the throats of all the members of the household in which there was a case of diphtheria, tested in this way, and I have not infrequently found, where there were several children, that there was one or two and in some cases three other persons in the family infected, where by simply looking into the throat nothing was to be seen. These people would develop all the general and local symptoms of diphtheria, sometimes within one or two days, sometimes not for several days after the discovery of the bacillus.

DR. OSLER presented a statement of the cases from the wards of the Johns Hopkins Hospital.

(To be continued.)

Recent Literature.

Memoranda and Tables of Human Anatomy. Vol. I, with a preface by PROF. JAMES E. GARRETSON, Muscles and Ligaments, by JUSTIN HAROLD, A.M., M.D., and SEBASTIAN J. WIMMER, M.A., M.D., A.M., M.D. Philadelphia: The Medical Publishing Co. 1894.

A very prettily got up compendium.

Dissections Illustrated. By C. GORDON BRODIE, F.R.C.S., In four parts. Part IV, The Abdomen. London: Whitaker & Co. New York: MacMillan & Co., 1895.

This is the fourth and last part of this series of colored plates, with very short descriptions of them. Enough has been said of the preceding ones to show that we find much to praise, though the treatment is limited.

Travaux d'Electrotherapie Gynécologique. By DR. G. APOSTOLI. Paris, 1894.

This is the first half-yearly volume of a series founded and published by Apostoli, the object of which is to collect and translate into French all the most important articles on gynecological electro-therapy which have appeared and are appearing. The present volume of over seven hundred pages contains translations of English, American, Russian, Italian, German, Hungarian, Canadian, Belgian, Danish, Polish and Austrian articles. The importance and convenience of such a series of papers is certainly very great, and their value is increased by foot-notes and annotations by the editor.

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THE TREATMENT OF TETANY BY THYROID EXTRACT.

In view of the continued interest associated with the subject of the diseased thyroid gland, any new information from trustworthy sources should be heartily welcomed. Dr. Byrom Bramwell writes, in a recent number of the *British Medical Journal*, of the relationship of tetany to removal of the thyroid gland, and draws therefrom interesting and important conclusions as to the employment of thyroid feeding in the former condition.

He refers first to a case seen in consultation, in which tetany had supervened upon removal of the thyroid. To this patient small doses of thyroid extract had been given without appreciable effect. By largely increasing the amount, however, a speedy improvement followed by ultimate cure resulted.

The fact of tetany occurring after complete removal of the thyroid has been established by a large number of observations. Gowers, for example, says:—"when the whole thyroid is removed tetany supervenes in about one-sixth of the cases. The symptoms of tetany set in during the first ten days after the operation. It does not follow partial extirpation. It had been observed in association with atrophy of the thyroid and myxedema."

Dr. Bramwell's view of this operative tetany is that it is merely one manifestation of acute myxedema, and that it is the result of the arrested thyroid secretion. That such otherwise fatal tetany may be cured, as in the above case, by thyroid extract tend to the confirmation of this view; the acute myxedema, however, of which the tetany is but a symptom, is more properly to be regarded as the cause of death, than the tetany itself.

From a consideration of the striking dependence of tetany upon the integrity of the thyroid gland, as shown by operative removal of the gland, Dr. Bramwell arrives at the conclusion that ordinary, so-called

idiopathic tetany may be due simply to deficient thyroid secretion and therefore might be cured by the administration of thyroid extract.

An opportunity soon offered itself of testing his theory clinically, with a result, which seems certainly to justify his position. The details of his case are of such interest that we shall give them at some length.

The patient was a boy of eight who had been suffering from tetany for more than a year, with slight and merely temporary relief from bromide of potash and chloral hydrate. The case was a perfectly typical one, characterized by frequent and severe spasms, affecting the muscles of the hands, feet, arms, legs, chest and larynx. Pain was at times extreme; the temperature subnormal. The patient was worse in cold weather, as is usually the case, a fact again which points toward the relationship between tetany and myxedema, since myxedema is also aggravated and even induced by cold. Regarding this case, which had passed out of Dr. Bramwell's personal care, he advised, in consultation, a thyroid treatment for the following reasons:

(1) Total extirpation of the thyroid gland is followed in a considerable proportion of cases by the development of tetany. This form of tetany is often fatal.

(2) In some cases, at all events, this operative tetany can be promptly arrested and cured by the internal administration of thyroid extract.

(3) Operative tetany is in all probability merely a manifestation (symptom) of acute myxedema and due to arrested thyroid secretion.

(4) Idiopathic tetany, like idiopathic myxedema, seems to be induced and aggravated by cold.

(5) It is not improbable, therefore, that idiopathic tetany may be the result of defective thyroid secretion.

(6) If this is so it is probable that idiopathic tetany can, like idiopathic myxedema, be cured by the administration of thyroid extract.

The treatment was carried out with the result that improvement began immediately, and went on to almost complete cure. The annoying symptoms of spasm, pain, headache, and palpitation, passed off. Two months after beginning treatment there had been no return of the spasms, and the mental condition was decidedly better. The patient was able to go to school and take an interest in his tasks.

Although one case under ordinary circumstances, could hardly serve as the basis of a generalization, Dr. Bramwell thinks, since the remedy was given with a definite therapeutic object in view, based on a clear line of reasoning, that certain just deductions may be drawn. It seems to him reasonable, as it certainly does to us, that in some cases, at least, idiopathic, like operative tetany, is due to defective thyroid secretion and may be arrested and cured by the administration of thyroid extract.

His final conclusions are as follows:

It is highly probable that the thyroid extract will be found to be a valuable remedy in some other cases of tetany. I do not say in all cases, for it is possible that the clinical condition which we term tetany may, like the clinical condition which we term an epileptiform convulsion for example, be due to a variety of different causes; hence it does not follow that because thyroid extract can cure operative tetany and some cases of idiopathic tetany, that it will cure all cases of idiopathic tetany.

Idiopathic tetany is a comparatively common condition in

young children, but is rare in older children and in adults. It is possible that the infantile and the older cases may be due to different conditions, and that thyroid extract may cure the older cases but may be useless in the infantile cases. Whether this is so or not can only be determined by direct observation and therapeutic research.

Infantile tetany is in the vast majority of cases associated with rickets. Like laryngismus stridulus, it is merely a manifestation of rickets, and it is important to remember that it is usually very amenable to treatment, easily cured by appropriate feeding, milk, fresh air, tonics, cod-liver oil, the syrup of phosphates, lacto-phosphate of lime, bromide of potassium, and chloral hydrate. Further, in many cases it tends to get well itself. These facts must be kept in mind in drawing conclusions as to the effects of the thyroid extract in the treatment of this, the ordinary infantile form of tetany.

I am anxious then to know whether (a) the ordinary infantile form and (b) the rarer adult form of tetany can be arrested and cured by the administration of thyroid extract.

If it should prove to be the case that the ordinary form of infantile tetany is arrested by the administration of thyroid extract, it will, I think, be reasonable to conclude that it, like operative tetany, is due to deficiency of the thyroid secretion. But, further, if the ordinary form of infantile tetany, which seems merely to be a manifestation of rickets, can be cured and arrested by the administration of thyroid extract, it will be very interesting and important to note the effect which thyroid extract (or, preferably, perhaps, thymus extract) has in cases of rickets and laryngismus stridulus.

Dr. Bramwell hopes that his preliminary consideration of the etiology of tetany in its possible relation to the thyroid gland may lead others, whose clinical opportunities may be greater than his own, to investigate the matter further. His case and its outcome under thyroid feeding, would most certainly justify any to whom the opportunity offers, in faithfully employing thyroid extract in cases of primary tetany as well as in those supervening upon complete thyroidectomy.

THE BACTERIOLOGY OF WATER-SUPPLIES.

IN response to the call of the American Public Health Association through Surgeon Charles Smart, U. S. A., its chairman, about forty bacteriologists met at the New York Academy of Medicine, June 21st and 22d, for the purpose of establishing some common plan for systematic work in bacteriology, and especially the bacteriology of water-supplies. The papers on the programme were listened to with attention, and discussed in a most free and informal manner. The convention was presided over by Prof. W. H. Welch, of Baltimore; and much of the success of meetings was due to his skill, tact and suggestiveness in directing the discussion.

In one way the meetings proved to be a great success, showing clearly, as they did, the inside workings of many of the best-known laboratories of the country. And this knowledge, together with the opportunities of personal acquaintance and estimation, made every one feel that the time had been well spent. Throughout the discussions the impression made was the absolute honesty of the speakers, and their perfect willingness to expose their defeats as well as their successes. It was most interesting and encouraging to find out how universal was the dissatisfaction with the existing methods of definitely differentiating bacteria. At the

same time one could not help having a feeling of disappointment that there were not more positive suggestions from the readers; for, with the exception of the work of the gentlemen connected with the Massachusetts Board of Health, there was little that was new, positive and constructive presented to the convention. However, it cannot result otherwise than that so many men coming together and freely recognizing their limitations must be productive of much good in the near future.

A committee was appointed to consider both the papers presented and the discussion that followed, and to make a report to the American Health Association as to the most desirable methods to be observed to secure the greatest uniformity in the results of the bacteriological examination of water. The names of this committee are sufficient to give surety that this important work will be well done. They are Prof. W. H. Welch, M.D., Chairman; Prof. W. Sedgwick, Ph.D.; Prof. Theobald Smith, M.D.; Prof. T. M. Prudden, M.D.; Prof. J. G. Adami, M.D.; George W. Fuller, S.B.; Prof. A. C. Abbott, M.D.; Prof. V. A. Moore, B.A., M.D.

A further suggestion was made which was of the greatest importance. Realizing that the chief result which the convention had arrived at was the recognition of a large number of unsolved problems in what may be called fundamental bacteriology, the committee were instructed to formulate a number of these questions and refer them to the various laboratories for work, possible solution and future report. If this is carried out, it will mean an association of the best laboratories of America, all working under practically the same methods, and whose results, when given to the public, will be in terms that can be interpreted by every one conversant with the subject. Having the utmost confidence that the difficult task imposed upon the committee will be well done, and from the *esprit du corps* created by the meetings, the convention may be said to have been a great success.

MEDICAL NOTES.

A MEETING OF THE AMERICAN ACADEMY OF RAILWAY SURGEONS will be held in Chicago on September 25th, 26th and 27th, 1895.

THE BRITISH MEDICAL JOURNAL.—The receipts of the *British Medical Journal* last year were \$176,000; the expenses were over \$150,000. The total assets over liabilities exceed \$279,000.

MEDICINE IN TOKYO.—In Tokyo a recent census has shown that the city contains 2,315 medical men, 70 dentists, 69 veterinary surgeons, 371 pharmaceutical chemists, two city hospitals, three government hospitals, and 41 private hospitals.

A KINDERGARTEN FOR DEAF AND DUMB CHILDREN.—A kindergarten for deaf and dumb children was opened in Berlin in April, in 1894. The first annual report which has lately been issued, shows

that excellent results have been accomplished with the fourteen children who have attended the school during its first year.

GOITRE IN THE HIGH ALPS.—Leon Jacques is of opinion that endemic goitre is an infectious disease, the germ of which is not yet isolated, but which exists in the water, soil, air and fruits of the infected area. The inhabitants are predisposed by certain secondary influences—poor water, vitiated air, unhealthy dwellings, poor food and, above all else as a determining cause, the influence of extreme temperatures, that is, excessive cold and heat acting alternately. Removal of these causes will nearly exterminate the disease; and the author demands the establishment of cisterns in the infected villages, the construction of roads and better homes, and the suppression of marriages between goitrous subjects. In its incipency goitre is best combated by iodine; at a more advanced stage it is amenable to surgical measures.—*Journal of the American Medical Association.*

"LES SONNETS DU DOCTEUR."—Noir, in *Le Progrès Médical*, gives the following extract from "Les Sonnets du Docteur," by Camuset, descriptive of the self-congratulatory feelings of an aged physician on returning from a visit to the labyrinths of the Marquis de Rambateau.

Moi, j'en sors souriant, car j'eus des mœurs austères.
Mes organes sont purs comme ceux des agneaux.
L'âge les rend peut-être un peu moins génitaux,
Mais ils sont demeurés largement urinaires.

THE POWER OF IMAGINATION.—A man was recently admitted to the Bootle Hospital suffering from all the symptoms of opium-poisoning, and he confessed to having swallowed three-pennyworth of the drug. On inquiry, however, from the chemist who was stated to have supplied the laudanum, it transpired that the chemist, being suspicious of the intention of the customer, did not supply him with the laudanum undiluted, but with a mixture of twenty drops in a small quantity of colored water. The victim naturally recovered, but not till he had undergone the agonies, physical and mental, of opium-poisoning.

RESULTS OF THE TREATMENT OF CANCER BY STREPTOCOCCUS TOXINES.—In *La Médecine Moderne*, June 1, 1895, are given some rather discouraging reports on the treatment of cancer by this method. Bruns announces that in six cases of cancer he has seen no improvement under this treatment; and Petersen remarks with regard to the six cases reported by Emmerich and Scholl, it is only necessary to read their accounts of the cases to see that they are as little "cured" as possible. Angerer has just given the medical society of Munich a further report on one of the cases treated by Emmerich in his service. The woman in question died of cancerous cachexia at her home just one month before the publication of Emmerich and Scholl's memoir, in which she was presented as a permanent, or at least temporary, cure. The cure seems to have been temporary in the extreme sense of the word.

A CASE OF HYPERTYREXIA.—Alfred Stanley in the *British Medical Journal* of May 25th, reports a case of pleurisy and pneumonia, in which the temperature twice reached the extraordinary level of 114°. How much higher it may have gone is not known, as the writer states that the thermometer was marked as high as 110°, but that there was space for four degrees above this mark, and the mercury filled that space to the top. This reading was checked by two other thermometers, which registered the same. During these extraordinary excursions of temperature, which only lasted from two to four hours, the pulse remained between 84 and 96, and there was no pain nor delirium, but the patient complained of loss of sensation in the hands and feet. The case recovered, and the doctor had his thermometer tested at Kew Observatory, and found it practically correct.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, June 26, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 88, scarlet fever 23, measles 88, typhoid fever 15.

ACADEMIC HONORS TO PROFESSOR PARK AND PROFESSOR DOCK.—Harvard College has conferred the A.M. degree *honoris causa* upon Prof. Roswell Park, M.D., of Buffalo, N. Y., and upon Prof. George Dock, M.D., of Ann Arbor, Mich.

MEDICAL REGISTRATION.—As a result of the examination held by the Massachusetts Board of Registration in Medicine on June 4th, twenty of the twenty-eight applicants examined were accepted.

THE HARVARD DENTAL ALUMNI ASSOCIATION.—The annual reunion and dinner of the Harvard Dental Alumni Association was held at the Hotel Thorndike last Monday evening. Dr. D. M. Clapp presided, and the speakers were M. C. Ayres, editor of the *Advertiser*, Rev. A. E. Winship, editor of the *Journal of Education*, Hon. C. F. Adams, Hon. Sherman Hoar, Prof. V. B. Loring, Dr. W. M. Conant and others. Professor Fillebrown of the Dental School gave some information of interest concerning the school, referring to the fact that the faculty has just raised the standard of the institution by stiffening the requirements for entrance, proficiency in either Latin or French being henceforth obligatory. Recent improvements in material facilities at the school, have perhaps, said the speaker, postponed the erection of the expected new building. A letter was read from Dr. C. A. Brackett, of Newport, expressive of the sympathy felt by the members of the Association for Dr. T. H. Chandler, who has been connected with the Harvard Dental School almost from its inception. Dean Chandler has been quite ill for a considerable time. At the business meeting Dr. Potter read a report concerning the Dental School, which stated the building fund to be in good condition. These officers were elected: President, James Shephard; Vice-

President, Frank Perrin; Secretary, W. S. Boardman; Treasurer, W. E. Page; Executive Committee, W. E. Boardman, W. P. Cooke, D. W. Moriarty.

TRUSTEES OF THE MASSACHUSETTS HOSPITAL FOR EPILEPTICS.—Governor Greenhalge has appointed as trustees of the Massachusetts Hospital for Epileptics: Dr. William N. Bullard, of Boston, five years; Mabel W. Stedman, Boston, four years; Charles A. Clough, Boston, four years; Dr. Albert C. Getchell, Worcester, three years; Adelaide A. Calkins, Springfield, two years; Dr. Roswell B. Benner, Lowell, two years; Francis L. Higginson, Boston, one year.

OFFICERS OF THE NEW HAMPSHIRE MEDICAL SOCIETY.—At the Annual Meeting of the New Hampshire Medical Society at Concord, N. H., on June 4th, the following officers were elected for the ensuing year: President, E. F. McQuesten, Nashua. Vice-President, A. P. Richardson, Walpole. Treasurer, M. H. Felt, Hillsboro Bridge. Secretary, Granville P. Conn, Concord. Executive Committee, Charles R. Walker, Concord; George D. Towne, Manchester; F. A. Stillings, Concord; W. T. Smith, Hanover; F. E. Kittredge, Nashua. Officers of the Board to Issue Licenses: President D. C. Adams, Manchester; Secretary, T. Hiland, Concord; Associate, J. W. Parsons, Portsmouth. Delegates to the various societies were also elected. After the adjournment the anniversary dinner was served at the new Eagle Hotel.

NEW YORK.

COMMENCEMENT AT THE COLLEGE OF PHYSICIANS AND SURGEONS.—The commencement of the College of Physicians and Surgeons was held, in connection with that of Columbia University, at Carnegie Hall on the evening of June 12th. A class of 192 was graduated, and before the candidates received their diplomas the Hippocratic oath was administered to them by Prof. John G. Curtis. Among the degrees conferred by the University was that of LL.D. upon Thomas Messenger Brown, M.D., President-elect of Lehigh University. The Cartwright biennial prize of \$500, for the best medical essay submitted, was awarded to Dr. James Ewing, whose subject was anti-toxin treatment.

SUCCESSFUL TREATMENT OF A BROKEN NECK.—A lady whose neck was recently broken by a fall from a hammock, and whose case was treated by Drs. Reginald Sayre and H. W. Frauenthal, is reported as doing well and in a fair way of recovery.

CHANGES IN THE STAFF OF THE HARLEM HOSPITAL.—The Commissioners of Charities and Correction have removed the entire medical board of Harlem Hospital, owing to certain complaints as to neglect of patients and other changes, and decided to appoint a new board of eight physicians and surgeons. The selection of this new visiting staff is to be made by the governing faculties of the College of Physicians and Surgeons, the Medical Department of

the University of the City of New York, and Bellevue Hospital Medical College. Considerable dissatisfaction with this arrangement is expressed by medical men not connected with either of the three schools named, and especially by those interested in the Polytechnic and Post-Graduate Schools.

VETO OF THE BILL FOR THE TRANSFER OF THE DEPENDENT INSANE.—Governor Morton has finally decided not to approve the Conkling bill, providing for the transfer of the New York City dependent insane to the care of the State, which was returned to the governor by Mayor Strong without taking action thereon. The governor filed a memorandum on the bill giving his reasons for the decision, in which he discusses at length his power under the new Constitution when a bill has been rejected or approved by the mayor. In conclusion, he says: "I deeply regret the condition produced by the failure of the mayor to approve this bill, but I cannot, in a conscientious performance of my constitutional duty, add to the unfortunate result of the mayor's want of action, a plain violation of the Constitution." Much influence was brought to bear upon Governor Morton to induce him to sign this bill, especially by the State Commission in Lunacy, who urged that the measure was in accordance with the will and desire of the people, in both State and County, as expressed by a unanimous vote in both Houses of the Legislature. The unsatisfactory and over-crowded condition of the insane asylums under city management was also dwelt upon with much emphasis.

A BILL FOR THE STUDY OF THE EFFECTS OF ALCOHOL AND NARCOTICS.—The governor has signed the Ainsworth bill providing for a broader study of the nature and effects of alcoholic drinks and narcotics in connection with physiology and hygiene in the public schools. With the bill he filed the following memorandum: "The fact that the Legislatures of forty-one States, including our own, and the Congress of the United States, have already passed laws providing for instruction in the subjects indicated in this bill, shows that it is supported by a widespread public sentiment; and inasmuch as this bill seeks to simplify and reduce to a more systematic method the study of the effects of alcoholic drinks and narcotics upon the human system, without necessarily decreasing the amount of study required by the present law, I think it should receive executive approval."

A RECOVERY FROM A TREMENDOUS ELECTRICAL SHOCK.—On June 21st the foreman of the Rochester gas and electricity was accidentally exposed for some seconds to an electric current said to have been of a strength of 2,899 volts. Life was apparently destroyed by the shock, but efforts at resuscitation were at once commenced, and after 45 minutes' employment of artificial respiration and other measures the first sign of life was noticed. Then natural breathing began and in half an hour more he opened his eyes and recognized those about him. His body was considerably

burned, but otherwise the patient is now said to be quite well.

BEQUESTS TO ST. LUKE'S HOSPITAL.—By the will of the late Rufus Waterhouse the bulk of his estate, amounting to about \$200,000, is left to St. Luke's Hospital for the purpose of establishing and maintaining the "Mary S. Waterhouse Memorial Ward" for consumptive sewing women or consumptives dependent upon sewing women. Mr. Waterhouse was a large manufacturer of men's furnishing goods. His wife, whose name the ward will bear, died of phthisis, and he saw many of the young women whom he employed stricken with the disease and unable to support themselves. He died a widower and childless. The will of Percy H. Pyne, who died at Rome, Italy, on February 11th, also leaves \$20,000 to St. Luke's Hospital.

DEATH OF DR. SALTONSTALL.—Dr. Gilbert Saltonstall, Health Inspector of Jersey City, died suddenly at his home in that city on June 15th. He was sixty-six years of age, and had served as Health Inspector since 1880.

DEATH OF DR. MEEKS.—Dr. Meeks, of Stamford, Conn., died recently at the Presbyterian Hospital, of typhoid fever. Since April 21st there have been considerably over four hundred cases and about thirty deaths from the outbreak of typhoid in Stamford which was traced to a contaminated well on a milkman's premises. A full account of the epidemic was given in the JOURNAL of May 9th.

Miscellany.

A NOVEL FORM OF OBSTACLE RACE.¹

SOME years ago a favorite comic song at suburban evening parties recorded the adventures of a man with a "cork leg," which, if we remember right, ran away with its owner. If races of the kind which recently took place at Nogent-sur-Marne become fashionable, a modern Pindar will be required to celebrate the swiftness of wooden legs. The "events" were arranged for runners who had had the lower limb amputated above the knee (*cuissards*), and for those who had lost a leg below the knee (*jambards*). The distance in each case was 200 metres. In the final heat for the "grand championship" the prize among the "thigh-ers" fell to M. Roulin, who did the distance in excellent style in 30 seconds. Among the "leggers" the victor was M. Florant, who travelled over the same course in 36 seconds. It is worthy of note that the "thigh-ers" on the whole, showed better form than the "leggers," two others — MM. Blangy and Jhienne — having in earlier heats done their 200 metres in 30 and 33 seconds respectively, while the fastest time among the "leggers" was 36. The longest time among runners who were "placed" was 55 seconds. Several of the runners were over fifty years of age. The champion, Roulin, who belongs to Orleans, is thirty years of age, and lost his leg as the result of an accident when he was

twenty-two. This interesting athletic contest may possibly lead to boxing matches for men who have lost an arm, but it is hoped that we shall be spared a singing competition among persons with artificial larynxes.

OBITUARY.

HENRY WILLARD WILLIAMS, A.M., M.D.

IN speaking of Dr. Henry W. Williams we shall confine ourselves to his professional career. It is just to do so; for he, more than others, has impressed his strong personality on his medical brethren, as he lived and worked largely for them. He was, all in all, a doctor first, and other things afterwards.

Of large stature and strong character, he was a conspicuous figure on all medical occasions. He was familiar to all as a frequent and forcible, but persuasive speaker; and an excellent presiding officer.

He always had the welfare of the Massachusetts Medical Society at heart.

Conservative to a fault, he yet was kindly and thoughtful of his medical brothers. He was one of the founders of the Massachusetts Medical Benevolent Society, and long its president.

His own life was a marked instance of success achieved by untiring patience, punctuality and conscientious discharge of public duty, as well as by much ability as a hospital surgeon and teacher. Three times a week, for twenty-six years, his carriage entered the hospital gate at nine o'clock, every morning; and he devoted two or three hours to a laborious eye clinic.

Unlike some specialists, he broadened his mind by being first a general practitioner.

The writer recalls well the evenings in his little office in Essex Street, where eye cases were gathered in from a poor neighborhood, to instruct a small class of medical students. So, too, one remembers toiling with him and with his able colleague, Dr. Charles E. Buckingham, at the sparsely attended clinics of the City Hospital in its early days, when the labor was great and the reward small.

As an operator on the eye, few equalled him. He was ambidexterous: and to see him extract a double cataract, first with the right hand and then with the left, with equal precision and grace, was a surgical *coup* never to be forgotten.

He did not grow old, but retained his enthusiasm to a remarkable degree; and in middle age he went abroad to master the ophthalmoscope, and the application of the laws of optics to astigmatism.

He was a consistent and steady opponent of the admission of women to the medical profession. But he was as sturdy and honest in suppressing quackery, as in favoring his weaker medical brothers with professional advice and with substantial aid.

Occupying with success a chair of ophthalmology in the Harvard Medical School, he marked his appreciation of its worth, by endowing it from his private earnings.

His mind was virile, set, consistent, naturally meeting with and contending with opposition.

He left his mark on his times and on our community.

And to how few is it permitted, in the course of Nature, to live to see six sons grown up, three of them in one's own profession, and to have one's remains borne to the funeral altar on their shoulders!

D. W. C.

Ophthalmic Surgeon, Boston City Hospital, 1864 to 1891.

Professor of Ophthalmology, Harvard Medical School, 1868 to 1890.

Honorary Master of Arts, 1868.

Honorary Member Phi Beta Kappa, 1871.

Boylston Prize Essayist, 1868.

Founder Massachusetts Medical Benevolent Society, 1869.

President Massachusetts Medical Society, 1880 to 1882.

President and Founder of the American Ophthalmological Society.

Fellow of the American Academy of Arts and Sciences.

Author of numerous monographs, and of two distinct treatises on the eye.

¹ British Medical Journal.

Correspondence.

MASSACHUSETTS REGISTRATION REPORT.

SPRINGFIELD, MASS., June, 1895.

MR. EDITOR:—Having been engaged in preparing a paper upon certain phases of the divorce question for a club in this city, I was referred to the Massachusetts Registration Report for certain information which I desired. I find, however, on consulting the last report for 1893, that it is extremely untrustworthy, so far as any correct information can be had. I desired to know how long divorced people live together before obtaining divorce, and find a table on page 132 which pretends to answer this question; but the compiler has in this table contented himself with a defective method of dividing the sum of five averages by five to obtain a five-year mean, without noticing that the factors from which his averages are obtained are not uniform, hence the footing of each of his ten columns is incorrect, and this vitiates most of the figures on the following page. For example, 9.19 should read 9.93; 10.96 should read 10.34; 7.03 should read 6.87, etc. These figures may be verified by consulting the reports of the previous years.

On turning to other pages I find that a similar defective method has been employed in other instances; and what makes the matter worse is the fact that the compiler states in a somewhat boasting manner, for a public document, that these figures "have been made with the greatest care, and that they have been reviewed by an able and experienced statistician wholly familiar with vital statistics."

On examining this report more carefully, and comparing it with some early reports previous to 1860 which I obtained at a second-hand bookstore, I find it to be utterly defective and untrustworthy, and as compared with the excellent work of those worthy men, Dr. A. Gould, Mr. Shattuck and others which made our State a shining example in this respect, this report shows a lamentable falling off.

Now a careful examination of one or two of these reports shows that they are the result of the compilation of the work, mainly of the physicians and clergy of the State, who make their returns directly to the city and town authorities, and these authorities in turn send them to the Secretary of State. It certainly is an injustice to these gentlemen that their work is not fairly represented.

If there is any reason why the official who has this work in charge should thus depreciate its value, it is time that his reason should be known. I asked one of the local physicians about the matter, and he informed me that, for the past few years the entire medical profession has given up all confidence in this report, in consequence of its inaccuracy and its disregard of the general opinion of the profession, which demands better and more useful work. On asking him whether any paper or journal had taken special interest in this matter, he kindly referred me to your journal, and hence this letter.

Yours very truly,
SPRINGFIELD PARSON.

BICYCLE SADDLES.

BALTIMORE, 11 MT. VERNON PLACE,
June 22, 1895.

MR. EDITOR:—I have found an unusually long saddle, with but little dip to the seat and almost no elevation of the anterior projection which meets in some instances the objection urged by Dr. Chadwick. It is also in my opinion the safest saddle for men.

Such an one was formerly manufactured and known as the "Sager Saddle"; but is now, I believe, out of style, and can only be procured second-hand.

By proper tilting, a most secure seat is obtained directly upon the tuberosities of the ischia, without noticeable pressure anteriorly.

Yours, etc., H. B. J.

METEOROLOGICAL RECORD.

For the week ending June 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S... 9	30.24	59	66	52	58	78	68	E.	S.E.	8	5	C.	C.
M... 10	30.21	66	77	54	56	75	66	S.	S.W.	7	11	C.	C.
T... 11	30.22	76	88	63	83	72	77	S.W.	S.W.	7	12	F.	C.
W... 12	30.08	64	86	63	73	82	78	S.W.	S.W.	12	14	C.	C.
T... 13	29.84	74	81	68	72	79	76	S.W.	S.W.	11	11	F.	F.
F... 14	29.76	76	86	66	70	45	58	W.	W.	12	9	C.	C.
S... 15	30.04	70	75	64	53	59	56	N.E.	S.	19	6	C.	O.

* O., cloudy; C., clear; F., fair; Q., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 15, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	657	275	19.35	12.75	3.00	6.45	5.70	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	352	107	14.56	—	3.08	5.88	.84	
Brooklyn	1,043,000	300	113	14.10	11.70	2.70	5.70	3.60	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	200	54	14.00	13.50	.10	9.50	1.50	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	79	18	5.04	17.64	2.52	—	—	
Cincinnati	325,000	103	28	10.67	13.58	2.91	.97	5.82	
Cleveland	325,000	85	25	8.19	8.19	2.34	1.17	—	
Pittsburg	272,000	71	23	2.56	14.10	16.92	1.41	1.41	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	28	10	10.71	7.14	7.14	—	—	
Charleston	65,165	57	28	—	1.75	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	35	9	8.58	5.72	2.96	—	—	
Fall River	92,233	—	—	—	—	—	—	—	
Lowell	90,613	—	—	—	—	—	—	—	
Cambridge	79,607	15	5	26.66	6.66	6.66	—	—	
Lynn	65,123	12	2	8.33	16.66	8.33	—	—	
Springfield	50,284	12	6	25.00	—	8.33	—	—	
Lawrence	49,900	15	5	6.66	20.00	—	—	—	
New Bedford	47,741	13	8	6.79	6.79	—	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brockton	33,939	—	—	—	—	—	—	—	
Salem	33,155	10	2	10.00	—	—	—	—	
Haverhill	32,925	10	4	30.00	10.00	—	10.00	—	
Malden	30,209	8	3	—	37.50	—	—	—	
Chelsea	29,806	—	—	—	—	—	—	—	
Fitchburg	29,383	3	0	—	—	—	—	—	
Newton	28,837	—	—	—	—	—	—	—	
Gloucester	27,293	8	3	12.50	12.50	—	12.50	—	
Taunton	26,564	6	1	—	33.33	—	—	—	
Waltham	22,058	3	1	—	—	—	—	—	
Quincy	19,642	8	3	—	—	—	—	—	
Pittsfield	18,802	9	2	11.11	—	—	—	—	
Everett	16,585	3	0	—	66.66	—	—	—	
Northampton	16,331	1	0	—	—	—	—	—	
Newburyport	14,075	—	—	—	—	—	—	—	
Amesbury	10,920	3	0	—	33.33	—	—	—	

Deaths reported 2,157; under five years of age 750; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 321, acute lung diseases 200, consumption 321, diphtheria and croup 109, diarrheal diseases 69, measles 63, scarlet fever 20, whooping-cough 21, typhoid fever 26, cerebro-spinal meningitis 6, erysipelas 3.

From typhoid fever Philadelphia 11, New York 5, Boston, and Washington 2 each. Brooklyn, Cleveland, Providence, Worcester, Cambridge and New Bedford 1 each. From whooping-cough New York 9, Brooklyn 4, Philadelphia 3, Boston, Cincinnati, Cleveland, Cambridge and Haverhill 1 each. From scarlet fever New York 8, Boston 3, Cleveland 2, Philadelphia, Brooklyn, Providence, Cambridge, Salem, Haverhill and Everett 1 each. From cerebro-spinal meningitis New York 3, Bos-

ton, Cleveland and Worcester 1 each. From erysipelas New York 2, Philadelphia and Pittsburg 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending June 1st, the death-rate was 17.2. Deaths reported 3,492; acute diseases of the respiratory organs (London) 194, whooping-cough 82, measles 91, diphtheria 69, diarrhea 41, fever 34, scarlet fever 30.

The death-rates ranged from 9.9 in Derby to 28.0 Wolverhampton, Birmingham 17.4, Bolton 21.4, Brighton 20.1, Cardiff 11.4, Croyden 13.6, Hull 12.3, Leeds 17.5, Leicester 13.7, Liverpool 27.6, London 15.5, Manchester 23.8, Newcastle-on-Tyne 17.9, Nottingham 16.8, Plymouth 21.1, Salford 18.3, Sheffield 19.2, West Ham 14.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 15, 1895, TO JUNE 21, 1895.

Leave of absence for two months and twenty-three days to take effect on or about July 6, 1895, is granted FIRST LIEUTENANT WILLIAM F. LEWIS, assistant surgeon.

The leave of absence on surgeon's certificate of disability granted CAPTAIN JAMES E. PILCHER, assistant surgeon, is extended four months, on surgeon's certificate of disability, and permission is given him to go beyond sea.

CAPTAIN GEORGE MCCREERY, assistant surgeon, will be relieved from duty at Fort D. A. Russell, Wyoming, and will report in person to the Commanding Officer, Fort Niobrara, Nebraska, for duty at that post.

Leave of absence for three months, to take effect when he shall be relieved from his present duties, on or about June 30, 1895, is granted CAPTAIN CHARLES RICHARD, assistant surgeon.

Leave of absence for two (2) months, to take effect the latter part of August, 1895, is granted CAPTAIN MARLBOROUGH C. WYETH, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 22, 1895.

A. A. HOEHLING, medical director, placed on retired list.

G. W. WOODS, medical inspector, ordered for examination preliminary to promotion to medical director.

G. F. WINSLOW and R. A. MARMION, surgeons, ordered for examination preliminary to promotion to medical inspector.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JUNE 15, 1895.

GEORGE PURVIANCE, surgeon, relieved from duty at Philadelphia, Pa. (temporarily) and detailed for duty on Board relating to Ford's Theatre disaster, June 8, 1895.

W. A. WHEELER, surgeon, detailed as Chairman Board for physical examination candidates Revenue Cutter Service, June 1, 1895.

S. D. BROOKS, passed assistant surgeon, granted leave of absence for twenty-one days, June 14, 1895.

J. H. WHITE, passed assistant surgeon, detailed Recorder Board for physical examination candidates Revenue Cutter Service, June 1, 1895.

W. J. PETTUS, passed assistant surgeon, granted leave of absence for thirty days, June 6, 1895.

L. E. COFER, assistant surgeon, to inspect unserviceable property at San Diego Quarantine Station, June 12, 1895.

H. S. CUMMING, assistant surgeon, relieved from temporary duty at Boston, Mass., and ordered to rejoin his station at New York, N. Y., June 3, 1895.

THE THIRD INTERNATIONAL CONGRESS OF PHYSIOLOGISTS.

The Third International Congress of Physiologists will be held in September, 1895, from the 10th to the 14th of the month, at Bern, Switzerland. Professor Kronecker, Director of the Physiological Institute of the University of Bern, has kindly expressed his readiness to afford to Members of the Congress all facilities for demonstration and experiment, as well as for the exhibition of scientific apparatus. It is particularly desirable that those intending to avail themselves of Professor Kronecker's assistance should let him know what their requirements are not later than June 30th.

In connection with the Congress, an Exhibition of Physiological Apparatus will be held. Exhibits may be contributed by

all Members of the Congress, by the Directors of Physiological Laboratories, and by makers recommended by any Member of the Congress, or by the Director of a Physiological Laboratory. The exhibition of apparatus will open two days before the Congress, and will close two days after the Congress.

Those intending to be present and to make communications are requested to notify Professor Kronecker, of Bern, or the Secretary for the English Language, before August 1st, giving, if possible, the title of their communications.

Each member of the Congress is required to contribute the sum of ten francs toward defraying the expenses of the Meetings; he will obtain in receipt from the President, Professor Kronecker, a card of membership of the Congress.

C. S. SHERINGTON,
General Secretary for the English Language.

APPOINTMENT.

Dr. EDWIN W. DWIGHT has been appointed by Governor Greenhalge, Assistant to the Commissioners of Public Institutions.

BOOKS AND PAMPHLETS RECEIVED.

Anti-Choleraic Inoculations in India. By W. M. Haffkine. Reprint. 1895.

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Text Book of Diseases of the Kidney and Urinary Organs by Professor Dr. Paul Fürbringer, director of the Friedrichshain Hospital, Berlin; Royal Medical Councillor and Member of the Royal Medical Council of the Province of Brandenburg; Member of the Imperial Leopold-Caroline Academy ("Leopoldina"); Translated from the German, with Annotations by W. H. Gilbert, M.D., Physician in Baden-Baden; Member of the Congress for Innere Medecin, etc., with commendatory letter from Sir Thomas Grainger Stewart, M.D., F.R.S.E., Physician in ordinary to H. M. the Queen for Scotland; Professor of Practice of Physic and of Clinical Medicine in the University of Edinburgh; etc. Vol. I. London: H. K. Lewis & Co. 1895.

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Original Articles.

THE TREATMENT OF ELBOW-JOINT FRACTURES IN THE POSITION OF ACUTE FLEXION, WITHOUT SPLINTS; WITH REPORT OF CASES.¹

BY H. L. SMITH, M.D.,
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THE treatment of elbow-joint injuries with the forearm in acute flexion is not new. For the most part, this position has been employed hitherto in sporadic cases to meet special conditions. The most common reason for such treatment is the fact that by this means it is possible to prevent a fragment of bone, or the loosened head of the radius, from slipping into the angle in front of the point, where it would prevent full flexion.

A few surgeons have preferred to put up all fractures of the lower end of the humerus at a point within the right angle. Mr. Thomas, of Liverpool, treated all such cases without splints, simply fastening the hand well up to the neck by means of a halter attached to the wrist; and it appears from a recent discussion on the subject, reported in the *British Medical Journal*, that his successor, Mr. Robert Jones, continues the practice. Professor Markoe, of New York, is reported by Hamilton as advocating flexion to a few degrees less than a right angle, and Dr. Dulles, of Philadelphia, has been led, on purely theoretical grounds, to suggest the same treatment. So far as the writer has been able to learn these surgeons stand alone in this practice.

It may be said at once that acute flexion at the elbow-joint, as employed or advocated hitherto, except perhaps in the case of Dr. Dulles, is entirely different in principle and degree, from that upon which this paper is based.

From a series of experimental fractures of the elbow-joint, undertaken for the purpose of finding at what angle the fragments could best be held in position, and reported in January, 1894, the writer became fully convinced, although in the beginning no such conclusions had been anticipated, that if it were possible, with safety to the patient, to hold the forearm at a point of full, almost forced, flexion, the fragments, once brought into correct position, would remain fixed. More than this, it appeared that the variety of fracture, the direction of the lines of cleavage, and the degree of comminution seemed not to make the slightest difference in the result.

It was almost incredible that so sweeping a statement would prove rigidly true, and the fact was accepted only after the ground had been gone over again and again, and with constant results. So far as any purely experimental work could be said to prove anything, the conclusion seemed justified that after fractures of either condyle, of whatsoever magnitude, after transverse fractures, including epiphyseal separations, after T-fractures, or other comminuted fractures, if the fragments are once replaced, and the forearm completely flexed, no mobility can be detected and it is almost an impossibility to reproduce the deformity. In no other position of the forearm is this true, even to a small degree. As long as the coronoid process remains intact, and either the triceps tendon or the

posterior ligament retains its connection with the olecranon process, the locking has always proved solid.

It will thus be seen at once that the term "acute flexion," as used in this paper, means something entirely different from the same expression as employed in the past. It contemplates a flexion of the forearm carried to its limit and applied to every variety of fracture involving the joint region, save only that of the olecranon process.

Can this extreme flexion be employed with safety in a limb whose soft parts are severely lacerated, and the seat of extravasation and effusion, more especially as in addition, there is involved a joint whose capsule speedily becomes distended? And even if the arm itself be not imperilled, can such a tense position be tolerated by the patient?

The cases first treated were watched with great care and some misgiving but no untoward symptom developed, and so far as the writer knows nothing has occurred in any subsequent case to require a change of treatment, either from embarrassment of the circulation or discomfort caused the patient.

A sufficient reason for this immunity appears at once when we consider that in an arm having an average amount of fatty tissue it is found impossible to flex the forearm far enough to stop the radial pulse, the coronoid process bringing up against the humerus when the forearm makes with the upper arm an angle of about 35°, thus giving ample space for the vessels to change their direction without being too sharply bent on themselves or compressed by the soft parts. Unless, then, there are bony fragments so displaced as to press directly upon the vessels, the danger of strangulation is slight, since the extravasated blood and serum is quickly driven from the tissues by the pressure.

The appearance of an elbow that has been treated in acute flexion for several days is instructive. The smooth tense swelling, by this time much pigmented, is present on the posterior and lateral aspects of the joint, whereas, if the forearm be slightly extended, so as to expose the anterior surface, one sees almost no trace of swelling or discoloration, both these ending in a sharply defined line, on each side, at the point where pressure began. One would say that a similar pressure on every part of the joint, if such were possible, would be of material aid in hastening repair.

From the foregoing considerations, therefore, as well as from the collected experience of cases successfully treated during the past two years, it would appear that acute flexion of the elbow can be employed with safety. Is it irksome to the patient? During the first twenty-four hours there is some discomfort, but what proportion of this is a necessary part of the injury or would follow the application of any sort of restraint whatever, and what part is to be attributed to the acuteness of position it is not easy to say. In no case, however, have I known it to be so great as to call for a change of position. Of downright pain, or even of prolonged discomfort, there need be none. In fact it is generally sufficient to make rather moderate pressure, in a fresh accident, and to increase the flexion as the swelling disappears. Indeed, but for the desirability of making the reduction under anesthesia, at the time the examination and diagnosis is made, it would seem good practice to leave the arm without dressing of any kind for several days, during which interrupted bandaging might be applied, and to bring

¹ Read before the Surgical Section of the Suffolk District Medical Society, April 3, 1895.

the parts into position and hold them by flexing the arm only when the swelling had partially disappeared. In looking over the records at the Boston City Hospital, I have learned of a method employed by Dr. Post which seems a happy solution of this difficulty. The patient is not etherized immediately on entrance, but after a careful examination, some temporary dressing is applied, usually with the elbow at a right angle. At the end of from three to six days ether is given, the diagnosis confirmed or corrected, as can now be done with much greater ease and certainty, the fragments carefully molded into place, and the permanent treatment, with acute flexion, entered upon.

In reporting the experiments alluded to above a few cases were given to show the safety of the method. Since that time the plan has been employed in the practice of several surgeons, and the cases at the City Hospital now number in all more than thirty. Of these I have been able to find and take careful measurements of twenty. So far as can be learned from the records all the remaining cases were equally satisfactory.

In studying the results obtained two elements demand consideration. Perfect repair supposes not only restoration of function but restoration of form, that is, total absence of deformity. While deformity is often associated with loss of function it is not necessarily so. For practical purposes we may consider the function of the elbow to be identical with its mobility. A perfect result, then, so far as usefulness is concerned, would be the restoration of normal flexion and extension. But uninjured arms often vary not a little in the arc of motion at the elbow, and yet one is as useful as the other. The degree of stiffness which can exist without crippling its possessor is quite remarkable. From a series of seventy-five fractured elbows, recently studied, it was concluded that a motion of from ten to twenty degrees on each side of the right angle would yield an arm so useful that the wage-earning power of the average individual need hardly be diminished a particle. It is only in certain special kinds of skilled labor that more motion is required.

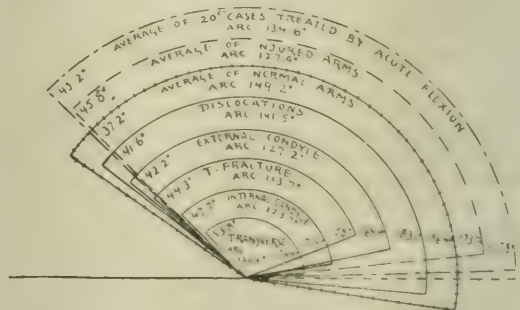
On the question of deformity much has been written during the past few years, especially in this country. Most attention has been given the so-called "gun-stock" arm, sometimes called cubitus varus, and caused by a reversal of the usual humero-ulnar angle.

The weight that has been attached to this subject, and the influence it has had upon methods of treatment is quite surprising. With little or no study of the size of this angle as met with in normal arms, or of its utility and the importance, therefore, of preserving it, the "gun-stock" deformity having been considered to be due to the ordinary methods of dressing the injuries under discussion, not a few surgeons have been led, on this ground alone, it would seem, to employ and advocate a method of treatment which places the forearm, during the first weeks of repair, in the position of full extension. The explanation of the mechanism of this deformity has thus far been largely a matter of theory, and it is the belief of the writer that the views usually held hitherto will not bear close inspection. In a paper soon to be published, this matter will be spoken of more at length, and it need only be said here that the importance of preserving the so-called carrying-angle, has, in the opinion of the writer, been very much exaggerated. If there were other reasons for employing the position of extension they would call for careful

consideration before being disregarded, but when, as is the fact, that position is deliberately chosen merely because it allows the humero-ulnar angle to be made equal to that of the other arm, we are justified in concluding that the loss of this angle must be considered a very serious matter, since, to preserve it we are advised to run the risk of an arm permanently extended.

Let us see what conclusions are reached from a study of the angle in normal individuals. As a matter of fact the arms are almost never alike in this respect, the difference in the angle on the two sides being sometimes as much as 10 or 15 degrees. In different people the greatest variation is found, the size of the angle varying from -5° to $+30^{\circ}$, and curiously enough, the owners of the arms with little or no angle or even with one reversed never know the lack. Moreover, the reversed angle that follows injury does not cripple the individual, usually, in any of the wage-earning functions. In so far as the reversed angle indicates that the fragments are not in exact position it is worth consideration, for it may lead to a greater care in treatment, but neither from the standpoint of deformity or disability can it alone serve as a sufficient reason for a complete change of treatment.²

The twenty cases of this series will not be given in detail, but the results tabulated and the averages compared with those obtained from the series of seventy-five already alluded to, and, in some particulars, with the averages found in normal arms. For convenience the present series will be called Series A; that of the 75 cases Series B; and the normal cases Series C. The method of taking averages is not entirely satisfactory, but is far superior to mere general statements.



VARIETIES.—Ten of these cases were fractures of the external condyle, while there were only three of the internal condyle. Two were transverse fractures, and five T-fractures. There were thus seven cases of the severe type, from which it appears, as shown previously by a study of Series B, that almost all cases of gun-stock deformity arise. In that series the transverse and T-fractures made 40° of the whole. Here we have them in a proportion of 35 per cent., so that a comparison in respect to the angle will be fair.

AGE.—The average age in all cases is nine years; in Series B it was eleven years. It was considered as probably more than mere chance that the average age of those whose external condyle was broken, in Class

² In making this statement the writer does not wish to underrate the importance of avoiding, by every proper means, not only this but every other deformity. In fact, as will appear in the discussion of results, one of the strong reasons for the adoption of acute flexion is the fact that when it is employed in the manner here advised there is almost no tendency whatever toward the formation of the reversed angle. It would not be considered proper, however, to urge a change from ordinary methods to acute flexion if that preservation of the angle were its sole merit.

B, was only about half that of those having fractures of the internal condyle, the figures being eight and fifteen years respectively. It is worth noting that in the present series the same difference is noted, the figures being 5.6 years and 14.6 years. It was then suggested, in view of the fact that the elbow angle is known to increase as a child grows, at least in some cases, that the impact which causes the fracture may be directed, in the younger child, more exactly in the line of the arm, and thus cause fracture of the external condyle, or, if greater damage is done, a T-fracture, while in the older one, the angle being greater, the force is directed farther inward toward the internal condyle.

EXTENSION.—Eight, or 40 per cent., gained an extension equal to or greater than that of the other arm; in Class B this was 46 per cent. The average amount of increase, however, was greater in Series A (8.7° as compared with 8.2°). The real test as to motion restored is found in the average number of degrees of extension lost. In Series A it is 8.2° ; in Series B, 12.7° . We have made, then, a clear gain of 4.5° in this particular.

FLEXION.—Nine cases, or 45 per cent., lost nothing in flexion. In Series B it was 40 per cent. Just 50 per cent in Series A and 46.6 per cent. in Series B had flexion as good or better than before. The total average loss in flexion in this series is 6° , while in Series B it was 8.6° .

To illustrate more clearly: The average normal arc of motion in the arm lies between 37° and 186° . In the 75 cases of Series B this arc was cut off 12.7° in extension and 8.6° in flexion, thus decreasing the arc by 21° . In the present series this figure is 14° , instead of 21° —but two-thirds as much. This gain in arc of motion is well shown in the diagram.

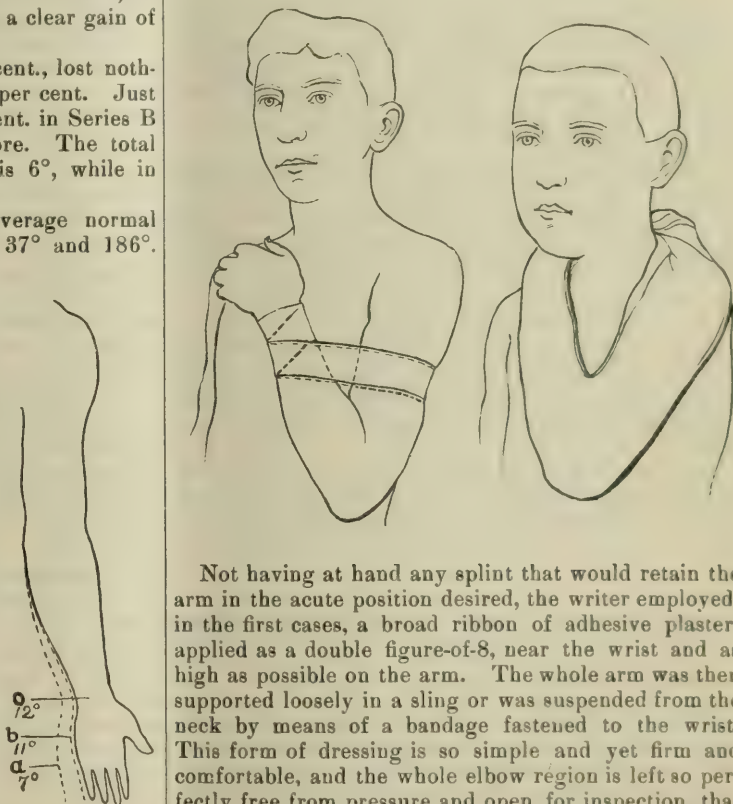
CARRYING ANGLE.—Series A, unchanged 40 per cent., Series B, 10 per cent. The diminution in angle is the most important item, as it is this which causes the internal angle. In this series of cases treated by acute flexion only 30 per cent. show any decrease, whereas in Series B there are 70.6 per cent. The average tendency, in all cases, toward the formation of an internal angle is, in Series A 0.8° , while in the former series it was 7° . That is, there is nine times as great a tendency to the formation of an internal angle after the ordinary methods of treatment as after treatment by acute flexion.

But it has already been intimated that the two arms on the same side rarely correspond in angle. In fifty cases (Series C) it was found that the tendency of one arm over its fellow to form an internal angle is just 1° . It would thus appear that the acute position, which gave a corresponding figure of 0.8° , prevents all tendency in the fragments to slip in such a way as to bring about the internal angle.

THICKNESS.—Several series of measurements were taken about the joints, but the only one that need be given, since it may be taken in general as an index of the bony changes, is that of the distance between the

condyles. In normal cases this distance is not the same on the two sides of the body, the average difference in the 50 cases of Series C being 3.1 millimetres. In Series B the average increase is 5.5 millimetres; in Series A it is 4 millimetres.

Two or three cases, especially of T-fractures, have shown considerable thickening. It has usually been found that these were put up by simply flexing the arm, with no special effort to mold the fragments into place. Obviously this precaution is called for in all cases where there is opportunity for blood and serum to separate fragments. It appeared, from the experiments, that the best reposition was gained if, while the arm was being flexed, the internal condyle was pushed forcibly downward and backward and the joint compressed laterally. The latter manœuvre also prevents that inward rotation of the lower fragment on its antero-posterior axis, in the case of the transverse fracture, which seems to be the real cause of the gun-stock deformity.



Not having at hand any splint that would retain the arm in the acute position desired, the writer employed, in the first cases, a broad ribbon of adhesive plaster, applied as a double figure-of-8, near the wrist and as high as possible on the arm. The whole arm was then supported loosely in a sling or was suspended from the neck by means of a bandage fastened to the wrist. This form of dressing is so simple and yet firm and comfortable, and the whole elbow region is left so perfectly free from pressure and open for inspection, that all more complicated forms of apparatus and splints which have been devised and given a trial from time to time have now been discarded in its favor. The very principle, deduced by the experimental fractures, upon which this treatment is based, renders any form of splint unnecessary and indeed an injury. As long as acute flexion is maintained, the fragments being in position, the interlocking bones act upon each other mutually as the very best form of splint, so that any apparatus which holds the forearm flexed fills every requirement. The comfort to the surgeon of being able to dispense with all apparatus hitherto used need only be hinted at.

An exceedingly neat and comfortable dressing, has been evoked in the service of Dr. A. Post in the

children's ward at the Boston City Hospital. A sleeve, made at the acute angle desired, is fitted to the arm, one side being stitched up after it is applied, the ends of the sleeve extending far enough to be tied behind the neck as a support. The results after its use have been entirely satisfactory.

No positive rule has been followed as to the length of time during which the acute flexion is maintained. Usually the forearm has been extended by degrees, beginning, according to the case, from the third to the fifth week, until it has reached a right angle, where it is allowed to rest in a sling. In some instances a right-angled splint has been worn for a week or more, but the writer has come more and more to believe that quite as good and rapid results are obtained if no motion whatever and no change in position is permitted for at least four and perhaps five or even six weeks. This is a question on which there is still the widest variance of opinion, and careful study of this point is urgently called for, since there seems no good reason why positive conclusions may not be reached.

To sum up briefly: From the evidence of experimental fractures, and results of clinical experience the writer believes the following propositions justified.

- (1) All fractures of the lower end of the humerus, once in position, are held in place if the forearm is kept acutely flexed.
- (2) Such flexion can be used without danger to the limb or undue distress to the patient.
- (3) The only force required being one of flexion, no rigid apparatus is needed, it being sufficient to strap the forearm to the arm. One of the strong points of this treatment, therefore, is its perfect simplicity.
- (4) The only points to emphasize are: Be sure to replace fragments as flexion is made, taking great care that the internal condyle is as low as possible and the joint not widened by effusion between fragments. If the condyle is kept down no gun-stock deformity can occur.
- (5) In the cases thus far treated the amount of motion gained has been slightly greater than after ordinary methods. The amount of deformity has been very much less.

ASEPTIC MIDWIFERY AMONG THE VERY POOR.¹

BY C. D. YOUNG, M.D. (HARV.), ROCHESTER, N. Y.

THE subject I have chosen for your consideration this evening is, I am well aware, one that is commonplace, and yet I venture to make it the theme of my essay, for the reason that puerperal sepsis is not an unknown thing in this fair city. The operating gynecologist knows it, whether the practising obstetrician does or not. As Reynolds has well said: "Those who are in the habit of believing that the slight disturbances of health and temperature, which either constitute mild sepsis or herald the approach of grave sepsis, are due to milk fever, nervousness, excitement and other indefinite ailments, do not understand that, under strict asepsis, the convalescence from labor is always perfectly smooth and unattended by any elevation of temperature unless some definite entity of intercurrent disease is present."

Taking it for granted then, that puerperal sepsis does occur, even, at times, in the practice of the best

physicians, a narration of personal experience may prove the starting-point for profitable discussion.

First, however, let me briefly review the history of aseptic midwifery. It was in 1843 that Dr. Oliver Wendell Holmes began his crusade against filth in the lying-in chamber. It was a hard and well-fought battle and the laurels he then won will remain green as long as any with which the literary world has crowned the Autocrat.

And the need of this fight was only too evident. The great Dublin Hospital was at one time threatened with closure by law, owing to the high mortality among its lying-in patients. A recent report of the Lying-in Department of the New England Hospital shows that, between 1862 and 1872, one out of every 50 cases treated died of sepsis. Since 1884, and up to the date of the report, 897 cases were treated without a death. In 1890, the Out-patient Department of the Boston Lying-in Hospital, where patients are cared for in their own homes by students of the Harvard Medical School, was able to record 1,000 consecutive cases without a death from any cause. In 1893, in this clinic, 1,352 cases were thus treated with but 15 cases of sepsis and but one death — that of a patient who refused appropriate treatment. From personal knowledge, I can testify that these cases are cared for in the most filthy tenements of Boston. It is due to the experience and instruction gained at this clinic, that I can report my cases to-night with so small a percentage of preventable sepsis.

In the New York Maternity, Blackwell's Island, during the year from October 1, 1882, to October 1, 1883, the death-rate from sepsis was 6.06 per cent. and during the last month of that year, it reached 15.69 per cent. of all women confined there. Then Dr. Garrigues introduced the antiseptic system and in the following year, had a death-rate of but .0059 per cent. and in the year 1884-5, he still further reduced the rate to .0018 per cent. The introduction of antiseptic measures in the Boston Lying-in Hospital, enabled Dr. W. L. Richardson to reduce a death-rate from sepsis, of 4.58 per cent., in 1883-4, to .000 in 1886-7.

These figures ought to be conclusive as to the necessity of combating sepsis both in hospital and private practice.

And now as to the technique. It is so simple and involves so little preparation that it can easily be carried out amid the most adverse surroundings. All that is essential is comprised in this list: a box of aseptic vaseline, a piece of soap, a small bottle of carbolic acid, a few tablets for preparing the solutions of bichloride of mercury, a nail-brush, plenty of hot water, a small dish for the carbolic solution and a large one for the bichloride, a fountain syringe, and clean towels or cloths. A non-essential that, in this city, might almost be classed as an essential, is the district nurse. She may be obtained, at any hour, by application at the City Hospital. In all my cases, she has proved a most welcome and efficient aid in the conduct of labor in the slums.

Personal cleanliness is, of course, of prime importance. The obstetrician's habits should include frequent bathing and a frequent change of clothing. He should never be in the condition of him to whom Charles Lamb once said, "If dirt were trumps, you would hold a full hand."

It is my habit to advise patients to send for me as

¹ Read before the Rochester Pathological Society, March 28, 1895.

soon as labor begins, that I may have plenty of time for preparation. I also urge them to have a room specially cleaned and arranged for the confinement; but among the very poor this, of course, is seldom done.

On arriving at the bedside, after cleansing my hands and making the preliminary examination to determine the stage of labor, an enema and a partial bath are administered and then a local scrubbing and a douche with a 1 to 2,000 solution of bichloride of mercury. My hands are prepared by first scrubbing thoroughly with nail-brush and soap in hot water; then, after rinsing the brush until all the soap is washed out (as soap and bichloride of mercury form an inert compound) and removing all superfluous epidermis from beneath and around the nails with a knife-blade, I again scrub my hands and forearms in a 1 to 1,000 bichloride solution. After this last scrubbing, I am careful not to touch anything except a towel soaked in the mercuric solution until after the examination is made. I do not use a lubricant for the examining finger unless it is absolutely necessary. If so, I have a fresh box of eucalyptus vaseline (1 drachm to 1 ounce) in my obstetric bag. Examinations are made as infrequently as possible, and, whenever necessary, the hands are again scrubbed in the bichloride solution.

The bed is arranged by the nurse so that the patient lies between clean sheets, or, in the absence of these, on towels wrung out of the bichloride solution. When the head reaches the floor of the pelvis, and it becomes necessary to hold it back to prevent its too sudden expulsion and consequent rupture of the perineum, the mercuric solution is kept close by for frequent rinsing of the hands. After the expulsion of the placenta, which is expressed by the Cr  d   method, and not extracted unless adherent, a careful examination is made for tears in the walls of the vagina. If the hand or an instrument has been introduced into the uterus, an intra-uterine douche of 1 to 5,000 or 1 to 3,000 bichloride of mercury, followed by boiled water, is given. The treatment would be similar after the delivery of a macerated fetus. Otherwise no post-partum douches are given. An antiseptic vulvar pad is applied, pinned back and front, to be worn constantly during the puerperium. And then nothing from without is allowed to open the lips of the vulva unless well-marked indication arise.

During the first five or six days after the delivery, the nurse and I call daily, one in the forenoon and the other in the afternoon, in order to have an accurate record of the temperature, pulse and respirations for that period. After that, if all is well, visits are made less frequently until the patient is ready to leave her bed, on the tenth, twelfth or fourteenth day, according to her condition.

Let me now give you the results of this system in my own practice. The thirty cases included in this report were my first private confinement cases, excluding only a few that were among people able to provide properly for the lying-in. These patients were delivered, almost without exception, in the squalid homes of what is known as the Polish section of the city. As most of you know, the filth in many of these hovels is indescribable, while not one of them would be selected as an ideal—I might even say a fit—place for a confinement. The clinical charts which I will pass around, tell their own story more

graphically than I can, but perhaps a brief note of each case may be permitted me:

CASE 1. Multipara; sixth birth. Normal labor; convalescence uneventful.

CASE 2. Multipara; fifth birth; one miscarriage, two years previously. Labor prolonged by large child and inefficient pains. Adherent placenta, peeled out by hand. Intra-uterine douche of 1 to 5,000 bichloride, followed by boiled water. Highest temperature 100.6   F., eighteen hours after delivery. Convalescence uneventful.

CASE 3. Multipara; ninth pregnancy, including three miscarriages. Twins at the first confinement and at this one. Labor lasted about nine hours, with three hours between the two deliveries. Convalescence uneventful.

CASE 4. Multipara; fifth pregnancy. Normal labor; convalescence uneventful.

CASE 5. Primipara; normal labor. Slight tear of left labium; none of perineum. Convalescence uneventful.

CASE 6. Primipara; normal labor. Left nipple sore and soft, tender swelling in left axilla, lasting two days. Highest temperature 99.4  . Convalescence otherwise uneventful.

CASE 7. Multipara; fourth pregnancy. Quick labor, preventing ante-partum preparation. Convalescence complicated by irregular action of heart (chronic mitral disease). Temperature rose on the morning of the fourth day to 101.4  , but fell immediately after the bowels were thoroughly moved.

CASE 8. Primipara. Normal labor; convalescence uneventful.

CASE 9. Multipara; second pregnancy. Normal labor; convalescence uneventful.

CASE 10. Multipara; third pregnancy. Normal labor; convalescence uneventful.

CASE 11. Primipara; labor lasting about thirty-six hours. Foot presented; child delivered manually under ether. Convalescence uneventful.

CASE 12. Multipara; third pregnancy. Normal labor; convalescence prolonged by slight daily hemorrhage after getting up against advice.

CASE 13. Multipara; fourth pregnancy. I was called into this case by the physician in charge, to relieve him, about three hours before delivery. The second day after the labor, I discovered that two cases of diphtheria had been in the house from before delivery, and one of them had died in the room with the puerperia, who immediately developed symptoms of septicemia. By reason of the patient's refusal to submit to my directions for isolation and care, I was relieved from the case and another physician called in. The patient recovered. Her highest temperature, taken by me, was 104  .

CASE 14. Primipara (delivered three days after the last patient, Case 13). Normal labor; convalescence uneventful.

CASE 15. Multipara; second pregnancy. Normal labor; convalescence uneventful.

CASE 16. Primipara. Normal labor; convalescence uneventful.

CASE 17. Primipara. Labor retarded by early rupture of membranes. Perineum slightly torn; not repaired. Highest temperature 100.8   on the fifth day, brought down to normal by a cathartic.

CASE 18. Multipara; sixth pregnancy. Normal labor; convalescence uneventful.

CASE 19. Multipara; third pregnancy. Normal labor; convalescence uneventful.

CASE 20. Primipara. Labor retarded by premature rupture of membranes. Perineum torn; repaired with one silkworm-gut suture. Highest temperature 100.8° on the fourth day, brought down by a cathartic.

CASE 21. Primipara. Normal labor; convalescence uneventful.

CASE 22. Primipara. Slight tear of perineum, dressed with aristol and later with iodoform. On the morning of the fifth day, temperature rose to 101.4° , and the nurse found that some one had placed a dirty rag soaked in sweet oil, underneath the vulvar pad, between the labia. The evening temperature that day was 102.4° , the highest reached during the puerpe-

paired with three silkworm-gut sutures. Convalescence uneventful.

CASE 24. Primipara. Labor terminated by forceps-delivery of a dead child. Perineum ruptured and repaired with three silkworm-gut sutures. Intra-uterine douche of 1 to 3,000 bichloride, followed by boiled water. Highest temperature 100.6° on the fourth day, when her breasts were giving her considerable trouble. Temperature fell after thorough evacuation of the bowels.

CASE 25. Multipara; second pregnancy. Normal labor; convalescence uneventful.

CASE 26. Multipara; sixth pregnancy; one miscarriage. Normal labor; convalescence uneventful.

CASE 27. Multipara; seventh pregnancy. Normal labor; convalescence uneventful.

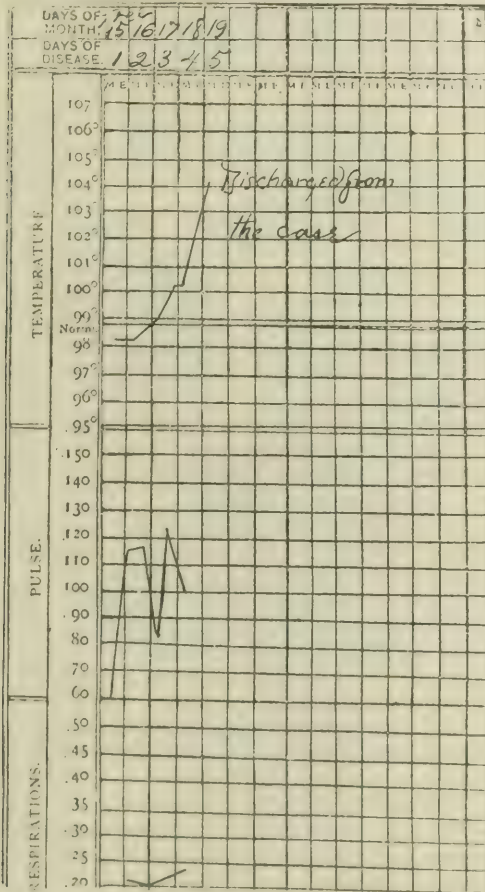


CHART OF CASE 13.

rium. The lochia became slightly offensive and the uterus somewhat tender. She was treated with 1 to 2,000 bichloride douches b. i. d. and iodoform was dusted over the vulva. The lochia immediately became sweet again, and the temperature fell to about 100° , to rise again on the ninth day to 101° , when it was found that the vulva was intensely inflamed, and a hyperemic area extended several inches down the thighs and onto the nates. This dermatitis was attributed to poisoning by the dressings or solutions used, and all local treatment was discontinued. From this time on, convalescence progressed satisfactorily, the patient sitting up on the thirteenth day.

CASE 23. Primipara. Perineum ruptured and re-

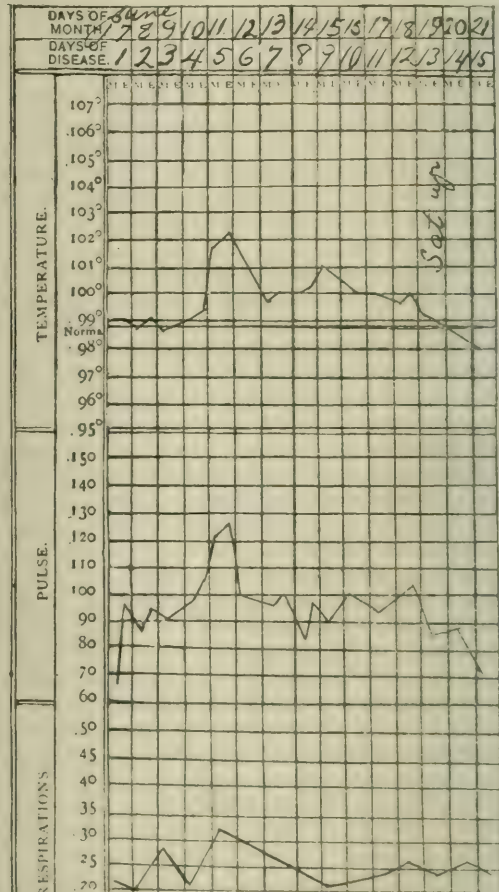


CHART OF CASE 22.

CASE 28. Multipara; second pregnancy. Normal labor; convalescence uneventful.

CASE 29. Multipara; fifth pregnancy. Normal labor; convalescence uneventful.

CASE 30. Multipara; second pregnancy. Normal labor; convalescence uneventful.

A glance at these charts reveals two cases that were unmistakably septic, Nos. 13 and 22, the causes being sufficiently indicated in the foregoing notes. (Diphtheria in the lying-in chamber, in the one case, and the direct introduction of dirt between the labia, in the other.) Of the remaining twenty-eight cases the temperature rose above 100° , in No. 2 within a few hours of delivery, remaining below 100° thereafter;

and in Nos. 7, 17, 20 and 24 on the fourth or fifth day, falling in each case on the exhibition of a cathartic. In none of the other cases did the temperature rise above 100° at any time during the puerperium. So that a practical freedom from sepsis may be claimed for all except Nos. 13 and 22.

The conclusion I would draw from this study of cases is, that it is possible, by careful attention to a few simple details, to banish the severer forms of puerperal sepsis even from the homes of the very poor.

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TWO CASES OF CYST OF THE FINGER.¹

BY F. M. BRIGGS, M.D.,
Surgeon to the Boston Dispensary.

Cyst of the finger is a great rarity, and, of the two cases which I have to report, one is apparently unique as I can find no record of any similar case; of the second case very few have been reported.

I. ENCYSTED HEMATOMA OF THE FINGER.

A female, adult, came to the Boston Dispensary the latter part of February, 1895. She had a curious-looking enlargement on the palmar surface of one of the fingers. It was firm, non-fluctuating and slightly painful on pressure. The patient stated that two years previously she ran a sharp piece of tin into the finger at this point, that she pulled it out, and that so far as she knew, it all came out. The finger immediately swelled up, and this swelling had never gone down.

I made a short cut through the skin, exposed a cyst wall, and by pressure a small bean-shaped cyst came out. It was white and glistening, and upon cutting it in halves, showed a thick cyst wall surrounding an almost black, soft, solid mass, suggestive of some form of altered blood.

Dr. W. F. Whitney reports as follows regarding it: "The tumor was of a cystic character, about the size and shape of a small bean. The interior was filled with a very dark, granular material, and the wall was of cartilaginous density. The contents were made up of granules of coloring matter (altered blood pigment) and irregular scaly fragments. The wall was an extremely dense, fibrous tissue with an occasional nucleus. The diagnosis is a small encysted hematoma."

II. EPIDERMOID CYST OF THE FINGER.

A male, adult, age forty-two, presented himself in the early part of March, 1895, with a large swelling of the terminal phalanx of the second finger on its palmar surface. It was tense, fluctuating, slightly painful on pressure and of irregular shape. The history was very unsatisfactory and of no diagnostic value. I injected cocaine, and upon withdrawing the needle a few drops of milky fluid followed it.

I made a V-shaped flap, under which I found a cyst wall, which was not adherent to the skin but was firmly adherent to the tendon. It came away with great difficulty, and in removing it the contents were lost. They were milky, and contained some greasy-looking particles, but nothing cheesy. The cyst measured two inches in circumference, and five-eighths of an inch in diameter.

At the next visit the man gave a history of the finger. He said that sixteen years previously he had a felon with complete healing and nothing noticeable afterwards. That six years ago the finger was crushed, and after it healed it was somewhat enlarged. That his attention was called to its increasing size about three weeks previously, when it was very painful and the skin over it was reddened.

Dr. Whitney's report is: "The growth was a cyst the size of a large cherry (17 mm.), the outer surface quite smooth, and the inner roughened and covered with adherent scaly masses. The wall was of firm consistency. Microscopic examination showed the wall to be made up of an outer layer of more or less flattened epithelial cells, which were gradually transformed into flat lamellated scales, and from their deeply staining with picric acid gave evidence of a transformation into a horny substance. In the part examined nothing but this epidermoid growth was found. The diagnosis was an epidermoid cyst."

Epidermoid cyst of the finger has been variously called dermoid, dermal, epidermal, implantation and traumatic epithelial cyst. I find 18 reported cases. Garré of Tübingen, who reports two of them, states that 29 such cases have been reported previous to 1894. The first case of the kind of which I find record was reported by Rizet in 1866.²

Of the 18 cases which I have personally found reported, 11 are in France, four in England, two in Germany and one in Switzerland. I find none reported in this country.

The condition is evidently a very rare one. It is certainly a very interesting one. The gross appearance is that of an ordinary wen. But there are no sebaceous glands in the palm of the finger; the cyst wall of a wen is composed of fibrous connective tissue and has nothing resembling the structure of the skin.

One theory is that these cysts are true dermoid and that in the cases where they occur there was an embryonic inclusion at this point. But they have never yet been found in children and seldom at puberty. They usually occur in adults. No case has been reported containing hair, teeth, nails or other of the contents found in dermoid cysts. Plastic heterotopia, or formation of tissue in unusual places, has also been advocated as the explanation. It seems to me that this is not an explanation.

It is a noteworthy fact that in all cases the cyst follows an injury of the affected finger. It is also to be noted that the wall of this cyst is skin-like in structure. These two facts have led to the belief, in which the writer concurs, that these cysts are due to preceding injury in which a fragment of skin is forced in and transplanted subcutaneously. This theory is made highly probable by the experimental work of Kaufman,³ who implanted fragments of epithelium under the skin of guinea-pigs and found cysts forming in two weeks.

¹ Read before the Surgical Section of the Suffolk District Medical Society, April 3, 1895.

² Included in Lalitte's series. See references.

³ Virchow's Archiv, 97 Bd.

The one argument against this theory is that if this is the explanation, if they are the result of an injury, epidermoid cysts would be much more common.

I have been very much interested in looking up the subject to see if any satisfactory answer has been given to this question, for it was what first occurred to me when I found the traumatic theory advanced. But I have found none, and at the same time feel convinced that we have here the true explanation of the condition.

In the absence of proof, one theory is, of course, as good as another. I advance a theory which may account for the very great discrepancy between the vast number of finger injuries and the fact that in the past thirty years only about thirty of these injuries have been followed by epidermoid cysts:

A fragment of skin may be very frequently carried in at the time of the injury, but it is almost invariably either killed by the injury or is disposed of in the healing process. But, once in a great many thousand times, this fragment retains its vitality, becomes engrafted on the subcutaneous tissues and after a dormant period of, usually, from four months to two years the cyst develops.

The point is made by some writers that these cysts are invariably attached to the under surface of the skin and are always free from the deep tissues. This is by no means a fact. The case which I report was not adherent to the skin, but was firmly adherent to the tendon. One case reported by E. C. Stabb in 1890 was adherent to both the skin and the tendon, and a second case by the same writer was not attached to either the skin or the tendon.

Epidermoid cyst of the finger, therefore, is a cyst which follows, and is probably due to, an injury of the affected finger. It may develop in a few months, but, as a rule, cannot be demonstrated under one year, and often does not enlarge to any extent for several years after the injury.

It is probably the result of an engrafting on the subcutaneous tissues of a fragment of skin, which is carried in at the time of the injury, and which retains sufficient vitality to withstand both the immediate effect of the injury and the later efforts of nature to dispose of it.

The resultant cyst may be adherent to the skin and the tendon, to either alone, or to neither.

A diagnosis can only be made by the microscope, where a section of the cyst wall must show a resemblance to true-skin structure. This is usually epidermal in character, but is, exceptionally dermal, and shows not only an epidermoid structure, but also the structure of the cutis vera. Sebaceous glands and hair follicles are not found.

In some cases the skin structure is seen in an inverted order; that is to say, as in the case here reported, the horny layer is on the inside. In others no such inversion is present. The contents are milky, cheesy, or both.

Regarding its name, epidermoid is the best general definition of the condition, for although some of the cases have shown more than an epidermal layer, most of them contain only the structure of the epidermis.

If it is granted that they are due to an injury, the term traumatic is superfluous; and if it should be proved that they are not due to injury, it is erroneous.

Regarding the theory which I have already referred to, that they are true dermoids and due to embryonic

inclusion, I will further say that one such case as the one I report is strong evidence against such a theory, for the wall of congenital (inclusion) cyst does not show an inversion of the dermal structure.

The only treatment is removal, and in operating, the sac should be carefully dissected out, for recurrences have been reported.

Regarding other forms of cyst of the finger, I find one case reported⁴ where a cyst wall formed about a needle broken in the finger three years previously.

I do not know whether molluscum ever occurs here, but if it does it can be easily distinguished. It is in the superficial layers of the skin from which it projects. It is never subcutaneous.

Sudoriparous cyst is referred to by a few writers, but as they simply speak of it as a possible occurrence and give no data, it can be disregarded. In any given case the microscope would show a different structure of the skin wall.

Similarly of synovial cyst. If found in the finger, the wall is not epidermoid in character, and, moreover, the contents are those of ganglion and bursa in other locations.

Pearl tumor (cholesteatoma) is a small, round tumor, with pearly exterior, which is said to be due to superimposed layers of cholesterin on its external surface.

Councilman⁵ says: "It is essentially a tumor of the cerebrum but may occur elsewhere. The tumor is composed of cells resembling the horny layer of the epidermis. It is often surrounded by a well-defined capsule. When cut into, it is whitish yellow, and of the consistency of wax. Some authors regard them as dermoid cysts, but they never contain dermic structures, nor has a true epithelial structure been seen in the cyst which sometimes surrounds them."

From this description it will be seen, that if found in the finger, the microscope would distinguish them from the class under consideration.

In conclusion, it can be stated that cyst of the finger is an extremely rare condition; that the most common are the epidermoid cysts, but that isolated cases of other forms are reported, such as that of Kummer (the needle in a cyst) and the other one which I report of a blood cyst; that they are of interest on account of their infrequency and of importance on account of their location, for they hamper the free use of the finger. Free use of the finger is indispensable to the hand, and the value of the hand to the individual needs no comment.

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⁴ Kummer: *Revue de Chirurgie*, Paris, 1891, xi, pp. 670-675.

⁵ Reference Hand-Book of the Medical Sciences, vol. iv, p. 138.

Clinical Department.

SURGICAL CLINIC AT THE MASSACHUSETTS GENERAL HOSPITAL BEFORE MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

TUESDAY, JUNE 11, 1895.

REPORTED BY M. H. RICHARDSON, M.D.,
One of the Visiting Surgeons.

EXHIBITION OF PATIENTS.

CASE 1. Traumatic hydronephrosis. Dr. Porter.

George E., aged twenty-six, on November 1, 1894, ten days before his entrance to the hospital, while lifting a barrel, felt something give way in the right side. He was seized immediately with sharp pain, which soon became localized in the left hypochondrium. This was followed by vomiting and the passage of a bloody stool. The urine contained blood, pus and casts. On examination a dull and elastic tumor was found in the umbilical region extending into the left flank. The tumor at this time was punctured with the aspirating needle without result. He was then discharged, but soon after re-entered the hospital for pain and a sudden increase in the size of the tumor. Examination of the blood showed a leucocytosis of 27,000. The skin was yellowish in color. He was tapped twice, and fifty ounces of fluid containing urea were withdrawn. The sac immediately refilled. On December 6th, five weeks from the receipt of his injury, a median incision revealed a large fluctuating tumor extending from the brim of the pelvis up to the renal region. This sac was opened and drained by a lumbar incision, the anterior cut having been first closed. The lumbar wound healed, except for a fistula which discharged urine equal to the amount discharged *per urethram*. It was decided that there had been a ureteral wound, and an operation for its relief was undertaken. Guided by the fistula, a lumbar incision was made, and finally extended downwards nearly to Poupart's ligament. The adhesions and inflammatory tissue prevented the finding of the ureter. It was thought unwise to prosecute the operation further. The large wound was closed, except in the upper part for drainage. The quantity of urine from the fistula and from the bladder varied from day to day, sometimes the one, sometimes the other discharging in excess. Finally the amount from the fistula diminished, and apparently there was recovery of perfect health. The patient left the hospital, passing a catheter through the fistula every few days, with drawing a varying amount of urine. The man is now at work in the same condition.

CASE 2. Cholecystotomy: removal of stone from the common duct. Dr. Porter.

Mary S., aged thirty-five, entered the hospital in February, 1893. For six months she had had hepatic colic, with nausea and vomiting. Persistent jaundice with clay-colored stools and pigmented urine soon followed. She has had attacks similar to the above every two weeks, and has been obliged to give up work. While in the hospital she had another attack similar to the first. Examination showed an induration in the region of the gall-bladder. On February 25, 1893, a contracted gall-bladder was exposed and a stone detected in the common duct. After the removal of this stone by incision of the duct she made a very good recovery. The pain and jaundice disappeared

entirely, and she was discharged from the hospital on March 30th, at the end of five weeks. She is now in perfect health, and has had a baby since the operation.

CASE 3. Floating cartilage removed from the elbow-joint. Dr. Porter.

Allan McD. entered the hospital October 10, 1894. Two months before entrance, while lifting a plank, he injured the elbow. He continued at his work, but at times the joint would lock at right angles, further extension being impossible. Manipulating around the triceps insertion would apparently displace something, and the joint would recover its normal position. No moving body could be felt. An incision was made at the outer side of the triceps tendon into the joint, from which a loose cartilage was removed. Upon exploring the joint with the finger a second cartilage was found lying in the olecranon fossa, thus explaining the limitation to extension. At the present time the man has perfect use of the elbow-joint.

CASE 4. Ruptured middle meningeal artery: trephining. Dr. Porter.

John A. R. entered the hospital November 3, 1894, having been thrown from a carriage one hour previously. He was so stupid on entrance that he could not be roused. There were three scalp wounds; one over the right frontal bone, one over the right parietal, and a third over the left portion of the occipital. The respiration and pulse were good. There was bleeding from the right nostril; neither paralysis nor spasm were present. A fracture with depression was found at the anterior wound, one inch back of the external angular process, with a crack running antero-posteriorly.

Operation was performed immediately. The dura was found dark, tense, and bulging. There was extradural hemorrhage from the middle meningeal. On opening the dura, blood under great tension spurted out. The dural opening was enlarged, clots and disorganized brain substance were removed, and no source of intradural hemorrhage was found. The bleeding ceased, and the dura and outside wound were closed without drainage. He was delirious and restless for two weeks after the operation. It was nearly six weeks before his mental functions were sufficiently restored for him to appreciate his situation. He was discharged in two months, much improved. Present condition: he has no headaches; he has good physical vigor; there is slight hesitation in speech. He states that he is well enough to return to business, but his friends advise a longer vacation.

CASE 5. Floating cartilage removed from the knee-joint. Dr. Porter.

Julius J. entered the hospital November 30, 1894, having had trouble with his knee for six years. At first, every two or three months, the joint would get caught and fixed so that prolonged manipulations would be necessary before he could flex and extend the leg freely. These symptoms increased in frequency and in severity. On examination an effusion into the knee-joint was found, with a freely movable body. On December 1st the left knee was opened and one floating cartilage was removed. He was discharged December 19th, cured. The knee at present is perfectly good. The patient is able still to catch a floating body in the side of the joint, but it never gets caught between the bones.

CASE 6. Nephrotomy for renal stone. Dr. Warren.

This patient had suffered since early in life with

calculus of the kidney. The principal symptom was intense pain, shooting into the groin from the right kidney. A year ago I performed nephrotomy. The kidney was exposed through an incision made in the lumbar region. On passing my hand into the abdomen I grasped the kidney and brought it up into the wound. While holding the kidney my thumb and finger were deep into its pelvis, and there I felt this calculus. To expose the stone and to deliver it, I made a cut through the dorsum of the kidney in the median line, thinking that I would get less hemorrhage in this way than in any other. I could use only one hand in making this cut, as I was holding the stone with the other. I passed the knife into the kidney until it grated upon the stone. The hemorrhage was really quite appalling; it was more venous than arterial. I plugged the vessels by putting my finger into the hole made by the knife. After taking out the stone a little gauze was passed as far as the pelvis. Since the operation, from which he made a very satisfactory convalescence, he has been in excellent health, and has suffered no pain.

CASE 7. Trephining for epilepsy. Dr. Warren.

Fourteen or fifteen years ago this man received a pistol shot in the head, the missile piercing the orbit and becoming lodged in the base of the brain. Some years afterwards he began to have epileptic seizures, each attack preceded by peculiar symptoms of the right hand. The starting-point of the spasm was localized in the left fissure of Rolando. These epileptic seizures got to be more and more troublesome. In falling he dislocated his humerus in one year no less than seven times. I trephined over the left Rolandic fissure near the occipital protuberance, and from this point cut through the temporal bone with rongeur forceps nearly to the external angular process in front of the zygoma. On exploration a large quantity of serous fluid was evacuated from a cyst that was situated beneath the quadrate lobe in the left anterior fossa of the brain. He recovered from the operation without serious incident. You will see that the fingers of the right hand are kept in a peculiar position of partial extension. His father says he has not been relieved by the operation. He continues to have fits, though less frequently than before. He has dislocated the shoulder five times since the operation. The interesting point is that these very extensive operations for epilepsy do not seem to produce as definite results as we had hoped. You will notice the enormous depression under the scar, and that the brain has not filled up again since the last operation, which took place about six months ago. Surgeons dwell on the importance of the post-operative treatment of epilepsy, for even after operation the habit of epilepsy remains. We ought, therefore, to supplement the operation by a very thorough course of the bromides.

CASE 8. Cancer of the breast. Dr. Warren.

You know how much attention is devoted to the operative treatment of cancer. At the last meeting of the American Surgical Association this was the principal topic of discussion. The latest results following operations for cancer have encouraged the hope that we may be able to cure a certain percentage of cases in localities hitherto regarded as inoperable. In cancer of the breast we have been doing more extensive dissections than ever before. The so-called completed operation having been substituted for the old method, a thorough dissection of the axilla is now the

rule in every case, whether glands can be felt there or not. The breast is now removed with the pectoralis major and the contents of the axilla in a single mass. We are doing bolder and bolder operations. In the case that will be shown presently I have done not only the completed operation, but I have removed both pectorals, have resected the clavicle, and explored the supra-clavicular space.

Mrs. B., aged fifty-two, noticed six months before entrance to the hospital, a small lump in the left upper quadrant of the right breast, about the size of a small orange. The skin was not adherent. Glands could be felt in the axilla. The breast was removed February 5, 1889. Microscopic examination by Dr. Whitney proved the diagnosis schirrous cancer. I have not seen her for six years. The scar of the incision, as you will see, is smooth, non-adherent, and soft. There is not the slightest evidence of a recurrence locally or remotely. The pectorals were not removed in this case. The incision was carried well over to the upper arm, so that a very thorough dissection of the axilla could be made.

There are quite a number of cases as favorable as this. I have found 27 per cent. of cures in my own practice. Of course there are a good many cases that I have not heard from, but the outlook is certainly very encouraging.

CASE 9. Cancer of breast; completed operation; removal of pectorals; dissection of axilla; resection of clavicle and exploration of supra-clavicular space. Dr. Warren.

This patient, a woman of forty-five, I have asked to call in order that you may see the extent of the incision in the modern operation for cancer of the breast. The cut is carried up here across the axilla to a point well beyond the posterior axillary fold (*latissimus dorsi*). The *mamma* with the pectorals are first cut away; the fat and glands are then dissected from the axillary vessels in one mass with the breast and the pectorals. The clavicular portion of the *pectoralis major* is left intact in most instances. In this case the clavicle was divided so that a clear view could be had of the sub clavian triangle. It was possible to make a most minute and satisfactory dissection of the whole region from the outer fold of the axilla to the bifurcation of the innominate artery; to remove every suspicious gland and to explore all doubtful places. The dissections having been completed the clavicle can be wired, as in the case before you. In a recent dissection I went as high as the seventh cervical vertebra.

CASE 10. Resection of the jaw for ankylosis.

Dr. Cabot showed a boy of thirteen upon whom he had operated three years before for unilateral bony ankylosis of the jaw, which was the result of otitis following scarlet fever. The operation was a cuneiform resection of the neck of the jaw through an incision just beneath the zygoma. The boy can open his mouth one and three-quarters inches, and the jaw has lateral, grinding motion of three-quarters of an inch. The scar is almost invisible and there is no paralysis of the facial nerves.

CASE 11. Jacksonian epilepsy.

Dr. Cabot showed a young man who had been cured by operation of Jacksonian epilepsy, the result of a cyst of the brain. The case will be more fully reported later.

CASE 12. Fractured thigh. Dr. Cabot.

A fractured thigh under treatment in an ambulatory manner on a modified Taylor's hip splint. The modification consists in adjusting to the splint bands which surround and support the thigh within which coaptation splints are applied, so as to give thorough support to the bone. Dr. Cabot said that he had already used this method in three cases with very good satisfaction, one of them being a case in which all other apparatus had been tried and had proved unsatisfactory on account of the restlessness of the patient, and in which this splint, which was first adjusted to that case, had worked admirably, giving extension and coaptation in a thoroughly satisfactory manner. In the case shown to the Society the splint was applied at the end of four weeks, which time the patient spent in bed with a Buck's extension. Dr. Cabot said that he would have preferred to apply the apparatus and get the patient up earlier, but there was delay in having the splint made. He thought that these cases might be got out of bed easily at the end of a fortnight, and after that they might get about on crutches.

CASE 13, shown by Dr. Cabot, was a man who had been operated upon for the radical cure of inguinal hernia by an original modification of the method devised by Halsted, and in a somewhat different form by Bassini. By Halsted's method the cord is transplanted towards the anterior iliac spine and brought directly through the muscular wall and the aponeurosis of the external oblique. Bassini, in the effort to restore the valvular arrangement of the canal, carries the cord downward between the muscles and the fascia of the external oblique, making a slanting canal much like that which nature has provided. Dr. Cabot, in the case shown, had brought the cord through the internal ring, after strengthening the upper borders of that canal by one or two tendon sutures, and had then carried it upward between the muscles and the fascia of the external oblique, to emerge through said fascia at the point where it would emerge by Halsted's operation. The ring and the canal below were then sutured firmly, and closed as in Halsted's method. It seemed to him that if it were found wise to make the emergence of the cord through the wall by a slanting canal, that a canal slanting in this manner upward, was much less likely to be forced open by downward pressure of the bowels than one which imitated the natural canal, as in the method of Bassini.

CASE 14. Resection of four feet of intestine for mesenteric thrombosis.

Dr. Elliot showed a patient in good health, from whom he had resected four feet of small intestine about a year previously. The patient had suffered from very acute abdominal symptoms, and on opening the abdomen a large knuckle of intestine was found dark and gangrenous. After the resection was made the ends of the gut were sewed into the abdominal wound making an artificial anus, which was subsequently closed by another resection. Examination of the part removed showed it to be one of the very rare cases of thrombosis of the mesenteric veins.

CASE 15. Incision of common duct; removal of gall-stone; suture of duct. Dr. Elliot.

The patient was shown in robust health. About a year ago he had had a gall-stone removed from his hepatic duct, on account of the following symptoms: gall-stone colic, severe pain, jaundice, clay-colored stools and vomiting. The stone was located by touch.

The duct was incised over the stone and closed with sutures immediately after the removal of the stone. Recovery was rapid. This is the only case on record in which the hepatic duct has been closed with sutures after extraction of a stone.

CASE 16. Osteoplastic operation for ankylosis of the jaw. Dr. Elliot.

The patient, a boy of twelve, had had complete ankylosis of the jaw since he was ten months old. He was emaciated, with a small, undeveloped jaw. One year ago the ramus of the jaw was divided on both sides. The jaw was constantly moved, and finally good motion was established. The patient can eat well, and has gained in weight.

CASE 17. Removal of the Gasserian ganglion for neuralgia. Dr. Mixer.

Martin Z., aged forty-five, without premonitory symptoms was seized in 1880 with violent jumping pain in the terminals of the right trifacial nerve. During the next six years he had complete remissions of pain for months at a time. At the end of six years the infra-orbital nerve was avulsed without relief. A year later the inferior dental was removed by trephining through the ascending ramus of the jaw. Three years' relief followed this procedure. In 1891 Dr. Mixer operated at the foramina of exit from the skull, avulsing the second and third divisions. One year's relief followed. Since that time the pain has been constant. September 18, 1894, the Gasserian ganglion was removed with a relief which has been thus far complete. The patient shows very little deformity, even after such extensive operations as the two last. There has been no interference with the general health, and the cerebral functions are not impaired.

CASE 18. Nephrotomy followed by nephrectomy. Dr. Mixer.

A woman, aged thirty-three, for one year had had symptoms which resulted in a perinephritic abscess. The right kidney was opened by lumbar incision by Dr. Richardson before this Society a year ago.¹ A counter opening was made in the right groin. From this operation she rallied well, but she continued septic, the temperature fluctuating between extreme limits. In September, Dr. Mixer extirpated the kidney through an incision which extended from the last rib to the anterior superior spine of the ilium. After this operation, which was very successful, she regained her strength and flesh in a remarkable manner, and is now, as you see, in perfect health.

CASE 19. Intra-peritoneal suprapubic cystotomy for stone. Dr. M. H. Richardson.

The patient, aged fifty-one, had suffered from urinary symptoms for four years. Operation April, 1895. The stone proved too large for the lithotrite. The bladder was exposed by the suprapubic cut; but owing to the great thickness of its walls and consequent rigidity, the prevesical space could not be utilized. The intestines were protected with gauze, and the bladder opened. The stone weighed 2,250 grains. The intra-peritoneal route, first deliberately suggested and performed by Dr. Harrington, was taken in this case by necessity. The rapid convalescence, with entire absence of peritonitis after the unavoidable contamination by the foul contents of the bladder, is another proof of the great tolerance of the peritoneum even when infected by fluids extremely septic, if efficient drainage is employed.

¹ *Vide Boston Medical and Surgical Journal*, June 28, 1894, p. 646.

CASE 20. Intra-peritoneal suprapubic cystotomy for stone. Dr. Richardson.

Operation May 27, 1895. This is very similar to the preceding case in history, operation and result. The stone weighed 1,610 grains, and had been fractured transversely in the middle at no very remote date, as was shown by the recent deposition of urinary salts upon the broken section, which was itself marked by concentric layers. The patient is still in bed, but convalescing well.

CASE 21. Recurrent appendicitis; appendix removed through an inch incision. Dr. Richardson.

W. D. R., aged twenty-two, had had six or eight attacks of appendicitis. Was brought to the hospital May 21, 1895, during an appendicitis of moderate severity. The appendix could be felt directly under the abdominal wall in the usual position. He was eased through this attack without operation, and when perfectly well the appendix was delivered through an incision just large enough to admit the index finger. The abdominal muscles were divided in accordance with McBurney's recommendation, a most admirable and efficient procedure. The case is shown on the eighth day entirely healed. The approximation is so effectual by this method that the chief objection to the operation — that of ventral hernia — is fully met. The mortality is very slight, as Bull has shown.

CASES 22 and 23. Intestinal resection for fecal fistula following operations for appendicitis. Dr. Richardson.

These two cases were more or less complete resections with end-to-end suture. The bowel had become necrotic, probably from the pressure of the drainage-tubes used by the surgeons after operations upon the appendix. In both practically the entire contents of the bowel were discharged through the fistula. Following the method first used in such cases by Dr. Porter fifteen years ago, I separated freely the adhesions about the affected coil, so as to deliver it fully through the wound. The general peritoneal cavity was of course opened by this procedure, but it enabled me to bring the opening into full view, to resect carefully the ragged end of gut, and to make a perfect joint. Both cases have recovered entirely. One of them was operated upon a year ago to-day; and you may remember how difficult the operation was on account of hemorrhage.⁸ This method in my hands has succeeded in every case in closing permanently the fistula. A complete circular resection is generally necessary on account of the great extent of the opening. In one case the appendix was found close to the opening in the cecum, and removed.

CASE 24. Nephrectomy for tubercular pyo-nephrosis. Dr. Richardson.

Mrs. G., aged thirty, suffered from pain in the left kidney a year and a half ago, accompanied by pus in the urine. A year ago nephrotomy was successfully performed at the Massachusetts Homeopathic Hospital. The discharge from the persisting sinus contained uræa. She was much emaciated when I first saw her, with a chronic septicæmia. The left renal region was occupied by an immovable tumor. May 25th the kidney was enucleated through an anterior incision (that is, a little in front of a vertical line half-way between the umbilicus and the spines of the lumbar vertebræ).

Though the abdominal cavity was opened in front,

most of the manipulations were retro-peritoneal. The progress has been very satisfactory. The sinus became closed immediately. The other kidney is working well. In the enucleation of the kidney, which was nothing but a bag of pus, no vessels required ligation.

CASE 25. Tumor of brain weighing a pound removed from left hemisphere. Dr. Richardson.

This man, aged thirty-eight, began to show hesitation in speech last October. December 1st he gave up his business. He began soon after to lose power of motion in the right hand. This loss of power soon became complete, and involved also the leg. The paralysis was preceded by twitchings of the hand and foot. The diagnosis by Drs. Putnam and Walton was glioma in the left motor region. The first operation was performed February 14, 1895, and consisted in a superficial exploration about the left fissure of Rolando after a very large osteoplastic resection of the left side of the cranium. No tumor was detected. The flap was replaced and sutured. He recovered well, and seemed somewhat improved by the relief to the intracranial pressure. The flap united, but underneath it a large mass forced itself until three months later it projected under the scar. The second operation, May 25th, revealed at once a lobulated tumor projecting from the wound. This was enucleated with the fingers without difficulty, though the hemorrhage and shock were great. The mass filled almost completely the left half of the cranial cavity, its weight being roughly estimated by Dr. Whitney at one pound, as the fragments saved filled a pint jar. The fingers swept from the *crista galli* to the internal occipital protuberance, the whole length of the *falx cerebri*.

He has recovered practically from the operation. The enormous cavity left in the cranium has become filled with what seems to be normal brain tissue. The aphasia is much improved, while the power of motion is returning with great rapidity.

OPERATIONS IN THE BRADLEE WARD.

CASE 1. Abdominal hysterectomy for fibroid of the uterus.

Dr. J. W. Elliot did an abdominal hysterectomy for a fibroid of moderate size, which was accompanied with a large amount of ascitic fluid. The ascites was found to be due to a general tubercular peritonitis. The case thus showed the rare combination of a fibroid of the uterus, with a tubercular salpingitis and tubercular peritonitis.

CASE 2. Cholecystotomy. Dr. Mixer operated upon a woman of fifty-six whose first attack of gall-stones occurred thirty years ago. She entered the hospital April 22d, in the midst of a very severe attack of gall-stone colic. She was discharged April 30th, and re-entered June 4th with another attack.

The abdomen was opened by a cut parallel to the ribs. The gall-bladder was normal in appearance, though its walls were slightly thickened. The fundus was first secured by two stitches, between which an incision was then made. Five stones were removed. The common duct was then explored both inside and out, but nothing abnormal was found. The wound in the gall-bladder was next closed, and finally the external wound without drainage.

CASE 3. Appendicitis in the interval of health.

Dr. Elliot did an operation for appendicitis in the interval between the attacks. The abdomen was

⁸ Vide Boston Medical and Surgical Journal, June 28, 1894, p. 645.

opened by the method suggested by Dr. McBurney. The skin and external oblique were incised in the direction of the fibres of that muscle, and the internal oblique and transversalis were incised in the direction of their fibres, so that the lines of incision through the two muscles were at right angles to each other, one overlapping the other. After the chronically inflamed appendix was removed through a one-inch opening, the fibres of the muscles and the fascia fell back into place, leaving no direct opening into the abdomen. A few buried stitches were taken to hold the muscular fibres together. The method seemed to show clearly its value in preventing a hernia of the scar.

CASE 4. Ovariectomy. Dr. Harrington.

The patient, aged sixty-five, had had an ovarian cyst weighing ten pounds removed five years ago in Pittsfield by Dr. Paddock. Recently the abdomen had become enormously enlarged, transmitting a thrill, and dull to percussion, except below the umbilicus where a ventral hernia through the old scar existed.

The bowels were found firmly adherent to the skin. The surface of the tumor was extremely tense, and the intestines were adherent to it in all directions. The adhesions were so strong that the tumor could not be enucleated without injury to the gut. The tumor was finally opened, and more than fourteen pounds of fluid evacuated from different sacs. Glass and gauze drains were left in, one drain going into interior of cyst.

OPERATION IN THE BIGELOW AMPHITHEATRE.

CASE 1. Nephrotomy. Dr. Harrington. The patient, a man of twenty-nine, had had fever, chills, and night-sweats accompanied by pain in the left kidney and left groin. There was frequent painful micturition, and the urine contained pus. No tubercle bacilli could be detected. Under ether the bladder was sounded, but no stone could be found. Great temporary improvement followed rest and nursing, but there was no decisive tendency towards cure. There was a tense and painful tumor in the left renal region. By a lumbar incision two sacs of pus were evacuated. Several stones were found, weighing all together sixty-eight grains. The policy of temporary drainage was adopted, with a view towards ultimate nephrectomy.

CASE 2. Retro-esophageal tumor. Dr. Mixer.

William D., aged thirty, single, shoemaker, had been well till six weeks before operation, though he had met with some injuries, and had had a venereal sore. His first complaint was difficulty in deglutition. Three weeks later he noticed a bunch in the throat which was slow in growth and painless. Respiration was very difficult and somewhat noisy. No definite outlines to the growth could be made out, but it evidently was flattening the trachea against the thyroid isthmus from behind. The mass was supposed to be situated between the trachea and the esophagus, and to extend into the mediastinum. After consultation it was decided to perform tracheotomy under cocaine anesthesia, and then to explore thoroughly the precervical region. The trachea was opened immediately and found to be so flattened antero-posteriorly that no tube could be introduced. In trying to adjust a canula inspiration became almost completely blocked. Immediate death was prevented finally by means of a gum-elastic catheter, for which later a large laryngeal tube was substituted. Through this the patient was

anesthetized by chloroform, which worked most satisfactorily. The tracheal cut was carried well down towards the aorta until space was found for the introduction of the largest sized canula. The subsequent manipulations, by which an extensive encapsulated myxo-sarcoma was removed from the depths of the precervical space and the posterior mediastinum, were comparatively easy. The relief to breathing was marked. The patient recovered from the operation remarkably well.

CASE 3. Intestinal resection and suture for cancer. Dr. Mixer.

Mrs. H., fifty-seven years old and a patient of Dr. Fraser of East Boston, had had for two years symptoms upon which the diagnosis of cancer of the ascending colon was based. There was loss of flesh, impaired digestion, with pain in the right of the abdomen with gurgling and squeaking, and a tumor which was tender, somewhat movable, and irregular. Exploratory laparotomy was advised, after consultation, with the chances against any radical improvement. The mass was found to be a tumor of the hepatic flexure of the colon that had sagged down towards the ileo-cecal valve. The disease was so distinctly localized that extirpation seemed justifiable. The whole ileo-cecal coil was removed after securing in sections the meso-colon. The beginning of the transverse colon was then united to the small intestine, which had been cut near the ileo-cecal valve, by means of a lateral anastomosis with the Murphy button. The cut ends were closed by continuous suture. After most careful irrigation the abdominal wound was tightly closed. The specimen proved to be an extensive ulcerated carcinoma of the large intestine.

CASE 4. Nephrectomy for calcareous pyelitis. Dr. Richardson.

Mrs. X., aged forty-seven, a patient of Dr. J. A. Steadman, of Canton, had noticed a tumor in the left renal region for some six months. Her general health had become seriously impaired without visible cause. The tumor filled the left renal region, bulging posteriorly, and extending in front nearly to the median line. It was hard, and in places irregular and nodular. Posteriorly there was distinct fluctuation. The temperature indicated a mild sepsis. Aspiration showed pus. Nephrotomy was advised unless total extirpation should prove easy after exploration. A curved anterior incision was selected for the purpose of ascertaining the condition of the other kidney, and to control hemorrhage if necessary. A transverse cut was carried towards the spine, and abundant room was thus gained. The right kidney was found of normal size, shape and feel. The left was enucleated from its capsule without great difficulty though the wall was sessile to the abdominal aorta. The bleeding, which was insignificant, was from three or four very small arteries in the thickened pelvis. There was abundant foul pus and numerous fragments of a friable calculus. The whole calcareous mass weighed about 1,500 grains. The peritoneum, which was opened in places during the separation from the descending colon, was efficiently protected by means of gauze. After thorough flushing with warm water the external wound was closed, a small gauze drain being left in the lower angle of the transverse cut.

A MEDICAL MAYOR. — Dr. A. W. Fly has been re-elected Mayor of Galveston, Tex.

CONGENITAL ANKYLOBLEPHARON.

BY WM. DUDLEY HALL, M.D.,
*Assistant Ophthalmic Surgeon to the Massachusetts Charitable Eye
 and Ear Infirmary, Boston, Mass.*

ANKYLOBLEPHARON, or union of the borders of the eyelids with each other as the result of injury, is not at all uncommon and not always easy to remedy, while on the other hand, the congenital variety is very rarely seen.

It was my good fortune to have brought to me quite recently during the service of Dr. Jeffries at the Massachusetts Charitable Eye and Ear Infirmary this interesting condition in twins, it being bilateral in each child. The infants were seven days old when I first saw them, rather small but fairly well nourished, one being somewhat cyanotic in appearance, the other of good color. The right eyelids of one of the babies were connected and held in apposition by two thin and thread-like adhesions, both of which proceeded from about the middle of the palpebral border, situated one-eighth of an inch apart, while in the case of the left eyelids there was but one similar strand of tissue. Upon separating the eyelids they could be seen to possess some elasticity, but were nevertheless quite resistant. The other child had two similar bands connecting the right eyelids, one of them being broader than the other, while there was but one band connecting the left eyelids, that being quite broad and occupied the entire middle third of the border. A few snips with the scissors, and a boric-acid lotion, was all the treatment required. The friends who brought the children stated that in their father a similar condition had existed at birth, and that the grandmother had successfully divided the adhesions.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

CHARLES L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, April 3, 1895,
 Dr. M. H. RICHARDSON in the chair.

Dr. C. A. PORTER reported and exhibited a case of

EXTENSIVE DISSECTION FOR MALIGNANT DISEASE OF THE NECK, PREVIOUS TO DISSECTION TREATED BY CANCROIN.

Dr. RICHARDSON: I have used cancroin and the toxins of erysipelas with those from the bacillus prodigiosus, as recommended by Coley, in carcinoma. My experience tallies with that of Dr. Porter and other observers, for I have failed to see any benefit whatever in the use of either for carcinoma. The result after the injections of the toxins of erysipelas and of the prodigiosus in sarcoma have been remarkable in the hands of Coley. In one case which I sent him of inoperable sarcoma of the abdominal wall there is now not only complete disappearance of the tumor, although it was very large, but at my last examination there was a hernia in the scar resulting from the exploratory incision. At the time of the operation this incision extended into the tumor through the abdominal wall, into a mass as large as a child's head.

Dr. F. M. BRIGGS read a paper on

CYST OF THE FINGER, WITH TWO CASES.¹

Dr. C. B. PORTER: I have nothing to say except that I have never seen a case such as Dr. Briggs reports. I have seen a few cases that seem to me more of synovial nature than anything else. I do not remember operating on one myself. I have recommended the operation. I cannot say whether they were simple synovial cysts or not.

Dr. H. L. SMITH read a paper on

THE TREATMENT OF ELBOW-JOINT FRACTURES BY ACUTE FLEXION WITHOUT SPLINTS; RESULTS, WITH CASES.²

Dr. RICHARDSON: I think every surgeon appreciates the importance of fractures near the elbow-joint, especially those of the external condyle implicating the joint. The results are so unfortunate, both for the patient and for the surgeon, that it seems to me we cannot have a more interesting discussion, especially when the proposed treatment is so simple, and the results so much better than those obtained by previous methods.

Dr. ABNER POST: Unfortunately I did not hear the paper; but I have watched a good many of these cases with a good deal of interest; and at the risk of repeating or not bearing directly on what Dr. Smith has said I would like to say a word or two. During the past year I have had a good many cases of fracture about the elbow-joint, and I was interested to put them into a position of flexion at more than an acute angle, and I must say I have been pleased by the results. So far as I have been able to follow them the results have been extremely good. I think during my four months' service last year the children's ward had never less than two cases at a time. I must have had eight or ten such fractures, and the results I think have been universally good, and a good position was easily obtained. The question arose as to the best way of retaining fractures in that position, and my service last year went through a sort of evolution. We commenced by manufacturing a kind of T-splint which as manufactured extemporaneously was not successful. Then the fractures were put up in plaster-of-Paris which answered very well, but it was a little difficult to put on a sling which held them in comfortable position, and for some reason or other, I hardly know why—I think wishing to put one up without any preparation beforehand and possibly plaster-of-Paris not being advisable and I being in a hurry—I had recourse to the methods used by Mr. Thomas for the treatment of disease at the elbow-joint, that of simply tying the wrist up to the neck so that the arm was confined across the chest at an acute angle, kept in place simply by a bandage tied around the wrist and around the neck. That held the arm in place perfectly well, but there are objections to it as it is apt to cut the wrist and neck, and we tried to improve upon it by manufacturing a sling, and after a few attempts I found a nurse in the children's ward who manufactured a sling which answered the purpose most beautifully, and that sling has been used in several cases. Whether that position is universally applicable or not I hardly know. I should never be satisfied to simply flex the arm and leave it in that

¹ See page 7 of the Journal.

² See page 1 of the Journal.

way alone, but I have been accustomed to see that the fractures were moulded into place. I have never been able to arrive at quite so ready a method as Dr. Smith has just described, but I do think that the adoption of the acute angle is certainly an advance, and perhaps as a matter of routine is the best method that I know of.

DR. NEWELL: This has been a most interesting paper to me; and I think it calls our attention to the fact that this method is as good, if not better, than the older and more accepted methods of treating elbow-joint fractures and injuries. It certainly is of the greatest value to all practising surgeons; and it seems to me that it furnishes all the comfort of a Velpeau bandage, in fact, it is practically putting the elbow into the position in which the arm is put in the Velpeau bandage. It seems to me that takes the weight in the way the arm is ordinarily held in the sling off the shoulder-joint and gets rid of a great deal of discomfort that cases on an ordinary angular splint usually suffer. I think the very fact that the elbow can be flexed at the acute angle is determined by the fact that the fragments must be in place in order for that extreme flexion to be brought about, so that as Dr. Post suggests, if the reduction were not readily produced, it would show that the obstructing fragment had not been put out of the way. It seems to me the sling that Dr. Post uses not only flexes the arm, but lifts the arm as much as possible and supports it like a Velpeau bandage. I should think this would prove to be a most valuable contribution to surgery.

DR. MUMFORD: I should like to ask how long the arm is kept at this angle and how soon Dr. Smith begins to manipulate the joint.

DR. SMITH: I am in favor of keeping the arm absolutely still for a long period provided we are quite sure that the fragments are in exact place and everything has gone right throughout treatment. I intend in all cases to keep the arm without any movement for three weeks at least, and am inclined to believe it would be well to keep it longer. I can think of no reason, theoretical or practical, why it would be better to take an arm down and move it at the end of three weeks than at the end of four or four-and-a-half weeks, but the treatment in these cases usually has been a moderate amount of passive motion at about two-and-a-half to three weeks, the arm being gradually let down into a right-angled position, and being perhaps kept on a right-angled splint for a little while. When I have treated them myself, I have simply kept them in the acute position for about three weeks, then let them down into a sling flexed to slightly less than a right angle. I believe it is not enough to flex the arm even to what seems to be a pretty acute point. I should flex the arm of this little boy whose accident is a week old, several degrees beyond the point where it is, simply because it can be done, and it is by flexing acutely that the fragments are firmly locked. As long as the arm is carried to the limit the fragments are locked and not until then, and if any bad results have occurred it would seem that that is the reason why. Even a few degrees of loosening would allow some slipping of the fragment, and the slipping of a fragment one-eighth inch might make considerable difference in the amount of motion ultimately gained. The flexion recommended is forced flexion absolutely tense and kept tense.

DR. M. H. RICHARDSON presented an account of
A CASE OF ACUTE INTESTINAL OBSTRUCTION FROM
THE IMPACTION OF AN ENTEROLITH; OPERATION;
DEATH.

DR. EDWIN RICKETTS, of Cincinnati: I feel indebted to Dr. Richardson for the able presentation of this subject for it opens up a wide field; and I am very glad that he has made mention of the Murphy button. In connection with this subject I want to present a few specimens of gall-stones, five stones representing as many operations, and the stones in this box, twenty-eight in number, were taken from another patient. These specimens are the largest that I have removed. These 28 weigh 190 grains. This stone 120 grains, and was removed three weeks ago. This stone 172 grains, this 128, this 28 and this 115. We have had our attention attracted to appendicitis. I am quite sure that in the near future our attention is to be called to gall-stones and their results. The patient from whom this stone (120 grains) was removed had been an invalid for nine years, and had not been able to take anything of diet outside of milk, suffered from diarrhea, and this stone was found down in the common duct lying directly back of the pylorus. I have never done an operation similar to the one reported by Dr. Richardson, but these stones being large I thought I would like to present them in connection with the case.

In regard to the use of the Murphy button, I think, as it opens up the subject, we can go back further and touch upon the subject of cholecystotomy. I am quite sure that the ordinary cholecystotomy in which the gall-bladder is incised and brought up into the abdominal wound, stitched into it as the pocket is stitched into the woman's dress, is the better procedure than anastomosis by the Murphy button for the reason that you have the incised gall-bladder under control and you can wash it out daily, as suggested by J. W. Taylor, until the common duct opens and when the bile is passing into the intestinal canal you can remove the tube. In making the anastomosis with the Murphy button you take the chance of tearing the gall-bladder in the passing of this button into the intestinal canal, and there are cases in which portions of the gall-bladder had been torn off as the button had passed into the intestinal canal, and there are other cases in which foreign bodies had come in contact and been entangled in the opening of the Murphy button and obstruction brought about in that way and death followed. Why it is that some stones are carried a number of years without causing a great amount of trouble is rather peculiar; and equally so in other cases where the small stones give so much trouble; in fact, the patient having this stone of 28 grains in the common duct suffered more than any of these patients possessing the large stones. Indeed, it was with a great deal of difficulty that the 28-grain stone could be dislodged; and this patient lost thirty-five pounds in flesh while the patient with the stone of 120 grains retained her flesh, surprising us all.

DR. NEWELL: I was greatly interested by Dr. Richardson's case, and its extreme rarity. It seems to me it would be hardly possible that an operation that occupied only ten minutes with complications had any immediate relation to the death of the patient. I think it is impressed upon us more every day, the great loss our art suffers through the attitude of the

community towards post-mortem examinations. If there had been an examination in this case there would probably have been found some other cause for death than the operation or even shock. I think all who are familiar with Nussbaum's work, on the wounds of the abdomen particularly, know that a great many cases go for a long time with from 20 to 30 or even 60 large-sized foreign bodies in the stomach or various parts of the intestinal tract without any apparent disturbance. It is probable that in these cases coincidence of unfavorable conditions gives rise to irritation and inflammatory complications that make them serious or fatal.

DR. E. W. CUSHING: I think that it is very fortunate that Dr. Richardson has called attention to the phenomena of contraction of the intestine, the suddenness with which it may occur and the violence with which it may occur. Those of us who saw the demonstration by Dr. Morris on the rabbit at Toronto last summer, were very much impressed by seeing that a slight crystal of carbonate of soda laid on the exposed intestine of a rabbit will cause contraction to occur sufficient to shut the lower part of the intestine up almost into a cord, which is then drawn into the upper part until complete intussusception of one-half to three-fourths inch occurs, so that we can see before our eyes the phenomena of intussusception; and I am very sure that a good many deaths which occur after abdominal section, are primarily due to some phenomena of irregular contraction of the intestine commencing a stoppage or forcing the intestine into some position in which it gets a kink and cannot recover itself, the peritonitis which may come on afterwards being rather secondary and due to distention, than primary and due to infection at the time of the operation.

In regard to the Murphy button; speaking offhand, it seems to me the size that is meant for use in the small intestine is smaller than I should estimate the calibre of the stone. It is also a good deal smoother, and yet it is something to be considered whether it is safe to leave a thing of that size in the intestine where it might certainly give rise to obstruction by contraction. I do not remember that that particular form of bad result has occurred in any considerable number of cases. I think we all appreciate the great importance of the subject and the care with which Dr. Richardson has worked it up. I think the profession is under obligations to Dr. Richardson for steadfastly publishing these fatal cases. If there is anything which surgery is in need of at the present time it is what has been facetiously described as the *alethometer*, an instrument for recording the truth of reported cases. I have had occasion to know how hard it is to find any one who will report his fatal cases. We have long runs, brilliant successes, all sorts of things except deaths, reported; and the man who is willing to give us the true results and the bad results, and who is willing to stand up and do this work, displays a quality coming very near moral heroism, as things go to-day in surgical matters.

DR. RICKETTS: I should like to know Dr. Richardson's views as to the causative relations between gall-stones and cancer of the common duct.

DR. RICHARDSON: With reference to reporting fatal cases, I think that some of the most instructive and interesting work we do is in connection with those desperate cases in which death is naturally to be expected. If one reports all cases that belong to this

class, he must have a large mortality. Failure to record disasters leads to error in estimating dangers and to disappointment in ultimate results. The subject of gall-stones has interested me for a long time, and I have operated in a good many cases. I have never seen a gall-stone removed from the bladder during life as large as those which Dr. Ricketts has just shown. The case I have reported is an illustration of the importance of immediate operation when gall-stones makes their presence known. I believe fully in the early operation, when the calculi are in the gall-bladder: first, because the operation is much more difficult when the stone has become impacted in the common duct; and, secondly, because prolonged cholemia makes the chances of recovery even less, the patients frequently dying of exhaustion after so late an operation.

I believe that gall-stones are a common cause of cancer of the gall-bladder. I have removed gall-stones successfully and have seen the patients die within a year or two of cancer of the gall-bladder. The danger of cancer, the danger of cholemia, the danger of impaction in the common duct, and, finally, but very remotely, the danger of ulceration and impaction in the intestine, all these make me a firm advocate of early operations upon the gall-bladder. Another very important reason is that in the early operations for gall-stones we have a dilated gall-bladder upon which operations are very easy and safe. When possible I use the method described by Dr. Ricketts, but I have not been fortunate enough often to find the gall-bladder sufficiently distended to apply it. In more than half the cases the gall-bladder has been contracted upon the stone, so that we have had to face the problem of draining extensive extravasations of bile from the depths of the abdominal cavity, and that without any method of controlling the flow except by means of gauze. The prognosis of such cases is good unless the patient is exhausted by prolonged pain and jaundice.

With reference to the pain, in the case reported tonight I took the history very carefully, and inquired particularly about it. His reply I have given verbatim. There was no pain except as stated. Gall-stones may even fill the gall-bladder without causing pain. As to the passage of foreign bodies through the alimentary canal, I had supposed that once through the pylorus a solid body could pass easily to the anus. I never had seen impaction except at the pylorus, the cardiac orifice, or the esophagus, and at the anus. There was no reason for the obstruction except that the small intestine was spasmodically contracted around the calculus, thus stopping the passage of the intestinal contents. Beyond the point of impaction the bowel was completely collapsed.

I do not wish to say anything against the Murphy button, for it is very ingenious and rapidly applied and it has many advantages in certain cases, yet we must find the truth about it. I have used the button but three times; once in a gastro-enterostomy, and twice in lateral anastomosis between the cecum and the sigmoid flexure,—twice in the same patient. The gastro-enterostomy died from extravasation through the gastric attachment of the button. In one case the button has never been passed. In this instance at the end of a few months the anastomosis was completely closed, so that it was necessary to operate again. There was no opening whatever found between the cecum and

the sigmoid flexure at the second operation. The patient has remained very well since the last operation, in February. The point that I intended to emphasize in connection with the Murphy button was that the enterolith or gall-stone in my case was no larger than the ordinary Murphy button, and yet it was caught and held in the intestine firmly enough to produce a fatal obstruction.

DR. RICKETTS: As Dr. Richardson referred to the causative relation of gall-stones and cancer of the common duct, there is one case I have just had I should like to mention. A gentleman, fifty-two years of age, consulted me four weeks ago, who had been losing flesh rapidly and who gave a history of gall-stone colic at intervals for more than three years. The pains were never so severe as to require an opiate. The question came up as to what was the trouble, and I advised exploratory incision, and found a gall-stone in the gall-bladder and cancer of the common duct and of the pancreas. Of course, an attempt to do cholecystotomy was not considered and the wound was closed. Death occurred ten days later. My assistant, Dr. W. B. Robinson, removed the liver post-mortem, and a strange condition of things was found, cancer of the pancreas was found, cancer of the common duct, a distended gall-bladder and in that gall-bladder is one stone having facettes. The history of the case, attacks of pain for three years, shows undoubtedly that the stones had passed, as I said, morphia not having to be resorted to, and the solitary stone remaining, that has facettes, goes to prove in my mind at least, with the cancerous condition found, that the gall-stone with facettes antedated the cancerous condition.

PATHOLOGICAL SPECIMENS.

DR. RICHARDSON: I show here a multiple fibroid removed yesterday by abdominal section. The tumor was separated from its attachments by careful ligation of the broad ligaments with the ovarian and uterine arteries. The cervix was left, having first been covered carefully by peritoneum. The prognosis seems good, yet in my experience the results of this operation cannot be predicted with certainty. The most difficult and unfavorable hysterectomies may recover without a bad symptom, while the simplest and most favorable ones may die. The chief cause of regret in the latter event is that one cannot demonstrate his error in reviewing his technique.²

The second specimen is a fibroid associated with an abscess in Douglas's pouch. The case was seen as an emergency, and an operation was performed at once. Attempts at draining the abscess had been made some days previously, but they proved unsatisfactory. The operation was performed without incident, but it had to be done with great rapidity on account of the alarming condition of the patient. The woman died at the end of a few hours. The association of fibroids with pelvic abscess is rare in my experience. The combination has been most unfortunate, for death has followed in every instance, whether operation was performed or not. There may be cases of fibroid in which this complication is not serious, and in which the prognosis is not unfavorably affected; but if, as in my cases, the opposition to operation is prolonged

until the patient is brought to death's door, one must expect a large mortality, especially if the complication is a septic one.

The next specimen is a symmetrical fibroid removed in the stage of extreme exsanguination. The tumor was small—not larger than an orange—but the source of an exhausting hemorrhage. The operation did not last over fifteen minutes, and not a teaspoonful of blood was lost. Recovery was speedy and satisfactory.

Hysterectomy by the vaginal route seems to me preferable when the uterus is small and movable, and when the disease is such that one can cling closely to the uterus in his dissection. When extra-cervical infiltration is suspected, as in cancer, or when the difficulties appear greater by the vaginal method, I prefer the abdominal incision. By either method the results have been good, with very rare exceptions, in my experience. The rarity of fatal complications, nevertheless, gives me, for one, little confidence in a given case, no matter how favorable it may be, for, as already stated, death without perceptible cause may follow a most satisfactory operation upon a perfectly healthy patient.

ASSOCIATION OF AMERICAN PHYSICIANS.

TENTH ANNUAL MEETING, WASHINGTON, MAY 30 AND 31, 1895.

(Concluded from No. 26, p. 649.)

FRIDAY. — MORNING SESSION.

EXHIBITION OF A CASE OF ALBUMINURIC RETINITIS CONSEQUENT UPON AN ATTACK OF PURPURA HEMORRHAGICA RHEUMATICA.

DR. PRENTISS: I bring before you to-day a patient whose history was related to this Society in 1890. He has the interstitial form of nephritis, which followed an attack of purpura hemorrhagica rheumatica, the form known as morbus maculosus. It will be remembered that in this case of purpura there was hemorrhage from the bladder, almost certainly from the kidneys at the same time, along with the other hemorrhages. Trouble began in his eyes about five months ago, and since that time his vision has been gradually failing until now we have a condition of the retina in which the yellow spot is almost entirely covered by degenerative changes, and there are a number of hemorrhages in different portions of the retina.

DR. OSLER: It is doubtful whether these cases should be regarded as purpura hemorrhagica rheumatica or morbus maculosus. This belongs naturally to the group of purpuric cases which were first described accurately by Henoch and which are regarded as Henoch's purpura and have the following characteristics: First, recurrence; year by year the patient may have attacks of purpura. Second, marked gastric and intestinal crises, which may occur without any other manifestation. Third, arthritis, which may occur alone. Fourth, hemorrhages under the skin. Cutaneous manifestations may not be hemorrhages but manifestations of erythema multiforme. They may be simply giant edemas or they may be purpura simply, or they may be urticarial purpura. Lastly, there may be hemorrhages from the mucous surfaces, and, in association with the hemorrhages from the mucous surfaces, not an inconsiderable number of cases of acute neph-

² May 24, 1895. This patient died at the end of five days with vomiting and distention. At the autopsy no cause of death could be found. There was no evidence of peritonitis, nor was there hemorrhage. Dr. Whitney's diagnosis was, "General anemia, slight fatty degeneration of the heart and kidneys, edema of the lungs."

ritis occurs. I have reported one fatal case of acute nephritis in this connection. I believe it is an entirely different form of disease from the ordinary types of purpura. It is more allied to certain types of erythema multiforme.

DR. C. G. STOCKTON: I wish to speak of a young man under my care because of hemorrhages of the retina. These hemorrhages have occurred at intervals for the past four or five years. No other evidences of purpura have occurred on the body, nor has the man suffered from any arthritic trouble. He has had gastric crises, and is to some extent anemic. The case is not the result of kidney lesions; there is no albuminuria, and the kidneys seem in every way to perform their functions.

DR. D. W. PRENTISS: When this boy was brought here before, one of the members suggested treating the purpura with phosphorus. This was done with very great advantage.

A CASE OF MADURA FOOT DISEASE (MYCETOMA PEDIS),
by DR. J. GEORGE ADAMI, Montreal.

Report of a case occurring in a man who has lived all his life in America. Probably one of the first undoubted cases reported on this continent. The appearances during life were described, and illustrated by photographs. The results of the microscopical examinations of the lesions on the foot (after the latter had been amputated by Syme's operation) were given, and the resemblance of the lesions to those of actinomycetes pointed out. A brief description of the two varieties of mycetoma — the black and the white — and of the clinical history of the disease complete the paper.

DR. WM. P. NORTHRUP, New York, read a paper on
GONORRHEAL ARTHRITIS, CLINICAL OBSERVATIONS.

Five cases were related, showing in general these characteristics:

- (1) One joint (elbow or knee) affected.
- (2) Fusiform swelling, indicating
- (3) Periarthritic lesion, with
- (4) Synovial effusion, serous probably;
- (5) Soon absorbed, leaving
- (6) No adhesions.
- (7) Exquisite sensitiveness, with
- (8) Little local heat and
- (9) Little fever (100–101°).
- (10) Course, four weeks.
- (11) Recovering with perfect joint.

Three of these cases were associated with old or recent urethral discharge; one patient had no gonorrheal history and one woman's baby developed ophthalmia.

On the authority of Finger, Neisser, Bumm, Wertheim and others, the conclusion is justified that (1) gonorrheal arthritis exists; (2) that it is a metastasis, and is due to the presence and growth within the joint of the gonococcus, this agent finding its way thither through the blood channels, the original infection being most commonly upon the mucous membrane of the urethra or conjunctiva; (3) that a similar urethritis may be induced in animals by injections into the joint of a pure culture of virulent gonococci.

DR. W. H. WELCH: There is no question that there are distinct types of gonorrheal arthritis. There are cases in which the exudate is serous with a good deal of periarticular edema and no pus. Then there are

unquestionably suppurative cases of gonorrheal arthritis. I base this on the results of bacteriological examinations. Dr. Halsted, at the Johns Hopkins Hospital, has opened a number of joints in gonorrheal arthritis, and we have had an opportunity of making a microscopical examination of the cultures. I thought it might interest the members of the Society to bring a culture from a case of suppurative inflammation of the sheath of the tendons of the extensors of the toes. This man came to the hospital not long ago, giving no history of gonorrhea. He had a somewhat diffuse swelling around the ankle-joint, which was the only part infected. This was incised by Dr. Bloodgood. He cut through a good deal of edematous tissue, which was also infiltrated more or less with fibrin. Then came the sheaths of two tendons which were distended with pus. Cover-slips from the pus showed a diplococcus with the morphology of the gonococcus, which decolorized by Gram's, thus excluding the ordinary pus cocci. These cultures, which I exhibit, are pure cultures of the gonococcus obtained from the pus of this particular case. They are on different media. We have found one medium, more or less by accident, which seems to be a most favorable one for the gonococcus. Dr. Flexner, while working with another organism, found that it grew best upon an extract made from fetal pigs. This medium proves to be a rather brilliant one for the gonococcus. I have not seen it grow on any other medium so well.

There is no pathological anatomy for gonorrheal arthritis that is convincing. Dr. Halsted is impressed with the frequency of small ecchymoses in the synovial membrane of the joints which he has opened; but he says he would not trust himself, and he has had a rather large experience, merely from the gross appearance of these joints, either before or after operation, to make a diagnosis of gonorrheal arthritis.

We have had another case which is somewhat pertinent to this line of discussion. It is one to be reported in full by Dr. Thayer, but inasmuch as this is an opportunity to see the recent specimens and the cover-slips and sections from the case, I thought he would be willing for me to present it here. The history of the case in brief runs over six weeks, three weeks outside of the hospital and three weeks in the hospital. The case was that of a woman in which the diagnosis was correctly made of acute malignant ulcerative endocarditis. At the autopsy we found most extensive vegetative endocarditis. There was on the auricular surface of the aortic segment of the mitral valve, a very large polypus-like thrombus, very firmly adherent by its base to the valve. Organization had begun; a new connective tissue had grown in from the valve into the thrombus. An embolic infarction, a very large one, was found in the spleen. The disease having lasted six weeks, as one might expect, there was hypertrophy of the right ventricle and left auricle, and symptoms of chronic passive congestion. In this case the bacteriological examination was fortunately made during life from the blood. The blood was withdrawn several days before death by Dr. Blumer, and a culture was made by mixing about a cubic centimetre of the patient's blood with agar, which gives us one of the media upon which the gonococcus is known to grow very well — a mixture of blood-serum and agar. The culture gave a large number of colonies of the gonococcus. The patient had a genuine gonococcus septicemia. So far as I know, this demonstration

during life is unique. At the autopsy the gonococcus was found in large numbers in scrapings of this vegetation on the heart. This case seems to be of considerable importance with reference to the pathogenic possibilities of the gonococcus — a case of genuine gonorrheal endocarditis, unmixed with any other infection, with a general gonorrheal septicemia in which the gonococcus was demonstrated in the blood and found in it in very large numbers.

DR. F. C. SHATTUCK: I think there is a general impression — and I shared it until I looked up the subject — that gonorrheal arthritis is very apt to be mono-articular. When we came to look up the cases in the Massachusetts Hospital, that impression was not borne out. Out of 64 cases the inflammation was mono-articular in only six; two joints were affected in four, while in 54 cases three or four joints were affected.

Dr. Welch, I think, must have overlooked cases, which, unless I am very much mistaken, Dr. Hughes, house-officer in the Massachusetts Hospital, has published. In three cases of gonorrheal synovitis he succeeded in making culture of the gonococcus from the blood, and in one of these he communicated the gonorrheal inflammation to a bitch by inoculation.

Some years ago, before the introduction of bacteriological investigation into this subject, I saw in one winter two cases of malignant endocarditis, one of them with autopsy, the other an undoubted case, both fatal, both following gonorrhea.

During the past season I had a case of arthritis and peri-arthritis about an elbow-joint following gonorrhea in my wards in the Massachusetts Hospital. It seemed to me that pus was probably present in or about the joint. I consulted Dr. Maurice Richardson, and he agreed with me that there was pus. The joint was opened, and nothing at all was found — simply a peri-arthritis.

DR. CHARLES CARY: I should like to mention two cases of a different line of gonorrheal infection which came under my observation last winter. One was that of a young man who had several joints involved, those most seriously affected being the shoulders and knees. Both knee-joints were much distended with synovial fluid, as were also several of the sheaths of the dorsum of the foot. He had also gonorrheal conjunctivitis. But the point I want to make is that he had a gonorrheal phlebitis involving the femoral vein. Immediately following that case there came under my observation a young woman who had had a previous gonorrheal discharge. She had an inflammation of the femoral vein which was not to be accounted for in any other way. I thought it was due to gonorrheal infection, but there were no cultures made. The case was reported at the time as being gonorrheal.

DR. MASON: At the request of Dr. Northrup I have had collected the cases from the records of the Boston City Hospital during recent years, and have forwarded the results to him in a tabulated form.

Dr. Shattuck alluded to the fact that the infection concerned a single joint in only a small proportion of cases. According to our experience, in about 25 per cent. only was a single joint involved; the others were multi-articular. The effusion which was present in a large proportion of cases was always serous, with one exception. In one case, which was explored and serous fluid withdrawn, in four days the joint became purulent. The boggy condition and general appear-

ance of the joint is often very suggestive of pus, as in the case referred to by Dr. Shattuck in which an operation was performed. In the 120 cases handed to Dr. Northrup, there was but one post-mortem, which was the case which Dr. Councilman published in our last series of Hospital Reports; a case of gonorrheal myocarditis. Another patient died of pericarditis, which, in the light of experience, must have been due to the gonococcus. In a few instances bacteriological examination was of service in making the diagnosis, though most of the serous effusions which were examined in the joints were sterile. In one instance, where there was no urethral discharge, but an inflammation at the hip-joint, an examination of the blood showed the presence of the gonococci, and I am informed that one of our hospital internes working in Dr. Ernst's laboratory, has infected the urethra of dogs from the cultures made in this case.

DR. ADAMI: I would like to mention a case of rather doubtful joint disease seen in our laboratory recently, in which it was suspected that pus was present. A culture was made on glycerine agar. At the end of a week there were definite cultures of the gonococcus. Of course, the serum in this case acted as a culture medium, and not the agar. This is a simple way of getting small cultures; it is practically the same as using blood.

DR. ROOSEVELT: Out of ten cases which I have collected one joint was involved in only one case. The ten cases had altogether 22 joints involved. In these cases no cultures have been made from the affected joint. In nine of the ten cases there was an unquestionable urethral discharge in which the gonococci were demonstrated microscopically, although not by cultures.

DR. WM. OSLER: Dr. Fletcher, one of my assistants, has collected the details of 27 cases in the Johns Hopkins Hospital since its opening. Five of these are interesting because Dr. Halsted opened the joint and found in four a sero-hemorrhagic fluid, and only in one was there pus.

DR. A. JACOBI reported

A CASE OF HYPERTHERMY,

in which the temperature went up to 65.5°C. (148° F.). The patient, an hysterical man, after being under observation for several weeks, left the hospital by himself, his temperature still very high.

DR. W. H. WELCH: I would like to call Dr. Jacobi's attention to the case, which was reported by Dr. Galbraith, an Omaha surgeon, a few years ago, in the *Journal of the American Medical Association*. In this case the temperature ran up to 171°. These are amongst the most mysterious cases in medicine. They seem to me a physical impossibility. I do not see how it is possible for the temperature of a part of the body to reach 171° or to remain at 148° for several days, without the death of the part. This is far higher than heat rigor which is fatal to muscle; it is a temperature fatal to the life of the animal cell. I have no explanation of the cases, and Dr. Jacobi will have to pardon a certain amount of scepticism.

DR. F. C. SHATTUCK: This is apparently the first case reported in males. In the hurry of coming away I neglected to bring with me a chart which I have been keeping for some years, which shows a temperature of 117° in a hospital case of mine. Every possible precaution was taken to prevent fraud, and I

always regarded it as probably authentic. The temperature was only maintained for an hour, when it went down again to a normal point. This was a hysterical young woman.

DR. GEORGE DOCK: Was the temperature of the urine taken?

DR. JACOBI: That has been neglected.

DR. M. H. FUSSELL: In a case at the University Hospital a man, evidently a malingerer, had a temperature of from 115° to 120° in his mouth and a normal temperature in the axilla.

DR. JACOBI: Dr. Welch is welcome to his scepticism. He is no more sceptical than I was at the beginning of this case. The temperature has been taken with a number of thermometers. There are hundreds of temperatures in this record — temperatures in the axilla, popliteal space, rectum and urethra. They were always taken in the presence of several persons. They were taken with the patient in bed and out of bed, stripped naked and so on. There can be no mistake about the report. That a temperature should go up for a few minutes or half an hour, in hysterical patients, as in those cases recorded in the English journals, can be explained more readily; but I shared the scepticism of Dr. Welch in regard to the persistence of such high temperatures. But in the last five days of which I have the records, the temperatures ranged from 109.8° to 148°, with an average of 124° or 125°. Now these are facts. If our physiology and our theory do not agree with the facts, well, so much the worse for the undeveloped state of our physiology and our theory.

DR. OSLER: Was his abdomen very hot?

DR. JACOBI: Sometimes very hot and sometimes not so. Sometimes there was difference between the upper and lower parts of the body.

FRIDAY. — AFTERNOON SESSION.

SOME OBSERVATIONS ON THE SPLEEN AND MARROW IN LEUKEMIA,

by DR. J. GUITERAS, Philadelphia.

The point to which the author called particular attention in connection with the lesions in this case of leukemia, was the peculiar mode of cytogenesis apparent in a large number of the capillaries of the spleen. Those channels in the spleen which possess a distinct endothelial wall are regarded as capillaries. Just outside the capillary wall the free nuclei, "erythroblasts," gather in large numbers. The small free erythroblast sends a prolongation through the endothelial wall, and just within the wall forms a small bud upon which the red blood-cell develops. The nuclei which give rise to this process are evidently such as are described by Löwit as erythroblasts, in contradistinction to the other cells found in large numbers in the channels of the spleen, the leukoblasts. These erythroblasts, although found in large numbers throughout the spleen, do not give rise to any red blood-cell formation outside of those along the endothelial wall of the capillaries.

A COMFORTABLE WAY OF USING COLD IN FEVERS.

by DR. FRANCIS H. WILLIAMS, Boston.

The method described consists in placing the fever patient on a rubber cloth, wrapping one or two thicknesses of coarse gauze over three-fourths of his arms, legs and trunk, then sprinkling the gauze with water and fanning to hasten evaporation. As compared with

sponge baths with water at 70° Fahrenheit, this method proved more effectual in reducing the temperature in a given period of time. Evaporation of alcohol gives but slightly better results than water, and has several drawbacks. The method combines comfort, convenience and efficiency to a greater extent than most other means.

GOITRE IN MICHIGAN,

by DR. GEORGE DOCK, Ann Arbor.

The object of this paper was to call attention to the prevalence of goitre in Michigan and its vicinity. Goitre occurs in all parts of Michigan. It is most prevalent in the northern part, but the southern part of the lower peninsula shows a large proportion. Fifty-two reporters give a total of 477 cases. Lower animals almost always have goitre where it is common to man. The relations of goitre in Michigan are such as to make all other causes than the character of the drinking water, doubtful. The pathogenic substance in the water is supposed to be a microbe or a toxine. At Luddington, goitre has become much less frequent since the lake water was substituted for well water. The two most important indications in the treatment of bad cases of goitre are the sterilizing of the drinking water and removal to a non-goiterous district.

DR. H. M. HURD: The superintendent of the Kingston (Ontario) Insane Asylum wrote to me several years ago that he had found in his institution a large increase of goitre, which he supposed to be due to some local cause. A great majority of his patients came to Kingston from country districts, where they procured their drinking water in nearly all cases from wells. At Kingston, they procured the drinking water from the River St. Lawrence, and goitre developed in consequence of the change.

DR. WM. OSLER: Not only in the Kingston institution, but also in the whole of the western part of Ontario, goitre is prevalent. It is interesting to note that in all of the regions in which the older writers describe goitre, and which are given in Hirsch, the goitre has disappeared. Every one of my correspondents from the Vermont valley and from regions in North Carolina, have denied knowing anything about it, and were much astonished to hear that those places had gone down in medical literature as goiterous localities, and appeared as such in the last edition of Hirsch's large work.

DISPLACEMENTS OF THE LIVER,

by DR. J. E. GRAHAM.

This paper contains a brief account of the literature of the subject and a short description of three cases met in the author's practice. The etiology, symptoms, diagnosis and treatment of displacements of the liver are discussed. A tabulated statement is made of thirty published cases.

CARCINOMA OF THE LIVER WITH CIRRHOSIS,

by DR. M. H. FUSSELL.

Two cases of tumor of the liver were described, where the change was that of a trabecular epithelioma with a large amount of interlobular embryonal connective tissue and the formation of a large number of interbiliary canaliculi in this embryonic connective tissue. The cases seem to prove that the condition was the result of an irritant acting upon the connective tissue, which caused the cirrhosis, and upon the liver cells which caused the carcinoma.

DR. ADAMI reported a case similar to one of Dr. Fussell's.

ON THE DIRECT FARADIZATION OF THE MUCOUS MEMBRANES OF THE STOMACH AND THE INTESTINES IN ANIMALS — DOGS, CATS AND RABBITS,

by DR. S. J. MELTZER, New York.

Against all clinical expectations, the experiment on animals revealed the surprising fact that neither the stomach nor the intestines can be brought to contraction by faradization of their mucous membranes. Neither can the stomach be brought to contraction by application of one of the electrodes on the mucous membrane and the other direct on the muscular sheath of the stomach. The application of one electrode on the intestines, and the introduction of the other into the rectum, does not produce any contraction of the intestines, but kills the animal sometimes.

DR. C. G. STOCKTON: The interesting paper of Dr. Meltzer confirms some work of my own done in 1890 which I reported before the State Society of New York in 1890, and published in *Gaillard's Medical Monthly* in New York City. For several years I had been using a gastric electrode, and was quite sure I had produced marked gastric movements by the internal use of the instrument, and I proceeded to demonstrate this upon dogs. The results that I had at that time were practically such as Dr. Meltzer has reported.

We must not forget that the internal use of the electrodes does increase secretion in a very marked manner. One could see the secretion pouring down the wall of the stomach. It was found to be very rich in hydrochloric acid and pepsin ferment.

It is rather unusual that the stomach should remain quiet under such stimulation when the intestine does not. I have frequently with very moderate currents stimulated peristalsis in the intestine.

DR. A. JACOBI: I have used electricity a great deal in conditions of chronic constipation, dilated and weakened colon, and so on; and what I have noticed is more or less an absence of effect. The last half-year I have made it my business to try it on a number of patients after having given up this treatment several years go. I thought there must be something in it, but the results I have accomplished have been almost *nil*. What I have observed would, therefore, be confirmed by the result of Dr. Meltzer's experiments. I am very sorry that this is the case, for I believed that we ought to get some effect.

DR. MELTZER: I cannot say that the experiments of Dr. Stockton are exactly the same as my own, for I do not know that they were done in the same way. My results are nearly the same for the intestines as for the stomach; and besides I have experiments which have shown the danger of stimulating the intestines by putting one electrode on the abdominal wall and the other into the rectum. I lost two animals in that way.

DR. W. P. NORTHRUP, of New York, then exhibited the Fell-O'Dwyer apparatus for forcible artificial respiration, and related two cases where it was used successfully.

The following papers were read by title: "Preparation of Autitoxin" and "Carasso's Treatment of Pulmonary Tuberculosis," by DR. H. C. ERNST; "Milk as a Morbific and Infective Agent, with Tables of 134 Epidemics of Typhoid Fever, 73 of Scarlet Fever, and 27 of Diphtheria due to Milk Infection, by DRS. S. C. BUSEY and GEORGE M. KOBER, Washington.

The Association elected officers for the ensuing year, as follows: President, Dr. A. Jacobi; Vice-President, Dr. J. M. Da Costa; Secretary, Dr. Henry Hun; Treasurer, Dr. W. W. Johnston; Recorder, Dr. I. M. Hays; Member of Council, Dr. George B. Shattuck; Representative on Executive Committee, Dr. Wm. Osler; Alternate, Dr. M. A. Starr.

Five vacancies in the membership were filled as follows: Dr. Henri A. Lafleur, of Montreal; Dr. Ira T. Van Gieson, of New York; Dr. Simon Flexner, of Baltimore; Dr. W. E. Fischel, of St. Louis; Dr. Frank Billings, of Chicago.

Recent Literature.

The Disorders of Speech. By JOHN WYLLIE, M.D., F.R.C.P., Ed. 8vo; pp. viii, 495; with two tables and twenty illustrations. Edinburgh: Oliver & Boyd. 1895.

Dr. Wyllie has done well to publish in this handsome volume the series of articles which during nearly three years he contributed to the *Edinburgh Medical Journal*. The work, however, does not consist, as might be inferred from such publication, of a collection of desultory or disconnected articles. It is, on the contrary, an elaborate and systematic study of the nature and development of human speech and of the various disturbances produced by defective development or disease. It is the most complete and comprehensive work on the subject that has appeared since the monumental work of Kussmaul, although, of course, less exhaustive than some of the studies on individual speech disturbances, such as agraphia or word-blindness. The author has not only been a careful student of the enormous literature of the subject, but he has enriched the work with the results of a very careful personal study of many forms of speech defect.

The first part of the book is devoted to a study of the disorders of the vocal mechanism, such as stammering, hysterical aphonia, and the troubles of professional voice-users. Stammering is due to a want of co-ordination between the oral and the vocal mechanisms, and it can often be cured by careful training in vocal gymnastics, with the help of the physiological alphabet which he gives. The study of the development of speech is based on the researches of Preyer; and in this connection the author gives many interesting studies which he made upon idiots and imbeciles. The final section, which embraces more than half of the book, consists of a study of the disorders of speech from diseases of the nervous system. The most novel and interesting features of this section are the chapters on the disturbances of speech in the different forms of insanity, and in the various affections which lead to paralysis or spasm of the vocal mechanism. The chapters on aphasia, however, although they contain nothing new except a few original cases, are remarkably clear and satisfactory.

The work treats with remarkable completeness of all the different forms of speech disturbance; its conclusions are accurate. The author is conversant with the best work that has been done on the subject; he is himself a careful observer; and his style is concise and admirably clear. Taken as a whole, we know of no better or more complete treatise on the subject since the work of Kussmaul, almost twenty years ago.

THE BOSTON

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RECENT EXPERIMENTS ON THE PARASITES OF MALARIA.

PROF. EUGENIO MATTEI has published in the *Archiv. für Hygiene*, No. 3, 1895, a "Study of Experimental (Malarial) Infection," in which he details some experiments of his own with malarial blood subcutaneously injected into healthy persons.

Into the subcutaneous tissue of the upper arm in four healthy subjects who had never had malaria, he injected varying quantities of blood taken from the veins of a patient suffering from quartan fever. The first man received half a cubic centimetre, the second one cubic centimetre, the third and fourth each two cubic centimetres.

Of the last two, one had chills and fever on the seventeenth day; and on the eighteenth small round bodies were found in the blood which were larger on the following days, developing with the characteristic pigment spots inside the red blood-corpuscles. On the fourth day from the first chill the ague paroxysm returned, with increase of the hematozoa. Finally, after two more attacks, the disease was arrested by quinine.

The same result was obtained in the case of the other patient, a healthy boy, who had also received two cubic centimetres of malarial blood. The period of incubation lasted only 11 days. The parasites found in the blood were regarded as of the pure quartan type corresponding to the type of the fever, being ameboid bodies with active pseudopodia.

In the other two cases no result was obtained, owing, as was supposed, to the smallness of the dose and active phagocytosis at the point of inoculation.

In several other instances healthy persons were inoculated with blood containing parasites associated with the irregular type of malarial fever. A robust boy was inoculated with two cubic centimetres of blood containing the characteristic semilunar hema-

months from an irregular form of intermittent. Incubation lasted fourteen days, when there supervened a typical irregular fever with chills and sweats, and continuing for several days till stopped by quinine. The sickle-shaped hematozoa were found in the blood. In another case, blood containing Laveran's semilunar bodies was injected into a man suffering from quartan fever whose blood contained the typical amebæ of quartan fever. After seventeen days, the small endoglobular bodies began to be seen; the fever increased and gradually there supervened the whole cycle of the irregular type of malaria, lasting for six days. After twenty-five days from the time of inoculation, the semilunar forms appeared and remained for three days, then disappearing with return of the original pure quartan forms; the patient did not completely recover for four months.

According to Mattei, it is possible for several types of parasites to exist together in the blood of a patient who has been exposed to various forms of the disease, and while only one kind may be found in the blood of the peripheral circulation, other kinds may exist latent in the deeper tissues and organs, waiting a chance of development.

Calandruccio and Bein have recently recorded similar experiments, the former inoculated himself with blood from quartan fever, and induced a similar fever in himself on the 18th day. After curing this with quinine, he inoculated himself with blood from a patient suffering from irregular intermittent, and after fifteen days had malaria of a similar type with the sickle-shaped amebæ. Bein made intravenous injections of blood from a tertian-fever patient, and he obtained in several instances not tertian but quotidian fever. Blood from these cases was injected into another series of patients, producing again tertian fever. The blood of both these types showed only the tertian parasites. Bein's conclusion is that both tertian and quotidian fever are caused by the same parasites in different stages of development. Mattei, however, believes that Bein had a tertian type which was either tertian simplex or tertian duplex, the one changing into the other form every twenty-four hours, but that it was a pure tertian, just as a quartan may be simplex, duplex or triplex.

Baccelli, in his laboratory in Rome, followed up these experiments of Bein and found that a tertian duplex always caused a tertian duplex, as he was able to detect both generations of the parasite in the blood at the same time.

It will be remembered in this connection that seven years ago (in 1888) Baccelli performed numerous experiments of a similar kind, and claimed results confirmatory of Golgi's theory of different parasites for different forms of intermittent fever. As far back as 1884, Gerhardt inoculated healthy subjects with blood from patients suffering from quotidian fever, and in two out of five cases obtained quotidian ague.

Marchiafava and Begnami have recently declared in favor of Golgi's doctrine of the existence of several

varieties of parasites—a type for each species of fever, and accept the following varieties: The ameba of quartan fever (Golgi); the ameba of tertian fever (Golgi); the ameba of Summer-Autumn tertian fever; and the ameba of quotidian fever. The pernicious types of fever are caused only by the last two, and the character of the attack is explicable by the biology of the parasites.¹

Trousseau taught that the type of the fever depends more upon the locality in which the individual lives than on the condition of the person himself. The human system does not change the morphology or the biology of the parasite. It is found that in certain localities the same type of malarial fever always occurs. Thus, in one place in Sicily only the quartan form is seen. In Vienna only the tertian and quartan, but never the irregular, while in the suburbs of that city the irregular type is almost the only one noted. In Tours the tertian types occur, while in Saumur the quartan is found, and both cities are on the same side of the River Loire.

According to Mattei, each form of malarial parasite has its cycle of growth and multiplication. The different malarial organisms are not more like each other than are the various bacteria. These organisms respond somewhat differently to drugs and other tests. Between the different kinds of malarial parasites and the types of fever, an unchanging relation exists as cause and effect, and one form of fever never changes into another. In those forms of malarial fever where a pure type is wanting, it must be admitted that there is a mixed infection, that is, by several kinds of the hemamebæ.

These experiments and conclusions are of the utmost interest, but it cannot be affirmed that the last word has yet been said. Laveran, who was the first to discover the hematozoa, is unwilling to admit that the quotidian is not a distinct type of fever, but merely the result of a tertian or quartan, or that the crescents are never found in the blood of patients with tertian or quartan. Relying on his observations, he believes the organism polymorphous, but single, and its evolution not always the same. The crescents appear in old cases—in those who have had several attacks, or present the malarial cachexia. The type of fever depends on the condition of the subject, his excitability, his tolerance of the miasm, etc. The same view is taken by Fernand Vidal in the new *Traité de Médecine*.

The reader who wishes to understand the questions involved in the study of malaria will find them most thoroughly presented and discussed in the work of Drs. W. S. Thayer and John Hewetson in the "Johns Hopkins Hospital Reports," Vol. V, 1895. The report is entitled the "Malarial Fevers of Baltimore: An Analysis of 616 Cases of Malarial Fever, with Special Reference to the Relations existing between Different Types of Hematozoa and Different Types of Fever." In every way the work in this report is most

scholarly and well arranged and the literature of the hematozoa of the blood, especially in malarial conditions, containing 359 references, has been so carefully brought together that the report presents to the reader a clear idea of what is settled and understood and what part of the matter is still open to discussion and investigation. The cases, with accompanying temperature charts, help to explain many of the apparently theoretical points previously discussed. The careful and repeated study of the condition of the blood in the large number of cases considered has enabled the authors to present most admirable reproductions of the three organisms in the course of their complete cycle of development. And we are led to believe that the careful microscopical study of the condition of the malarial parasites in the blood will make it perfectly possible to explain the most complicated of fever conditions. It is evident, too, from the clinical work presented that the study of the blood will assist the practitioner in his use of the antimalarial remedy, quinine, and help explain why one case so quickly recovers and why others have so many and persistent relapses. The short section upon the manner of infection is of the greatest practical interest, showing as it does that so far as the evidence has been collected at the present time, the water-supplies are not the sources of the infection, but that the subcutaneous method of entrance is the one that at present seems the most probable.

The medical public owes a deep debt of gratitude to Drs. Thayer and Hewetson for their most painstaking work in thus presenting the results of the investigations of writers of all countries for the past fifteen years, and at the same time recognizes the merit of their own carefully-made observations.

A SIMPLE EXPEDIENT FOR THE TREATMENT OF NOCTURNAL ENURESIS.

STUMPF, in the *Münchener med. Wochenschrift* for June 11th gives an account of a simple and apparently rational expedient which he has successfully adopted in the treatment of nocturnal enuresis, especially in older children. He was led to try it on the basis of the fact that the passage of even a few drops of urine through the sphincter vesicæ excites the action of the detrusor to such an extent that the call to urinate becomes almost imperative. It is well known how difficult it is to restrain the act of urination after even a small amount of urine has passed the sphincter vesicæ and entered the urethra. His theory is that during sleep the sphincter of the bladder is apt to become relaxed, so that as the child lies horizontally in bed a little urine passes the sphincter and enters the deep urethra. The irritation of this urine causes at once strong reflex action of the detrusor, and the bladder is at once emptied in a full strong stream. It is a well-known fact that in nocturnal enuresis in children the urine does not leak away gradually, but the bladder is emptied at once, a point which is in support of this theory.

¹ Sajous' Annual, 1894.

In order to prevent the passage of the urine into the urethra when the sphincter becomes relaxed during sleep a simple expedient is adopted, namely, the elevation of the pelvis, so that an accumulation of urine of ordinary amount in the bladder will gravitate back and distend the fundus, and not press against and tend to pass the sphincter. The elevation is secured by allowing the child only a single, small, flat pillow under the head, and placing one or two ordinary pillows under the thighs so that they lie at an angle of 130° to 150° with the horizontal spine.

This simple expedient was entirely successful in curing two inveterate cases, one of a boy nine years, and one of a girl fifteen years old. It was then tried in twelve cases, and was uniformly successful. It was usually necessary to continue the treatment for three weeks, after which time the children were able to return to their former sleeping position without relapsing.

The writer has found it unnecessary to have recourse to the time-honored measures of limiting the amount of liquids, frequent waking up during the night, etc. The chief difficulty about the treatment is to see that the children maintain the position throughout the night. Small children particularly are apt to wriggle and toss about and have to be watched, put back in position, etc. The method is therefore especially adapted to older children, in whom the position can be more easily maintained.

This method is certainly so simple and apparently so reasonable as to merit extended trial, especially as the time-honored methods of treating this pernicious habit are in so many cases unsuccessful.

It will be rather interesting if the elevation of the pelvis, which Trendelenburg introduced into abdominal surgery, and which has so extended and facilitated work in that field, should also prove of service in preventing children from wetting the bed.

EVOLUTION OF THE PHYSICIAN AND SURGEON.

In the order of development the physician was first differentiated from the priest. This was a natural result of the superstitious notions prevalent regarding sickness. Among many barbarous nations to-day, the medicine man is a priest and a sorcerer. This is clearly brought out by Herbert Spencer in his "Professional Institutions."¹ He states that among existing savages, the Dakotahs, various Southern India and African tribes, the Tahitians, etc., everywhere, as in remote antiquity, the belief prevails that disease is caused by evil spirits, and that treatment must be directed to appeasing or expelling the malignant agencies.

In Assyria and Babylonia there was a gradual separation of the medical from the sacerdotal function, and a disposition among the educated to resort in sickness to natural methods of cure.

¹ Popular Science Monthly, January, 1895.

Among the Ancient Jews, medicine was long in the hands of the priest, when the Levites were the only physicians. In later days the connection became less and less close, and the distinct office of the physician was recognized (see Ecclesiasticus xxxviii, 15).

Among the early Hindoos, medicine was regarded as of Divine origin, and as having come down through the priesthood. A similar belief prevailed among the Greeks. Physicians were descended from Asklepios. The Asklepiads dwelt principally near the temples of Asklepios, whither the sick and suffering came for relief. In later times, the profession became secularized; this was owing principally to the teaching and influence of Hippocrates who first gave to medicine the scientific impulse, and emancipated it from priestcraft, sorcery and superstition. It is surprising that Spencer quite overlooks the service rendered by Hippocrates, a service of which modern historians of medicine have ever been duly cognizant.

In early Roman times, there existed no medical class; diseases were held to be supernaturally inflicted, and the methods of treating them were methods of propitiation. Certain maladies ascribed to certain deities prompted endeavor to pacify those deities, and hence, as Mr. Spencer reminds us, there were sacrifices to Febris, Mephitis, Ossipaga and Carna. An island in the Tiber which already had a local healing god became also the seat of the Esculapian cult. Evidently, therefore, medical treatment at Rome as elsewhere was at first associated with priestly functions. Later on, conquered nations, characterized by actual or supposed medical skill furnished the medical practitioners. Physicians and surgeons were mostly slaves or freemen.

From B. C. 530, physicians of Rome, many of whom obtained residence in patrician families and a lucrative practice, were mostly Greeks holding the tradition of Hippocrates.

But emancipation has always come about slowly. Long after the triumph of Christianity in the Roman world, primitive and pagan conceptions of disease and its treatment prevailed. According to Sprengel, after the sixth century, the monks practised medicine almost exclusively. Their cures "were performed by prayers, relics of martyrs, holy water, etc., often at the tombs of martyrs. In the 12th century the practice of medicine by priests was found to interfere so much with their religious functions that orders were issued to prevent it, as by the Lateran Council in 1123, the Council of Reims in 1131, and again by the Lateran Council in 1139. But the usage survived for centuries later in France, and probably elsewhere, as it seems that only when a papal bull permitted physicians to marry, did the clerical practice of medicine begin to decline. Warton says: "The physicians of the University of Paris were not allowed to marry till the year 1452."

In England, as late as 1456 the practice of medicine was still to some extent in the hands of the clergy,

and during the reign of Henry VIII, physicians and surgeons had to obtain a license to practise from the bishop of the diocese. It is alleged that down to the early part of our own century, there remained with the Archbishop of Canterbury a latent power of granting medical diplomas. So that "the separation between 'soul-curer and body-curer' which goes on as savage people develop into civilized nations, has but very gradually completed itself throughout Europe."

As for the distinction between doctor and surgeon, this, says Mr. Spencer, is not one which has arisen by differentiation, but is one which asserted itself at the outset. "For while both had to cure bodily evils, the one was concerned with evils supposed to be supernaturally inflicted, and the other with evils that were naturally inflicted, — the one with diseases ascribed to possessing demons, the other with injuries inflicted by human beings, by beasts, and inanimate objects, hence we naturally find in the records of early civilization more or less decided distinctions between the two."

Though the divisions in medicine and surgery have become manifold, these minor differentiations have yet, we are told, hardly equalled the specializations existing in Ancient Egypt, where, according to Herodotus, "each physician treats a single disorder, and no more."

In conformity with the normal order of evolution, "integration" has accompanied the differentiation. From the beginning have been shown tendencies toward unions of those who practised the healing art. There have arisen institutions giving a certain common education to them, and in later times, certain general though less close associations of medical men.

Mr. Spencer alludes appropriately to the powerful influence of the medical journal in promoting integration by bringing into communication educational institutions, incorporated bodies, and the whole profession.

MEDICAL NOTES.

PROFESSOR TRENDELENBURG.— This distinguished surgeon has been offered the professorship of surgery at Leipsic, and his chair at Bern thus rendered vacant will be filled by Professor Miculicz, of Breslau.

A MEDICAL SCHOOL FOR WOMEN IN ST. PETERSBURG.— The medical school for women which has long been talked of in St. Petersburg is at length to be established. The Council of the City has unanimously voted in favor of its establishment, and the necessary funds have been secured by private subscription.

ARCHIV FÜR VERDAUUNGSKRANKHEITEN.— The first number of this journal, which is published in Berlin under the editorship of J. Boas, has just appeared. The new periodical contains original articles, comprehensive reports on the subjects to which it is devoted, reviews of literature and book-reviews.

THE PHYSICIAN AS AN ATHLETE.— A project is on foot in England for a testimonial to Dr. W. G. Grace, that member of the medical profession who has held the championship of the English national game for no less a period than twenty years, an unexampled record. The medical profession may well be proud of such an example of the preservation of bodily vigor and endurance in their ranks, and have the right to claim that his insight into the rules of health has in large measure enabled him to maintain his remarkable record. The English tennis champion, Pim, who has recently won laurels on American courts, is also an example of the successful combination of medicine and athletics.

THE AMERICAN SURGICAL ASSOCIATION.— At the recent meeting of the American Surgical Association in New York City, the following officers were elected for the ensuing year: President, Dr. L. McLane Tiffany, Baltimore. Vice-Presidents, Dr. C. Fenger, Chicago, and Dr. W. H. Carmalt, New Haven. Secretary, Dr. M. H. Richardson, Boston. Treasurer, Dr. N. P. Dandridge, Cincinnati. Recorder, Dr. DeForest Willard, Philadelphia. Chairman Local Committee of Arrangements, Dr. T. A. McGraw, Detroit. The meeting for 1896 will be held in Detroit.

ACUTE ASEPTIC GENERAL PERITONITIS.— Hartmann and V. Morax reported in the *Annales de Gynécologie*, March, 1894, two cases of this sort, in one of which the spleen was found with a doubly twisted pedicle, changed into a reddish-brown mass, and was removed. No toilet of the peritoneum was made. In the second case an ovarian cyst was found with a twisted pedicle. In both cases the peritoneal fluid was mixed with fibrin and purulent material, which was found to be sterile on careful bacteriological and microscopic examination. Recovery was prompt and uneventful in both cases. The peritoneal toilet is unnecessary in cases of this sort.

BACTERIA OF GRAVEYARD SOIL.— Dr. E. H. Wilson, Bacteriologist of the Brooklyn City Board of Health, has submitted a report of his investigations on fragments of coffins sent him from some of the Brooklyn suburban cemeteries. He says, in substance, that while these fragments contain, as might be expected, a large variety of bacteria, no pathogenic varieties have been found; that the popular idea that all bacteria are dangerous is a totally erroneous one. The bacteria which are engaged in the process of destructive decomposition of the body are doing a beneficent work in returning to the soil the elements of which the body is composed, in a condition to be readily assimilated by the higher plants. Investigation has shown that the soil of graveyards contain no more bacteria in proportion than the soil of other places, especially below a certain depth. "In conclusion, I would say that while the presence of coffin fragments several years old is not to be commended from a bacteriologic point of view they are comparatively harm-

less, and only remind us more forcibly of the fact that it is the living and not the dead from whom we may expect harm in this matter."

NEW ENGLAND.

ANNUAL DINNER OF THE HARVARD MEDICAL ALUMNI ASSOCIATION.—The annual dinner of the Harvard Medical Alumni Association was held at the Hotel Vendome, Boston, on Tuesday, June 25th. Dr. Geo. B. Shattuck, the President of the Association, presided. The speakers were President Charles W. Elliot of Harvard University, Dr. Roswell Park, of Buffalo, Dr. George Dock, of Ann Arbor, Dr. Geo. J. Englemann, St. Louis and Dr. John Green, of St. Louis. The foregoing gentlemen, with Dr. Wm. L. Richardson, Dean of the Harvard Medical School, were the guests of the Association. About 170 members of the Association were present at the dinner.

NEW YORK.

INCREASE IN THE FORCE OF SANITARY INSPECTORS.—The Board of Health has appointed the usual corps of fifty physicians to serve as extra sanitary inspectors during the months of July and August.

MORTALITY OF NEW YORK CITY.—The number of deaths reported in the city during the week ending June 29th was 798, against 710 during the preceding week; the increase in mortality being principally due to the increase of diarrheal diseases, which caused 121 deaths. The number of deaths from phthisis was 81; from pneumonia, 63; from diphtheria, 27; and from measles, 25.

DR. GEORGE B. FOWLER APPOINTED HEALTH COMMISSIONER.—Mayor Strong has appointed Dr. George B. Fowler as successor to Dr. Cyrus Edson on the Board of Health. The appointment is regarded as an excellent one as Dr. Fowler is very popular and has attained an eminent position in the profession. He is a graduate of the College of Physicians and Surgeons, New York, in the class of 1871, and has been for some time one of the attending physicians to Bellevue Hospital and to the New York Infant Asylum. He has been prominently identified with life insurance, and is at present Professor of Clinical Medicine, Renal and Digestive Disorders, in the New York Post-Graduate Medical School.

RESIGNATION OF DR. CYRUS EDSON.—It is announced that Dr. Cyrus Edson has resigned his position as Health Commissioner at the request of Mayor Strong. He was appointed commissioner by Mayor Gilroy in April, 1893, to succeed Dr. Joseph D. Bryant. At that time he was sanitary superintendent, and he had been in the service of the Board of Health in various capacities, for a number of years. He is regarded as an authority on contagious diseases and has done excellent work in stamping out outbreaks of typhus fever and other infectious forms of disease. Dr. Edson states that he will also resign his positions

as president of the Board of Pharmacy and member of the State Board of Health, as he has accepted an appointment as medical director of a large corporation and entered into an engagement to edit the *American Physician*, published in Philadelphia.

Miscellany.

A DEGREE IN STATE MEDICINE.

THE Rush Medical College of Chicago in its annual announcement offers a post-graduate degree in State medicine, the title of the degree being Doctor Medicinæ Civitatis. The requirements for the degree are the following:

- (1) The candidate must be a Doctor in Medicine, of not less than one year's standing.
- (2) The name of the candidate must have been on the matriculation book at least eight months before the examinations.
- (3) The candidate must have completed, subsequent to registration, six months' practical instruction in a laboratory approved by the faculty, and also have studied, practically, outdoor sanitary work for four months, under an approved officer of health.

The examination (which will be rigid) includes the subjects of State medicine and hygiene, chemistry, physics and meteorology, engineering, morbid anatomy, vital statistics, medical jurisprudence and law. The recognition of State medicine as a special department of medicine is certainly a step in advance, and one which deserves to be followed by other colleges.

It is rather surprising, however, that from so full a list of subjects for examination, a department of such importance to State medicine as bacteriology should not be given a separate examination of at least two hours in length, and not limited, as is proposed in the announcement to a small fractional portion of a two-hour examination which shall cover the entire field of State medicine and hygiene.

A BULLET DISCHARGED FROM THE BODY AFTER TWENTY-FIVE YEARS.

THE following is a copy of a letter on file in the records of the Massachusetts Branch of the United States Pension Office at the State House:

FALL RIVER, MASS., March 12, 1888.

FRIEND I:— I thought you would be pleased to hear of a recent report here.

J. B., on the State Aid, was the first man in on pay day. He is a worthy old fellow, and came in all excited. "Mr. B.," he says, "What do you think happened to me last night?" "I'm sure I don't know," I replied. "Well," he went on, as sober as a judge, "I got up last night to make water, and while doing that I broke wind. Hearing a rattle on the floor, I looked around and found a bullet there, which was discharged by the wind. At the battle of Antietam, twenty-five years ago, I received a flesh wound in the stomach, but did not know that the ball lodged, until last night. The doctor says it ulcerated into the intestines, and finally was shot out, as I tell you."

This is quite an experience, as I think you will admit.

Very truly yours, C. B.

BRILLIANT RESULTS OF PHYSIOLOGICAL TEACHING.

THE following answers were made to the questions on a paper in physiology by a candidate for a degree in medicine at a medical school not in St. Louis.

(1) What constituents of meat does a clear soup contain, and what is its nutritive value?

Clear soup contains the juice of the meat only, and its nutritive value is high in peptones, parapeptones and proteids.

(2) Explain the action of relishes and condiments.

Relishes are the principal constituents of the body and act as a nourishment, while condiments act as a stimulant, giving to the body a stupor.

(3) What is the function of the stomach?

The function of the stomach is to digest the food after it has passed from the mouth into the large intestine.

(4) What is the difference between blood-serum and blood-plasma?

After the blood has been drawn and stood until it has coagulated, a thick mass is formed on the top called blood-plasma. The fluid [sic] in the blood is called blood-serum.

(5) Explain the character and cause of the heart-sounds.

The character of the heart-sounds is a long sound preceded by a short, quick sound, resembling the sound of the words "lub dub." The cause of these sounds is flowing of the blood from aortic into tricuspid valves.

(6) What is meant by the "internal secretion" of glands? Give examples.

The internal secretion of glands is the absorption of the glands in the body. The salivary glands are absorbed in the act of swallowing the saliva [sic] in the mouth.

(7) What is glycogen? Where is it found and how does it appear to be useful?

(8) Explain the importance of afferent nerve impulses for the production of voluntary motions.

(9) Explain the phenomenon of irradiation.

(10) Give examples of anabolic processes taking place in the animal body.

(11) What is urea? Where formed? Where excreted? What is its relation to muscular work?

Urea is the principal constituent of the urine and is formed in the kidneys. It is excreted from the bladder through the urethra and thence to the penis.

(11) What is residual air? How is its amount measured?

HENRY W. WILLIAMS, M.D.

At a recent meeting of the Visiting Staff of the Boston City Hospital the following resolutions were adopted:

Resolved, that by the death of Dr. Henry W. Williams the Staff of the Boston City Hospital loses one of its founders, its President for many years, and one of its most brilliant members.

Patient assiduity in every duty, however laborious, thorough self-reliance, confident boldness, double dexterity as an operator, were Dr. Williams's characteristics.

He was the most punctual and painstaking of presiding officers — persistent yet prudent, genial and tactful.

His energy and foresight did much to place this hospital in its present enviable position; and we shall long miss and regret his counsel and his friendship.

We desire thus to express to the Trustess and to his family our deep sense of the loss we have all sustained.

Resolved, that a copy of the foregoing be sent to the Trustees, to his family, and to the *Boston Medical and Surgical Journal* for publication.

EDWARD J. FORSTER, M.D., Sec'y of the Visiting Staff.

METEOROLOGICAL RECORD,

For the week ending June 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..16	30.45	64	66	62	77	69	73	N.E.	S.	11	12	F. C.
M..17	30.33	70	82	59	59	66	62	S.W.	S.W.	11	16	C. F.
T..18	30.14	70	81	58	58	48	53	N.W.	S.W.	4	11	C. F.
W..19	30.02	66	72	61	68	86	77	S.E.	S.E.	6	5	C. C.
T..20	30.02	64	70	59	90	90	90	N.E.	E.	3	4	C. C.
F..21	30.05	68	72	64	81	81	81	S.E.	S.	6	6	C. C.
S..22	30.01	70	76	63	87	77	82	S.	S.	7	9	O. O.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 22, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	710	336	22.54	11.62	6.16	5.00	1.74	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	359	121	23.24	12.60	12.32	6.16	.84	
Brooklyn	1,043,000	337	132	11.31	12.48	2.03	4.64	.87	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	174	39	11.97	19.95	.57	7.41	1.14	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	70	20	8.52	25.56	2.84	—	—	
Cincinnati	325,000	112	43	11.57	17.04	.89	1.78	4.45	
Cleveland	325,000	74	19	10.80	10.80	2.70	4.05	—	
Pittsburg	272,000	90	46	2.75	4.44	22.20	1.11	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	36	18	—	—	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	18	6	22.22	—	—	16.66	—	
Fall River	92,233	34	13	20.58	9.82	14.70	—	—	
Lowell	90,613	—	—	—	—	—	—	—	
Cambridge	79,607	18	2	16.66	5.55	11.11	5.55	—	
Lynn	65,123	13	2	15.38	7.69	—	—	—	
Springfield	50,284	4	4	—	—	—	—	—	
Lawrence	49,900	19	7	10.52	10.52	10.52	—	—	
New Bedford	47,741	16	4	—	—	—	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	33,939	11	3	—	27.27	—	—	—	
Salem	33,155	7	2	14.28	—	14.28	—	—	
Haverhill	32,925	10	6	20.00	10.00	—	—	—	
Malden	30,269	8	2	25.00	25.00	—	12.50	—	
Chelsea	29,806	10	6	20.00	10.00	—	20.00	—	
Fitchburg	29,383	8	0	—	12.50	—	—	—	
Newton	28,837	8	0	—	15.50	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	5	1	—	—	—	—	—	
Waltham	22,058	3	2	—	33.33	—	—	—	
Quincy	19,642	—	—	—	—	—	—	—	
Pittsfield	18,802	4	1	—	75.00	—	—	—	
Everett	16,585	4	2	—	—	—	—	—	
Northampton	16,331	2	0	—	50.00	—	—	—	
Newburyport	14,073	3	2	—	—	—	—	—	
Amesbury	10,920	1	0	—	—	—	—	—	

Deaths reported 2,244; under five years of age 864; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 409, consumption 282, acute lung diseases 215, diarrheal diseases 145, diphtheria and croup 108, measles 58, typhoid fever 32, scarlet fever 22, cerebro-spinal meningitis 19, whooping-cough 11, malarial fever 10, erysipelas 4.

From typhoid fever Philadelphia 9, New York 8, Washington 4, Brooklyn, Cincinnati, Cleveland, and Pittsburg 2 each, Somerville and Malden 1 each. From scarlet fever New York 12, Boston 3, Pittsburg and Fall River 2 each, Philadelphia, Providence and Nashville 1 each. From cerebro-spinal meningitis New York 10, Cincinnati and Lynn 2 each, Philadelphia, Cleveland, Worcester, Haverhill and Woburn 1 each. From whooping-cough New York 4, Brooklyn 2, Philadelphia, Boston, Cincinnati, Providence and Haverhill 1 each. From malarial

fever Brooklyn 7, New York 2, Nashville 1. From erysipelas Philadelphia and Brooklyn 2 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending June 8th, the death-rate was 15.5. Deaths reported 3,139; acute lung diseases (London) 163, measles 72, diarrhea 59, diphtheria 51, whooping-cough 51, scarlet fever 33, fever 26, small-pox (Bolton and Oldham 1 each) 2.

The death-rates ranged from 10.4 in Portsmouth to 25.7 in Burnley; Birmingham 14.6, Bradford 11.7, Bristol 13.7, Huddersfield 14.2, Hull 16.4, Leeds 13.6, Leicester 13.2, Liverpool 20.9, London 14.8, Manchester 19.8, Newcastle-on-Tyne 15.9, Preston 18.1, Sheffield 14.8, West Ham 12.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 22, 1895, TO JUNE 28, 1895.

CAPTAIN ALFRED E. BRADLEY, assistant surgeon, will be relieved from duty at Fort Custer, Montana, upon the arrival there of MAJOR WILLIAM C. SHANNON, surgeon, and will report for duty at Fort Yellowstone, Wyoming, for duty at that post, relieving CAPTAIN CHARLES M. GANDY, assistant surgeon.

CAPTAIN GANDY, on being thus relieved, will report for duty at Washington Barracks, D. C.

AMERICAN ORTHOPEDIC ASSOCIATION.

The ninth annual meeting will be held in the Columbus Memorial Building, 103 State Street, Chicago, September 17, 18 and 19, 1895. The meetings will be called to order at 9 A. M.

After adjournment on Wednesday the members will be the guests of the Chicago Orthopedic Society for luncheon and an excursion to the Drainage Canal. In the evening the annual dinner will be served at the Chicago Club.

On Thursday, at high noon, the Association will go into executive session, when the officers for the ensuing year will be elected. At the adjournment of the executive session the members will be the guests of Dr. F. S. Coolidge at luncheon. It is hoped that there may be time for a clinic at the Presbyterian Hospital by Dr. Nicholas Senn, or at the Cook County Hospital by Dr. J. B. Murphy. The details of this last afternoon cannot be definitely arranged now; all that can be said is that the Chicago Orthopedic Society will claim the members as their guests during the remainder of their stay in Chicago.

The following papers have already been promised: Dr. Barnard Bartow, Buffalo, On Forcible Correction and Corrective Jackets, in the Treatment of Scoliosis. Dr. Wallace Blanchard, Chicago, Idiopathic Osteo-arthritis. Dr. E. G. Brackett, Boston, (1) The Use of the Plaster Jacket in Caries and the Effect of Position on the Spine; (2) Caries in Adults. Dr. E. H. Bradford, Boston, (1) Operative Measures in Caries of the Spine; (2) Treatment of Slipping Patella. Mr. Bernard Brodhurst, London, Eng., On the Surgical Treatment of Congenital Dislocations. Dr. F. S. Coolidge, Chicago, Some Cases of Osteoclasia with the Lorenz Osteoclast. Dr. Nicholas Gratton, Cork, Ireland, Improved Osteoclast. Dr. V. P. Gibney, New York, Title not announced. Dr. A. E. Hoadley, Chicago, New (anterior) Spine Brace, with exhibition of patients. Dr. A. B. Hosmer, Chicago, Title not announced. Dr. A. B. Judson, New York, The Deformity of Hip Disease. Dr. Samuel Ketch, New York, The Causative Relation of Suppuration to Tubercular Meningitis in Joint and Spine Disease. Dr. R. W. Lovett, Boston, Ambulatory Treatment of Pott's Disease. Dr. R. W. Lovett and Dr. John Dane, Boston, Club-Foot. Dr. S. L. McCurdy, Pittsburg, (1) Congenital Absence of Radii, with operation; (2) Exhibition of Hip-Joint Brace; (3) Plaster-of-Paris in Orthopedic Surgery; (4) Specimens of Tubercular Bone Disease. Dr. B. E. McKenzie, Toronto, (1) The Rawhide Corset Spinal Brace; (2) A Review of the Treatment of Hip Disease. Dr. T. H. Myers, New York, Spasmodic Wry-neck. Dr. G. B. Packard, Denver, Title not announced. Dr. Roswell Park, Buffalo, The Deformities Produced by Acute Inflammatory Lesions in Bone. Dr. A. M. Phelps, New York, (1) The Report of a Case of Congenital Dislocation of the Shoulder, and an Operation for its Relief; (2) The Treatment of Fracture from an Orthopedic Standpoint; (3) How the Orthopedic Surgeon should Treat Abscesses (tubercular and purulent). Dr. John Ridlon, Chicago, The President's Address. Dr. Bernard Roth, London, Eng., One Thousand Cases of Lateral Curvature of the Spine Treated by Posture and Exercise. Dr. J. C. Schapps, Brooklyn, The Anterior Spine Brace. Dr. H. M. Sherman, San Francisco, Some Considerations of the Mechanical Arrangements around the Hip Joint. Mr. Noble Smith, London, Eng., Several papers, titles not announced. Dr. H. L. Taylor, New York, A Case of Double Congenital Knee Luxation. Dr. L. A. Weigel, Rochester, (1) Pain in the Back; (2) Metatarsalgia; (3) The Use of Mechanical Support in the Treatment of Scoliosis. Dr. Royal Whitman, New York, Observations on Weak-foot, with particular reference to its pre-

disposing cause, its diagnosis and its cure. Dr. H. Aug. Wilson, Philadelphia, A Report of Seventy Cases of Splicing of the Tendo-Achilles. Dr. J. K. Young, Philadelphia, The Treatment of Scoliosis by Light Gymnastic Exercises.

Papers have also been promised, if there is time for their reading, by Drs. L. L. McArthur, Weller Van Hook, Robert Tilly, Joseph Zeisler, H. P. Woley and other gentlemen of Chicago; but these papers will not be presented except by vote of the Association.

JOHN RIDLON, M.D., *President*.
ROYAL WHITMAN, M.D., *Secretary*.

LITCHFIELD COUNTY MEDICAL SOCIETY.

A meeting of this Society will be held July 9, 1895, at the residence of Dr. Fred S. Dennis, Norfolk, Conn.

The following papers will be presented: Dr. R. S. Goodwin, of Thomaston, The Physician as a Sanitarian. Dr. William H. Welch, of Baltimore, Md., (a) The Antitoxin Treatment of Diphtheria; (b) Some Interesting Pathological Observations Concerning Gonorrheal Infection. Dr. L. Duncan Bulkley, of New York, Notes on some of the Newer Remedies used in Diseases of the Skin. Dr. Frederick S. Dennis, of New York, Subject to be announced. Dr. William H. Porter, of New York, Remarks upon Nuclein and Proto-Nucleins. Dr. George H. Knight, of Lakeville, The Feeble-Minded. Dr. J. C. Kendall, of Norfolk, The Prophylaxis of Tuberculosis.

RESIGNATION AND APPOINTMENTS.

DR. EDWARD J. FORSTER has resigned as a member of the Board of Registration in Medicine and DR. EDWIN B. HARVEY, of Westboro, has been nominated and confirmed to fill the vacancy. At a meeting of the Board held on June 20th, Dr. Harvey was elected its secretary.

The Governor has re-appointed AUGUSTUS C. WALKER, M.D., of Greenfield, a member of the Board of Registration in Medicine.

HONORARY DEGREE.

At the commencement exercises at Dartmouth College the degree of A.M. was conferred upon DR. GEO. W. GAY, of Boston.

CORRECTION.

In the obituary notice of the late Dr. H. W. Williams it was stated that he was the *founder* of the American Ophthalmological Society. This is an error, which he would have set right were he living. He was one of the early members. D. W. C.

RECENT DEATHS.

PROF. THOMAS H. HUXLEY died at Eastbourne on June 29th, aged seventy years. He began his distinguished scientific career as a student of medicine at the Charing Cross Hospital in 1842, and in 1845 received his degree of M.B. from the University of London.

In 1846 he joined the naval medical service, and the same year visited the South Pacific as assistant surgeon to Captain Stanley's expedition. On this voyage Professor Huxley was absent four years, and circumnavigated the globe, making special observations at Australia and Papua. He sent home many papers as the fruits of this voyage, and at his return these were elaborated and revised and printed in the "Philosophical Transactions" of the Royal Society, of which Professor Huxley was elected a member in 1851.

In 1853 he resigned his naval position, and in 1854 succeeded Professor Forbes as professor of natural history in the Royal School of Mines, which he held for many years. From 1863 to 1869 he was Hunterian professor in the Royal College of Surgeons and was twice elected Fullerian professor of physiology.

In 1869 and 1870 he was president both of the Geographical and Ethnological Societies; in 1870 he was president of the British Association for the Advancement of Science and in 1872 he was made secretary of the Royal Society. In 1870 he was elected on the royal committee on scientific instruction and the advancement of science.

Professor Huxley's work in biology and the part he has played in the development of our present views in evolution, are too well known to need our comment. The many, varied, and important contributions he has made to the advancement of natural science are his best monument.

PROFESSOR VERNEUIL, the distinguished French surgeon, died in Paris on June 12th, of pneumonia, at the age of seventy-two years.

Original Articles.

PROSTITUTION.¹

THE RELATION OF THE EXPERIENCE OF EUROPE TO THE SOLUTION OF THE PROBLEM IN BOSTON.

BY ARTHUR K. STONE, M.D.

PROSTITUTION is a subject which forces itself upon the attention of every member of the medical profession living in a large city. It is one which every man is liable to be called to give some opinion upon in these days of reform and social evolution, and that opinion, it seems to me, should be given with some knowledge of the facts of the case. It is not my intention in the following paper to discuss the ethics of the subject, or to theorize about the necessity or non-necessity of the prostitute, but to take up the matter as it presents itself to us as a social evil, present with us, and one which should be met and dealt with according to some fixed policy.

I do not expect to settle the matter or to change men's minds if they are already made up upon a definite basis, but I hope to point out some of the considerations which must be known and understood before any really judicial opinion can be given. If I can set a number of practical medical men thinking seriously upon this problem, I shall have accomplished my aim.

One thing I would say, in passing, to the moral reformers, and that is, that their attention should be directed towards the men and not towards the women; for so long as there are men who wish for illicit sexual gratification, so long will there be women, either for love, for hire, or from compulsion to supply the demand.

As to the sources of information which I have made use of in this paper, I am indebted to the great interest in the subject in Europe during the years of 1890-92. At that time a large number of government and medical commissions were appointed, and made reports after thorough investigation of the subject; and from these reports we can get a very good idea of the state of mind existing in Europe, and of the plans that were proposed and the conditions presenting themselves in various parts of Europe at the beginning of the present decade.

One of the most frequent answers made by medical men to one seeking knowledge upon the subject of prostitution is, "Oh, prostitution is a necessary evil, and I believe that some control should be exercised to prevent the spread of disease, just as they do upon the continent of Europe." Let us first consider how much control is exercised in Europe. England alone of the European nations makes no pretence to government or municipal control, and not much pretence to check the openest solicitation — many of the principal streets of London being simply thronged after dark with women who seize upon any passing man and almost compel him to go with them.

All the Continental cities exercise a certain amount of control over some of their prostitutes, and for the most part keep the rest under such restraint that in no place is there such open solicitation as is to be found in Picadilly and Regent Street in London. Yet in Paris solicitation does take place on the open streets.

But nowhere is the number of women under police control anything like the total which are to be found in the ranks of the daughters of Lilith. In all European cities there are two varieties of prostitutes who are under police control: first, those who live in houses that are chartered and licensed; and, second, those who are inscribed, but carry on business at their own apartments, being as it were free lances. These latter have books in which their names and histories are inscribed; that is, their police examinations, together with the length of their stay, their disease and treatment, when they were last in the hospital. In some places these women have to report at certain times to police headquarters for examination, and at others they can be simply summoned whenever wanted. In some cities there are certain cafés where they are allowed to solicit patronage and other women are not permitted the same privilege. They must, however, confine themselves to these places. Then there are in some places certain recognized houses of assignation, but these seem to play a rôle of but little importance in the general problem. The women in the licensed houses are examined at intervals of varying lengths of time; before 1892, for the most part at the police-stations and at the expense of the proprietors of the houses. Solicitations from the windows or sidewalk is not permitted by law for these houses. In Berlin, says Blaschko, the women were to be examined every eight to ten days; as a matter of fact, they were not examined oftener than once in two weeks.

The proportion of prostitutes under police control may be judged from the following statistics: The Prefect of Police in Paris admitted to Professor Dr. Lassar, of Berlin, who was sent by the German Government to investigate the methods of control in the city of Paris, that there were fully one hundred thousand prostitutes in Paris, and I cannot see that this estimate includes the large number of girls working in restaurants and wine shops, but simply women who have no regular means of support except their profession. There were in all Paris in January, 1888, only sixty-seven licensed houses. Many of the houses of Paris, are in a great measure kept open for the edification of travellers who are taken to see the sights of the wicked city, and sexual intercourse is rather of secondary importance. The far greater part of the girls that are to be found at such places as the Bullier and Moulin Rouge and many of the cafés, concert and dance halls are uninscribed; the one thing that they fear and will do most to avoid, is that they will be taken to the police-station and be enrolled and from that time be under police surveillance, and it is only when they have become so hardened and shameless that they become public nuisances that they are arrested by the police and inscribed and subjected to police examination and control.

In Belgium, with its 6,000,000 people, there were, according to Dr. Fiaux, only 96 licensed houses with 486 inmates, while the inscribed prostitutes numbered 661. At the same time there are 585 women known to be prostitutes by the police but not inscribed by them. This estimate makes no consideration for the government prostitutes supplied for the army. Thus it will be seen that the number of women under police control is very small indeed; and this number, although I did not find any absolute figures, is taken to be about the proportion that exists throughout the other cities in Europe, as was borne out by the fact

¹ Read before the Boston Society of Medical Improvement, April, 1895.

that it was everywhere recognized that some measures should be taken to secure greater control of the prostitutes.

The next question which we need to investigate is whether the existing control does what it promises to do, that is, give the visitor to the licensed house of prostitution or to the inscribed girl the assurance that he will be free from the danger of venereal disease. To this point I shall again quote Fiaux in regard to his investigations in Belgium. In the month of January, 1889, 287 licensed prostitutes of Brussels were examined, only to find 66 with venereal disease, 37 of them being syphilitic, while the police reports of the decade 1870-80 show a percentage of 50 per cent. to 60 per cent. diseased among the inmates of houses, and about 33 per cent. among the inscribed women. Professor Bergh, of Copenhagen, is quoted as having similar experience, and the statistics for 1886-90 show that the percentage of inmates for licensed houses has been nearly twice as large as among the inscribed women. Neisser, of Breslau, with several assistants, examined 573 prostitutes; and in 216 he found gonococci present (37.6 per cent.). Dr. Passavant, of Paris, is quoted as saying that out of every hundred inscribed women 35 to 50 per cent. have venereal disease. Dr. Fiaux shows that in Belgium, in 1881-1889, one-half of the inmates of the licensed houses had to be sent to the hospitals for treatment with venereal disease, of whom about 50 per cent. were syphilitic. Of inscribed women, about one-third were treated at the hospitals, about one-sixth of these being syphilitic. Laseur, in an extensive examination of prostitutes for the presence of gonococci, found in the examination of the urethra of 353 patients that the gonococci could be demonstrated 112 times, although in four-fifths of these cases there was no macroscopical evidence of gonorrhea. Several of these patients had been discharged from the hospitals as cured.

Some of the figures in other cities are as follows:

Lyons, 1880-1885: percentage of diseased inmates of licensed houses 85 per cent., inscribed 40 per cent.

Brussels, 1881-1889: inmates 50 per cent., inscribed 33 per cent.

Rotterdam: inmates 35 per cent., inscribed 10 per cent.

Mireur, of Marseilles, stated that he found out of every 100 cases of venereal disease which came to his notice that 62 came from houses of prostitution.

Kaposi states that in 1888-1889 there were 1,770 inscribed women in Vienna; of these 841 were treated for venereal disease; 1,634 were arrested at various times for disorderly conduct, 477 being punished. Of uninscribed women 1,332 were arrested for disorderly conduct, of whom 170 (or 12 per cent.) were found to be diseased. There are said to be 25,000 prostitutes in Vienna.

In Hamburg, the *Allgemeine Frankenhau*s reports that 50 per cent. of the venereal disease originates in houses of prostitution, 10 per cent. with the inscribed women, and credits the remainder of the cases to Altona, a small city lower down the river. Nominally, houses of prostitution have been abolished in Hamburg; in reality, they exist.

Blaschko says that of 2,000 private patients with venereal disease 60 per cent. originated with prostitutes, 10 per cent. with shop-girls, 4 per cent. with bar-maids.

The statement that the proportion of diseased

women among the recognized prostitutes is somewhere between 30 and 50 per cent. is generally accepted as being the state of things throughout Europe.

In regard to the question whether or no there is an actual increase of syphilis at the present time the writers seem to differ. Summing up the evidence, there appear to be a few who believe that syphilis is on the decrease, while the majority are convinced of its increase. In Paris, Dr. Vidal of the Hôpital St. Louis, which is the centre of skin diseases of all Paris and France, states that the number of syphilitic patients is daily increasing. Prof. Léon le Fort, of the Hôpital du Midi, and Professor Fournier and Dr. Mauriac all expressed the same views. On the other hand, Dr. Weber, director of the Val de Grace Military Hospital, states that the amount of venereal disease among the soldiers is decreasing. The same seems to be true among the Belgian army. Here it is probably owing to the government furnishing women for the soldiers.

In Berlin, Dr. Blaschko believes that the amount of venereal disease has been decreasing in Berlin since 1856. But Professor Wolf denies that Blaschko's statistics in this regard are correct. Also, Dr. S. Neumann takes the same ground, and denies that syphilis is in retrogression.

The general opinion in the Berlin Congress was that venereal disease was on the increase and that measures must be taken to check its advance. Blaschko in his paper stated that, from the standpoint of public hygiene, no benefit was received whatever from the control as then practised. A commission consisting of Virchow, Blaschko, Meyer, Strassman, Langerhaus, Villaret, B. Frankel, Pistor, Lewin, S. Neumann, B. and M. Wolf were appointed to consider the subject; and they reported that the sanitary conditions and measures existing in Berlin for the prevention and treatment of venereal disease were insufficient. And this was the general opinion arrived at by all the men throughout Europe who had the investigation in hand, that the protection did not protect, neither did the control check the advance of the evil.

Having arrived at this definite conclusion, the next point was what should be done. Here the opinions varied greatly. One of the French Ministers told Lassar that the conditions varied so in the different cities that no general law was possible, but that each municipality must deal with the problem as it was presented to it. Another French Minister, Gayot, who has given this subject a great deal of study and written a book upon prostitution, has reached the conclusion that abolition is the proper thing and prostitution is a moral and personal question and that there was no reason why it should be recognized by protecting law, taking the position that has so far been held in England and America.

In the Tenth International Congress, at Berlin, the opinion was for the most part expressed in favor of segregation of all prostitutes, insisting that they should live in a special quarter and in licensed houses where they could be under strict surveillance, no solicitation to be allowed, and any one being found acting as a prostitute to be judged as one and treated accordingly; also any one treated for venereal disease to be also considered as a prostitute; all the women to have a semi-weekly examination at a medical bureau at the expense of the city, and any one found having venereal disease to be sent to the hospital. Felix, Drysdale,

Heinzinger, and Crocq dissented from the majority, expressing the decided opinion that the centralization of prostitutes was a source of danger to the rest of the community, and especially the intact girls, who would be exposed to greater temptations than under the existing conditions, and affirming the utter impossibility of removing all prostitutes to any special quarter of the city or punishing them by legal means, as the boundary between free love and prostitution is absolutely undefined.

Contrary to the opinion expressed in the Berlin Congress, it seems to be generally held and supported by statistics that the houses of prostitution are much greater sources of danger than the inscribed women; the statistics given tending to show that the number of infected women in the licensed houses amounts to about 40 to 50 per cent., while the number among the inscribed women is under 30 per cent.

In very many of the large cities the number of licensed houses has steadily fallen, for example, Paris, 1850, 212; 1880, 133; January, 1888, 67. In St. Petersburg, in the 14 years from 1872-1886 the number fell from 220 to 82; at the same time the inscribed free women increased from 2,500 to 4,500. In Belgium there has been a steady diminution in the numbers of houses and inmates, so that now there are only about one-third as compared with twenty years ago, all of this going to show that there is a tendency for this form of dissipation to go out of fashion. This, together with the fact that the women of the licensed houses from their more frequently indulging in copulation and their inability to choose their companions and their lack of self-responsibility, are much less careful of their bodies and hence more apt to be diseased. In Antwerp it has been seriously proposed to do away with the seven licensed houses and to have only inscribed free prostitutes.

So it will be seen that there are no absolute methods which can be said to render any successful solution to this difficult problem. But if any one will stop to consider for a moment, it will be seen that rating as a prostitute every one that is found in any way diseased or soliciting is only possible in a government of the most paternal kind, backed with inquisitorial powers.

All the writers upon the subject recognize the fact that there are not enough hospital accommodations for the treatment of the diseased prostitutes. In Vienna it was urged by Neumann that a large hospital be built for this purpose, any prostitute with syphilis to be committed for at least two years, those with gonorrhea until recovery. It is argued that any such regulation as this would tend to extend rather than restrain the spread of syphilis, for the great fear of incarceration would cause infected women who were inscribed to conceal their trouble as long as possible, to leave a town where they were known for another where they could work unmolested, because unknown; then, too, the utter impossibility of having hospital accommodations large enough to carry out such a plan must be clearly realized. And if there were not prison hospitals there would be no way to keep the women from plying their profession as now, for they would have to live even though diseased.

We see from the above hasty and imperfect sketch that neither of the plans for the control of prostitution is perfect; for in Vienna where the inscribed free prostitute has specially flourished the general opinion

seems to be that the system is inadequate and that all prostitution should be confined to licensed houses, while in Belgium the contrary opinion has gained ground, that the licensed houses are the most dangerous, and safety of the masses is best secured by the controlled free prostitute.

In the consideration of the conditions of the subject on the continent of Europe I have purposely omitted all reference to the army and its statistics. Here there has probably been a distinct gain in diminishing the number of cases of venereal disease, but the methods by which this has been reached are of no interest to us at the present time, as we do not have the problem of thousands of soldiers quartered in our great cities.

The different standard of morals must always be taken into consideration in applying deductions from European society to our own, also the different position in which women are regarded on the Continent and in New England. I will not attempt to enlarge upon this point, but would ask the gentlemen always to bear this in mind in speaking or writing upon the subject.

To come to our own city of Boston. Before the change in administration in our police commission the city had a most unenviable reputation. A very large number of houses of prostitution were in full force and did a most thriving business. The traffic in young women was extensive, and the agents of several societies, notably the Traveller's Aid Department of the Y. W. C. A. had to be constantly on the watch to prevent the capture of young women arriving from Europe, the provinces, and the country. The houses ran night and day, and no period of rest from duty was allowed to the majority of the inmates during any part of the month. At the same time, I am told by those who were investigating the subject at that time, there were houses where it was just as safe for a visitor as though the house had been licensed and been under government control. In all the houses liquor was sold illicitly, and even in those unrestrained days any one failing to call for liquor was regarded with suspicion. Robberies were frequent, and the most disgraceful orgies were common. Many of the so-called "parlor houses" were run largely for the purpose of robbery, by means of selling wines and liquors at extortionate prices to drunken patrons, the sexual part being of secondary consideration. Since the persistent raids which followed the advent of the present Chairman of Police Commissioners into office a large proportion of the houses have been closed and remain closed. The agent of the Traveller's Aid Society, Miss Blodgett, states that there is less attempt being made to entrap the newly arrived girls; though this is probably in a large measure due to the persistent watchfulness of Miss Blodgett and others. The Rev. Mr. Tobey of Berkeley Temple states that so efficient has been the action of the police in the city as a whole, there is only about one-third of the prostitutes engaged in their profession that there was eighteen months ago, and is prepared to support his assertion by statistics. On the other hand, in other quarters of the city hitherto perfectly free from the presence of such women small groups of prostitutes have appeared, and are causing their neighbors a good deal of trouble and apprehension. The greater part of the prostitution that is carried on in the city at present, outside of that promiscuous intercourse that exists among the lowest strata of society, is now car-

ried on in a free-lance way, and not from specially organized houses. This is vouched for by the agents of various societies who have the doings of many of the keepers of such houses under surveillance, and know that they have either left the city or are not engaged in running houses of prostitution, though many are waiting for the first signs of relaxed activity on the part of the police to open their houses once more. Some of the girls have gone to their homes, and many others have been found employment, and their movements are under the observation of the agents of various societies.

Is this for the better or worse? Has the dispersion of the prostitutes among a class of the people formerly free from their presence, and the possible increased danger to women from the assaults of men thus deprived of their customary sexual relief, made a condition of things that is worse than the former free system? The latter argument does not seem to me to have any weight. The dangerous classes live so that it is possible for them to indulge in sexual intercourse at all times, and they cannot from the very necessity of their existence support the houses of prostitution and are consequently not affected by the change. If the fact that prostitutes are to be found in new quarters tends to raise a strong public sentiment among our all too easy-going people so that they are forced to recognize that this is an evil which must be met and dealt with in some way or other, not a mere abstract question which in no way concerns the average family or the average citizen, then I maintain that the evil of the dispersion is overbalanced by the good. On the other hand, the closure of the houses has removed a large amount of temptation from weak men, many of whom go to such places not for any purpose of gratification of strong sexual passion but simply "with the boys." Once there, they are filled with alcohol, robbed, and given disease. Further, the supply now exceeding the demand, there is less attempt to entrap young and previously innocent women for immoral purposes, neither is there such a free and easy opening for a girl made desperate by lack of work or previous disgrace to enter upon the life of a public prostitute, and hence it is much more easy for the agents of the numerous societies to get hold of her and keep or make her a respectable member of the community. Thus, and thus only can the number of prostitutes in our midst be made very gradually to diminish. This decrease could be materially hastened by lessening the number who are born prostitutes; for by castration and ovariectomy the persistent criminals and chronic paupers should be prevented from reproducing their kind, the female portion of which are practically born prostitutes.

In conclusion, I would say that I have looked over the discussion of the Contagious Disease Acts that took place in England during the period of 1870-1875, and with very few changes the conditions were exactly the same as at the present time. There was the same amount of discouraging statistics from Paris and other Continental cities, the same demand for more frequent examinations and the same report of the impossibility of controlling all women engaged in the profession; the same statements that the number of licensed houses was decreasing, by some marked with apprehension. In fact, one of the greatest arguments which has been put into the hands of the non-recognition party is this fact, that at the end of

twenty to twenty-five years of practical application Europe had, according to her own report, by no means solved the problem of control or diminished the spread of venereal disease. New methods, perhaps better, certainly more inquisitorial, have since been instigated, the results of which we have no means of knowing and cannot have for some years to come; but from their very diversity they furnish us with no indication of any sure course that here in Boston we should follow. There seems to be no other way open to us but to wait for a decade at least, until we find out what method offers the greatest chance of success in obtaining a real control over this evil. In the mean time it seems mandatory for us to pursue our present policy of repression of the evil to its smallest possible limits. And this can only be accomplished by a vigorous public sentiment which shall support enthusiastically the strong arm of the law in its work of repression under existing laws and shall make the increase in the ranks of prostitutes as small as possible—by every means which shall check the traffic in girls, by education of both boys and girls in our homes and schools, by a law which shall raise the age of consent, and by removing from the chronic criminal classes the power of reproduction of their species. At the same time the spread of venereal disease should be combated by hospital accommodations for those who are now barred from proper medical care and treatment.

THE TREATMENT OF SCLEROSIS, OF VARIOUS FORMS OF PARALYSIS AND OTHER NERVOUS DERANGEMENTS, BY SUGGESTION.¹

BY HAMILTON OSGOOD, M.D.

In his work on Suggestion, Bernheim reports a case (Observation VII) of disseminated sclerosis, which he treated by suggestion with such favorable results, that, after a few sittings the patient recovered the use of his limbs, trembling of the hands ceased and the man became a waiter in the wards of the hospital.

Elsewhere, Bernheim offers a reasonable explanation of this result. His theory is that the tissue of the spinal cord is not totally invaded by the sclerosis at the site of its existence; that by means of tissue as yet untouched by the pathological condition, it is still possible for the nerve force to pass on. This is clearly shown by the restoration of power to the arms and legs of the patient in question.

This explanation seems logical and natural. Bernheim's patient continued six months in this condition of amelioration after the treatment had been discontinued. At the end of that time the former symptoms gradually returned and suggestion was not again applied.

The practical result of suggestion during sleep is an invigoration of functional power. A patient suffers from pain in the head, or in a joint, and there is a loss of function. The pain is relieved by suggestion and, unless it be deformed or inflamed, the patient can at once use the joint in a natural manner and again apply his mind to necessary work. Function has been restored. There are innumerable and similar illustrations.

In a case of sclerosis, or other affection of the cerebro-spinal axis, I have no doubt that the symptoms

¹ Read before the Boston Society for Medical Improvement, April 1, 1895.

are exaggerated, at all events exacerbated, by the mind of the patient and that, in consequence, there is a loss of functional power which, in the earlier stages of the disease is inconsistent with the actual condition of the tissue involved. That is to say, the actual functional possibilities are disturbed by the mental depression of the patient. In other words, but for the feeling of hopelessness which has taken possession of the mind of the patient, he might walk more naturally and use hands and arms with more ease.

Suggestion will not only arouse functional power but will stimulate mental vigor and displace depression by hope. So long then, in the cases in question, as there exists a possibility of the passage of nerve energy by means of tissue still unharmed by the pathological process, the physician's duty seems clear. Stagnation of hope and of functional vigor in the patient should steadily be prevented. Let him, however, fall into hopeless despair, acquiesce even tacitly in his opinion that he has become helpless, incurable, useless, and he will simply go on from bad to worse. Such a state of mind on the part of the patient and such acquiescence on the part of the physician will hasten the injurious effects of the disease.

It is necessary only to watch the mental condition of such a case to be convinced of the harm which the unsupported mind can create. Any physician who has become habituated to the application of suggestion and whose custom it is to watch his patient's mind as well as his body, is surprised when he observes the indifference of the average physician to the mental condition of his patient.

There is nothing in life stronger than habit, whether muscular or mental. If the thought that he is helpless and that there is no hope for him be allowed to become a *habit* in the mind of a patient, it will be converted into injurious results as surely as the thought of a peach during thirst, will excite the salivary glands, and both results will be involuntary and unconscious.

In 1893, at the Congress of Psychology in London, I heard a distinguished French professor read a paper on "The Neglect of Mind by Physicians."

A few months ago while in conversation with Bérillon, of Paris, he suddenly exclaimed, "Medicine is not taught in Paris." "What do you mean?" I asked. "Nothing is said about mind," he replied.

Still, almost unconsciously, thinking physicians are daily resorting more and more to the use of suggestion. This subtle power is slowly insinuating itself into the practice of medicine. Those physicians who oppose the direct use of a proper and intelligent application of hypnotic suggestion, believe they are correct in doing so. But practically they are actually unfamiliar with its benefits, and they are wholly mistaken in their assertions that it is dangerous, useless, humbug, etc. This treatment cannot be judged theoretically. One may theorize his life long about swimming, but, practically he has no right to an opinion until he has plunged in and has swum with his own arms and legs. There are so many illustrations of this purely theoretical scepticism in medicine, with reference to remedies which were thoroughly accepted when once they had been *practically* tried, that I need not adduce them.

With this digression, which was almost involuntary, I turn to an interesting case similar to that reported by Bernheim and already mentioned. The patient was referred to me by Dr. Scudder. Her history was given me by the patient herself.

A young lady, age twenty-two years, single, was seized, four years before I saw her, with numbness in the posterior aspect of the legs; her ankles turned at every step; she was very weak; was fatigued by every movement; was very irritable. The family physician pronounced the trouble irritation of the nerves.

As months passed on the patient became worse. When three months had elapsed she could not walk at all, and then had no control over either bowels or bladder. This condition passed off and, two months later, reappeared. The hands became numb, the fingers were spasmodically "drawn back"; there were severe headaches; patient was sick and dizzy. During one month she lost control of the eyes. Had diplopia. Could not swallow liquids. Talking became difficult. A specialist pronounced the illness lead-poisoning. Treated for that ailment, patient became better. Later she was worse again. Went to the Adams Nervine Asylum. Improved a little, then fell into a still worse condition. The disease was now said to be "spinal trouble."

Twelve months having elapsed, patient again had improved. Eighteen months from first attack was worse again, and failed rapidly. Meanwhile she lost the use of her arms; then regained power over them. Finally, the difficulty settled in the legs, and a specialist and the family physician diagnosed lateral sclerosis. Two other physicians thought the ailment hysteria; and when I first saw the patient there were undoubted hysterical symptoms. But the patient could move neither legs nor feet. Lying upon the back and in the sitting position she could not lift nor move either foot in the least and it was difficult for me to flex the legs. She had not stood once during the two previous years. The knee-jerks were much exaggerated and the ankle-clonus was very marked. There was no atrophy, the legs being large and heavy. Patient enjoyed perfect use of hands and arms. Organs and periods normal. Constipation moderate. Suggestion induced merely the first stage of somnolence, but the patient was very suggestible. This relation of one condition to the other is very frequent. During the waking state strong moral suasion was also used.

Patient began almost at once to move the legs, and her power over them increased daily. After the lapse of two or three weeks, whether sitting or lying, she could lift either leg normally. Gradually she moved about the house (St. Margaret's), went daily to the bath-room and finally did so without her cane. Meanwhile constipation had disappeared.

After seeing the patient almost every day for about seven weeks, I sent her home with the promise that she would steadily improve. By this time the knee-jerks and especially the ankle-clonus had become notably diminished. In fact, it became difficult and nearly impossible to create any sign of spasm in the foot.

Referring again to the hysterical aspects of the case, I will frankly confess that notwithstanding the long-existing loss of leg-power, the ankle-clonus and other abnormal reflex symptoms, I found it difficult and puzzling to account for sclerosis in view of the following points, namely: total absence of the atrophy in spite of the very chronic nature of the disease; almost entire disappearance of exaggeration in the reflexes under suggestive treatment, and, further, the curious fact, mentioned by the mother of the patient, that on several occasions, during a period of perfect helplessness in waking hours, the invalid left her

bed and walked naturally during her sleep, or in a condition of somnambulism. The mother is absolutely positive on this point, for she waked her daughter and forced her to return to her bed, the power of walking then abating. Nevertheless, as will be seen later, there finally was discovered an indisputable proof of the existence of sclerosis.

After her return to her home the patient wrote me very frequently, and always in a tone of cheer and hope. This evidence of a beneficial mental change was a wholly new thing as well as a source of great satisfaction to the patient's mother. During the next few months there was a slow but positive gain. Evidences of improvement were, however, somewhat intermittent. On a given day the patient could walk up and down stairs without help; on the following day she required assistance. One day she could enter a carriage unaided; on the next day it was necessary to lift her. On one day she appeared so able that her lack of power on the succeeding day led her friends to think she was shamming. She went about the house with the aid of a chair which she pushed before her.

She went out of doors in a wheeled chair, and finally when she had left the chair, seated herself upon the ground to pick violets, which she sent to me with a note, in which she expressed her happiness that she could do this, and afterward reseated herself in her chair without help; it became evident, notwithstanding the fact that the legs had not wholly recovered freedom, that the gain had been large.

During the next three months, being absent from the country, I did not hear from the patient, but her mother assures me that there was no loss either in power or mental cheer.

A note from the patient's mother says: "Fannie was able to go up and down stairs on her feet several times last summer. She took hold of the bannister and went up alone although it was hard for her. Sometimes she could walk down slowly; sometimes she would sit and slip down one stair at a time. I have known her to walk *well* when asleep though she could not walk without assistance when awake. But she has not done this since you have known her, not later than January, 1892."

In December last the patient fell ill, and died of pyelo-nephritis. The autopsy revealed sclerosis in various districts of the spinal cord touching which I hope that Dr. J. J. Putnam will give further and more exact information.

In view of this revelation, the recovery and increase of ability to use the legs and the almost entire disappearance of the exaggerated character of the reflexes, may fairly be attributed to invigoration of function in response to suggestion. Had the patient continued to live, it is possible that unconquerable loss of power would some day have resulted. Nevertheless when we consider the fact that all other treatment had been abandoned as useless and that, when she came under the suggestive treatment, the patient was helpless, the hope and amelioration of symptoms conferred by this means of relief become sufficiently apparent. Van Renterghem and Van Erden report a similar case but in which the results produced by suggestion were not so effective.

A Case of Paraplegia.—After months of treatment in a Lynn hospital, a young woman, age twenty-three years, single, was admitted to the Home for Incurables, naturally as an incurable. Her ailment

was paraplegia which had made such progress that the legs were atrophied to a degree which I have never witnessed in any other case. In brief, there was no muscle on the bones of the legs, and they hung from the hips like sticks, immovable and helpless. The condition was due to a heavy fall into the sitting posture. The patient, of course, could move neither legs nor feet, which it was constantly necessary to arrange and place for her. When put upon her feet the patient collapsed and fell to the floor. She was badly constipated, had irritable bladder, spinal and cranial pains, no ankle-clonus, slight exaggeration of the jerk of one knee. There was marked hysteria and mental irritability.

Here, surely was an unpromising case. But the patient proved to be an excellent subject; and on the 24th of January, 1890, I made my first suggestion. The patient fell into a profound sleep. Lifting one of her legs I suggested that she could not put it down. The limb remained in air a few seconds. This not only gave me hope but revealed an excellent means of diagnosis, for it became evident that the lesion of the spinal cord was largely if not wholly functional. The main argument against this supposition was the extreme and unusual degree of atrophy. After the necessary suggestion had been made the patient was aroused. She could then bear her weight in the standing position. The knees occasionally yielded, but the patient showed more strength than had been evident during two years previously, and required little more support than was needed to steady her.

January 28th. During sleep patient's leg remained a longer time than before in raised position. After waking stood unaided twenty seconds.

January 31st. Improvement steady. Suggestion.

February 4th and 9th. Fourth and fifth treatments. Bladder and bowels show better condition. Patient can cross the legs.

February 14th to 28th. Five additional sittings. Patient can stand, lift the legs, cross and uncross them with ease.

The treatment was applied semi-weekly until April 30th, by which time patient was walking with help. Bladder normal. Constipation gone, spinal and cephalic pain vanished, legs increased in size.

February 11, 1891. A lapse of nine months since I had last seen the patient. During the interval she had lost none of the new power, and was stronger on her feet; was less hysterical. Recommenced the treatment by suggesting that she would walk to church on Easter Sunday. This I obliged the patient to repeat after me during sleep. When that Sunday came patient did walk to church and by May 1st—for I again continued the treatment semi-weekly until that time—she went everywhere with ease. Meanwhile the legs had regained their normal size and strength. Patient in fine condition. Save an occasional indication of hysteria during the menstrual epoch nothing remained of the original ailments. To-day the young woman is an assistant in the Home and is in good health. Once before I published a meagre outline of this case but the final result had not then been reached.

Case of Paraplegia from heavy blow upon the head, fracturing the skull of a young man who was admitted to the Home for Incurables after having spent six months in the Massachusetts General Hospital. His body was supported by iron frames which enclosed the

legs. By the additional help of crutches he could move slowly over short distances. There was cystitis and absolute incontinence of urine, a urinal being indispensable. Patient suffered from intense pain in right foot which no treatment at the Massachusetts General Hospital was able to relieve. A cradle was necessary to prevent pressure of bed clothing which patient could not bear.

He proved very suggestible, slept profoundly, was totally anesthetic and subsequently, while asleep, was unmindful of painful operations such as the curetting of the cavity of an old abscess. The first suggestion wholly and permanently relieved the pain in the foot. Subsequent suggestions gave steadily increasing power to the legs. At the end of three months the iron frames were discarded, crutches alone being sufficient and patient could walk with a crutch in each hand. The suggestions were renewed after a lapse of nine months and continued as before, twice weekly, during three months. No treatment has been given during the past two years. The cystitis meanwhile slowly decreased and to-day incontinence is the only sign of vesical disorder. The patient wears no splint, walks easily with one crutch held in the hand, is in fairly robust health and does the lesser carpenter work of the house.

Paralysis of Tongue.—February 7, 1890. Six months ago a lawyer experienced a slight apopleptic attack, which, however, caused unconsciousness and a fall. Now, the lingual muscles are embarrassed. Indistinct enunciation. Patient obliged to abandon pleading in court. Right arm very weak. Writing nearly impossible. Patient chronically constipated.

Following the first suggestion the tongue acted with greater freedom; articulation clearer.

February 8th. The beneficial change remains. Second suggestion applied.

February 11th. Greater freedom of articulation is very noticeable and the right hand is more flexible in the use of a pen. Third suggestion.

February 12th. Fourth treatment. Improvement continues.

February 18th. Lapse of one week. Very marked gain in freedom of utterance; arm much more vigorous; bowels freer than they previously have been in ten years. Final suggestion applied. Patient began again to plead in court. When I last saw him, two years later, there had been no relapse.

Case of Paralysis Agitans in a weak old man of seventy years, with great lack of leg-power and coördination, the head drooping, spine bent forward, hands in constant agitation. This patient received large comfort from the suggestive treatment and begged for it. Following a suggestion the agitation of the hands disappeared either partially, or wholly, during several days. Walking was stronger, patient held himself erect, the forced adduction of the knees was relieved and there was ability to face about in the standing position which, before he received the treatment, the patient could not possibly accomplish. He declared that during the sleep and after waking he was conscious of a warm current of stimulation in arms and legs. At the end of three or four days this renewed vigor gradually disappeared to be restored by a fresh suggestion. In this case the treatment gave amelioration and comfort which no other means could have supplied. The general health of the patient improved and undoubtedly his feeble hold upon life was thus prolonged.

A Case of Hemiplegia. Male, aged sixty. Patient able to move about a little. Could not lift the paralyzed arm above a level half-way between hip and shoulder. Grip very feeble. After the first suggestion patient voluntarily said that he felt a hot sensation in arm and leg of affected side. Could raise the arm to the level of the head. After second sitting could raise the arm straight above the head and felt stronger on the weak leg.

Treatment continued at intervals during three months. Patient gained large control of the arm, had a stronger grip, could walk long distances.

Some months later this man died of an intercurrent disease. Bernheim has reported similar cases with even better results.

Case of Paraplegia, due to a fall from one story to another through a hatchway, ten years before I saw the patient, a gentleman, aged sixty. He received the suggestive treatment two or three times weekly during a period of five months, advancing slowly but steadily to a more manageable condition of the legs which felt lighter and more alive. I have not seen this patient for two years, but he writes that some months after I last saw him he became weaker again. In such cases amelioration naturally is all that suggestion can effect.

Case of Tremor of the Hands, in a lad of twenty years, which prevented work of any kind. Patient had formerly used tea and tobacco excessively, had masturbated much and was mentally agitated. Suffered from insomnia. Was treated by suggestion once weekly during five weeks. The first treatment quieted the hands and wholly relieved the insomnia. The effect was intensified by each successive sitting. After the fifth suggestion patient could strike with unerring exactness a given spot on wall-paper with the point of a pencil held by the tips of the fingers. Patient said he had abandoned the habit of masturbation. Recovery and no relapse.

Case of Tremor of the Right Hand, with loss of muscular power, insomnia, spinal pain, incontinence of urine, pain in walking in a lady aged sixty, married, in whom there was not a vestige of hysteria. She received sixteen treatments by suggestion, which relieved her of incontinence, lameness, spinal pain and insomnia, restoring strength and perfect quiet to the hand and arm, patient being able easily to thread a needle. Twelve months have passed since the last sitting. There has been no relapse.

Case of Chorea, of seven years' duration, in a young lady aged nineteen. Movements moderate in character. After first suggestion there was greater quiet. Following five additional applications the patient did not improve. The treatment was then abandoned.

Chorea in a boy of twelve years, who presented constant movement of head, arms and face. He received twenty-four treatments, improved rapidly and promised recovery. The treatment ceased abruptly because patient was removed from the city.

Chorea in a boy of eight years. Twitching of eyes, brows and lips. He received fifteen applications of suggestion. To-day, unless fatigued or excited, he shows no choreic symptoms.

Chorea since Childhood in a young man aged twenty-four. A severe case. Patient a masturbator. Received twenty-four treatments with slight improvement which was not permanent.

Case of Stammering in a gentleman of thirty years. Stuttered very badly. Had sought relief at home and in Europe since childhood. A good subject, slept profoundly. He received 104 applications of suggestion. The stammering decreased steadily and remarkably. At the present time, after a lapse of three years, unless excited or embarrassed, the patient speaks smoothly and connectedly.

My experience with cases of stammering has led me to believe that the mind stammers as well as the muscles and the suggestion that, during speech, there will be an undisturbed tranquillity of mind, is one of which I always make use. In a susceptible person this will cause a less interrupted nerve discharge. In addition to this I suggest perfect repose and freedom from all spasmodic movements of the diaphragm.

The longer the affection has lasted and the more pronounced the stammering, the greater the number of applications of suggestion should be. It is needful to create another mental and another muscular habit. This requires time.

Case of Stammering in a student of Harvard University. He stammered in every sentence but not nearly so badly as did the former case. After the first suggestion patient did not stammer once during half the next day. Then the trouble returned. Following second sitting the effect was more prolonged. A few successive treatments disposed of the affection and two years later patient reports that he is still free from it.

Case of Stammering in a young lady whose speech broke every few words. After two sittings she thought herself somewhat relieved. After the ninth patient was in doubt. Received fifteen treatments in all after which she was certain of marked improvement but has never been wholly free from the annoyance.

Case of Chronic Retention of Urine in a young man from spasm of the urethra. Relieved permanently by five treatments.

The cases which I have reported sufficiently show the usefulness and occasional failure of the suggestive treatment, which, like other remedies, but in my experience less often than they do, meets with disappointment. I think, however, that I have indicated the beneficial effects of suggestion in ailments of a peculiarly unyielding nature and which I purposely selected from my record-book, in order to make clear that such forms of illness, having defied other means of relief, still have a friend in suggestion, which, while it may not always bring recovery, will, in susceptible persons, often confer the comforts of amelioration.

It is needless at this time to add other illustrations, but I will point out, that if suggestion can give alleviation or recovery to cases so obstinate in character as those I have here detailed, it becomes very evident that this means of relief offers permanent aid to ailments which are curable. This I have satisfactorily demonstrated in a list of cases which has become very long.

In closing I may also call your attention to the interesting fact, which I have proved over and over again, that, when it becomes necessary, in connection with suggestion to give specifics like iron and digitalis, they will, under suggestion, act vigorously where they formerly have failed to do so.

Clinical Department.

A CASE OF ADDISON'S DISEASE.

BY KENELM WINSLOW, M.D.,

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On May 10, 1895, I was asked to see a man in a boarding-house who had been vomiting for a few days. He was a French Canadian teamster, age twenty-eight.

Family history negative.

Personal history as follows: Has had gonorrhea and very probably syphilis. Had not been feeling strong for some time. Stopped work only a week before on account of weakness. Anorexia for weeks, and nausea and vomiting occasionally for a few days. On careful inquiry, subsequently learned that he had been failing for five months; getting thinner and weaker.

About Christmas, 1894, the patient went to Maine to work in the woods; and on returning in March, 1895, his friends said he looked as if he had been starved to death, and had grown so much darker that they joked with him about it and doubted if he were a white man. One of them observed to the writer that even the patient's lips had grown black.

The patient complained, when first seen, of vomiting, and, as the writer was only introduced casually while visiting another patient, bismuth and cerium, with a milk and lime-water diet, were recommended and the full import of the case was not perceived.

At the second and last time the patient was seen alive, two days after the first visit, he complained of great weakness and restlessness with much nausea and vomiting but no pain. Physical examination showed patient very thin; an angular curvature of the spine in the dorsal region; face and arms half-way to shoulder almost black; ocular conjunctivæ clear and white; pigmentation in groin and elsewhere, but not very well marked; pulse barely perceptible, thready—90 per minute; temperature 99°, hands cold and clammy; tongue coated white, chest barrel-shaped; heart and lungs negative, abdomen flat, and nothing remarkable observed.

The patient was sent immediately to the Newton Hospital in an ambulance, as he had grown very weak the last few days. After spending three days in the hospital he died unexpectedly during the night.

He was fed on nutrient enemata, as vomiting was incessant. The urine was free from albumin and sugar; specific gravity 1.015.

At the autopsy the brain was examined by E. W. Hill, M.D., neurologist, and the chest and abdomen by Dr. D. L. Baker, who suggested the possibility of Addison's disease, and also by the writer. Nothing of any import was found except absence of all fat, subcutaneous or omental; cavities of body very dry and heart small. The supra-renal capsule was not demonstrable on the right, and on the left appeared to be small but normal.

Diagnosis of Addison's disease was made from the characteristic group of symptoms during life, namely: pigmentation of the skin, grave asthenia with nausea and vomiting, together with exclusion of other causes of disease or death.

Objection may be made that disease of the supra-renal capsule was not discovered, but this is not invariably present. The case is offered on account of its rarity. Osler has it 1 in 3,000 in foreign clinics and much rarer here.

Medical Progress.

REPORT ON THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D.

ON THE EFFECT OF GIVING LEVULOSE AND INULIN TO PATIENTS SUFFERING FROM DIABETES MELLITUS.

DR. W. HALE WHITE¹ says that among the eight cases of diabetes which form the basis of his paper, some were given dextrose, inulin, and cane-sugar, as well as levulose. All were, for the first few days, put upon hospital full diet, which consisted of twelve ounces of bread, one ounce of butter, half a pint milk, half a pound of potatoes, and six ounces of meat a day. Tea and sugar were given morning and evening. The amount of sugar passed on this diet was estimated. Then the patients were given a diabetic diet consisting of twenty soya bean² biscuits, two eggs, two almond biscuits, one fluid ounce of milk, twelve ounces of cooked meat, together with abundance of greens, water-cress, tea and soda-water. If any patients found the soya-bean biscuits dry and disagreeable, they had gluten bread instead. When a constant diabetic diet had been given for several days, levulose was added to it and the excretion of sugar was then compared with the quantity passed before the levulose was given. In six out of the eight cases the solid levulose now in the market and prepared by v. Scherring was used. A specimen of this that was analyzed was found to contain no dextrose. In the other two cases the thick syrupy form of levulose sold some time ago was given, but its approximate corresponding value in the solid form Dr. White gives in tables appended to his article. The patients were allowed to take the levulose as they liked; some took it in their tea, others drank it in solution, in water. The average number of grains given daily varied from 200 to 1,000.

Inulin, which is the starch corresponding to levulose, was given in the form of dahlia tubers. They contain about ten per cent. of it; they should be boiled for four hours until soft, and eaten as a vegetable like potatoes; they have rather a sharp but by no means disagreeable taste. They were a fashionable dish in France before the French Revolution, and at the present day are eaten in South America.

Dextrose and cane-sugar were given like the levulose.

In comparing the results obtained by this author with those of others, the writer states it should be remembered that with one exception all his patients were severely ill with diabetes and were passing large quantities of sugar. Large amounts of levulose were given; and this is important, for in a severe case of diabetes the quantity of sugar passed often varies so much from day to day that no definite results can be expected unless large quantities of levulose are administered.

In discussing the question of the relationship between the amount of levulose given and the amount of sugar excreted, the writer says it seems probable, that if the levulose is going to lead to a smaller excretion of sugar than would have resulted if all the levulose had been passed as sugar in the urine, the more that is

given the better, until at last a point may perhaps be reached at which not only does the levulose lead to no increased excretion of sugar, but, acting like opium, it sometimes seems to diminish the amount of sugar excreted. Probably in these cases it has a doubly beneficial action, for in addition to having this opium-like effect it is a food.

As regards the weight of the patient one case (Case IV) confirms the conclusions derived from the examination of the urine, and goes to show that sometimes when levulose is given to diabetic patients they not only gain on the levulose given, but it appears to hinder the destructive metabolism going on in them.

From the eight cases of diabetes mellitus the writer draws the following conclusions:

(1) If large amounts of levulose are given, some of it appears in the urine.

(2) In none of these cases did levulose have the pernicious effect, often seen with ordinary carbohydrates, of increasing the output of sugar beyond the extra quantity given.

(3) When levulose is given the excretion of sugar is usually increased, but it may be diminished.

(4) In most cases much less sugar is passed in the urine after giving levulose than would have been excreted if the previous excretion of sugar had remained stationary and all the levulose had appeared in the urine.

(5) There is some evidence that the larger the amount of levulose, the less will be the increase of sugar in the urine.

(6) While, therefore, some of these cases show that levulose can be utilized better than dextrose, none of them show that dextrose can be utilized better than levulose.

(7) None of the patients felt worse for taking levulose; indeed, some felt better and gained in weight.

(8) Probably a moderate amount of dahlia tubers taken, as a vegetable, by patients suffering from diabetes would do no harm.

(9) The effect of levulose on the excretion of urea is unimportant.

(10) The amount of urine passed when levulose is given varies with the quantity of sugar passed.

LEVULOSE FOR DIABETIC PATIENTS (ITS PARTIAL CONVERSION INTO GLUCOSE).

J. B. Haycroft³ records the results obtained in three cases of diabetes by giving levulose as a carbohydrate food. The patients were placed on a fixed diet, from which the carbohydrates were excluded as far as possible, and the sugar estimated in the urine. In alternative periods of three days 55 grammes of levulose were given per diem in six doses. The quantity of sugar excreted was determined by Fehling's solution and by polarization. From observation and experiments the author draws the following conclusions:

(1) A patient suffering from chronic diabetes can utilize 50 grammes or more of levulose daily.

(2) In some acute cases a part of the levulose taken with the food is excreted as such; a part is utilized in the body, and a part is transformed into glucose.

(3) In rabbits glycogen is formed from the levulose taken and is stored up in the liver.

¹ Guy's Hospital Reports, vol. I.

² See abstract of an article, by W. Hale White, on the use of Soya Beans in diabetes mellitus in my therapeutic report of October 19, 1893. F. H. W.

³ Medical Chronicle, 1894; original article in Zeitschrift für physiologische Chemie, Bd. xix, Heft 11, 1894.

THE DANGER OF ANESTHETIZING DIABETICS.

Bayer⁴ calls attention to the danger of narcotizing diabetics. He has reported three of his own cases and nine collected from medical literature. Even in slight cases of diabetes the patients became comatose and died. Coma did not develop until after the chloroform narcosis had passed off, in twenty-four to forty-eight hours. The patients then became indifferent, stupid and confused. Finally, they lost consciousness; urine and feces were passed involuntarily; and they perished in coma. This communication is important, since it shows that the administration of chloroform is dangerous even when there is a slight degree of diabetes, it being impossible to predict whether or not coma will develop.

PHYSIOLOGICAL AND THERAPEUTICAL ACTION OF CHLORULOSE.

Ernest Chambard⁵ describes the physiological action of chlorulose on frogs and on man, and then sums up the uses of the drug as follows:

(1) As a means of studying the psychical and other phenomena of the hypnotic state, chlorulose offers a promising field for further inquiry; it produces a dissociation of the highest and most differentiated functions of the organism, and enables us to study and analyze those conditions of mind and body which are intermediate between the ordinary waking state and complete lethargy.

(2) As a means of diagnosis chlorulose merits further study as under its influence latent neuroses become manifest; for example, the author relates a case in which there was probably general paralysis, but in which the ordinary symptoms were slight or absent. Under the influence of one gramme of the drug the typical mental condition and affection of speech appeared. A latent hysterical element in other cases became manifest when chlorulose had been given for its hypnotic effect.

(3) As a therapeutic agent its soothing and hypnotic properties are of great use in suitable cases. In insomnia of a purely nervous character, in states of cerebral excitement, in the insomnia and pain which form so marked a feature in the latter stages of cardiac disease, chlorulose is of the greatest value; the absence of depressing influence upon the respiratory functions and upon the heart render it especially suitable for the latter class of cases. On the other hand, it is of little use in sleeplessness due to pain or alcohol; it aggravates the motor-incoördination of ataxic patients and the tremors of Parkinson's disease. The drawbacks to its use are that it is somewhat uncertain and that the motor and somnambulistic complications, though not dangerous, are often alarming and unpleasant for the attendants of the patient.

ONE HUNDRED CASES OF DIPHTHERIA TREATED WITH BEHRING'S SERUM.

Professor Widerhofer⁶ gives the ages of these one hundred cases, which varied from one year to fourteen years; the larger number being less than five years old. He states the mortality, which was 24 per cent., and then analyzes the 24 deaths very carefully. A probable prognosis was made on the day of the first injection; and the writer divides the prognosis into four

classes, Nos. 1, 2, 3 and 4, the latter class of cases having an absolutely unfavorably prognosis.

Prognosis No. 1	22 cases, mortality 3
Prognosis No. 2	36 cases, mortality 5
Prognosis No. 3	26 cases, mortality 6
Prognosis No. 4	16 cases, mortality 10

In the cases which appeared to be very light the antitoxin was not used, so they do not fall into this scale. In all the cases which come under prognosis Nos. 1 or 2, the writer injected a bottle of Behring's serum No. 1, and usually repeated the injection twelve or twenty-four hours later. If the course of the disease on the next day did not appear sufficiently favorable as regarded the removal of the membrane or the quality of the pulse, a third bottle was used. In very rare cases the writer obtained or thought he obtained his end with only one injection. In those cases where the symptoms of poisoning were marked and the local condition bad, Professor Widerhofer used Behring's serum No. 2, and followed it according to circumstances with the same number or with No. 1, once or twice.

In the severest cases where the prognosis fell under Class 4, Behring's solution No. 3 was used, and, according to the needs, was followed by a second and third injection of solution No. 2, or No. 1. In very rare cases a fourth bottle of No. 1 was administered.

The writer found Koch's syringe not easily managed. When an injection was made, the syringe as well as the skin were carefully disinfected with ether, then absolute alcohol, and finally with a two-per-cent. solution of carbolic acid.

The writer sums up as follows:

(1) He thinks there is not the slightest doubt that Behring's serum influences so favorably certain groups of cases of diphtheria, and those not of the mildest forms, that his serum-therapy deserves to be called a curative method for diphtheria.

(2) Severe cases of diphtheria, even those which present the most severe symptoms of poisoning, such as were described earlier in the article, if the antitoxin has been used within the first three days of the disease, are precisely those in which the favorable and even surprising effect of the serum is best shown. The writer saw many cases of this group recover, which before serum-therapy very rarely happened. But it should be remembered that the cases spoken of were those in which the Klebs-Löffler bacillus was found alone, not associated with other organisms, especially not with streptococci.

(3) There is no doubt that Behring is perfectly right in saying that if the antitoxin is not used until after the third or fourth day of illness its effect is doubtful. Still it must not be imagined that any later use of the serum is perfectly useless.

(4) In cases where the larynx was already attacked, the writer not infrequently saw favorable results in the beginning of the stenosis or very soon after, but if the disease had spread farther into the larynx such results were only seen in individual cases. If the smaller bronchi were affected or if there was catarrhal pneumonia, no good results were seen.

(5) It follows from what has been said that Behring's serum-therapy will significantly reduce the mortality from diphtheria.

(6) The writer cannot yet say decidedly that the serum has any injurious effect on the child. The serious and frequent degeneration of the internal

⁴ Therapeutic Gazette, 1894; original article in Deutsche med. Woch., 1894.

⁵ Medical Chronicle, 1894; original article in Revue de Médecine, April and July, 1894.

⁶ Deutsche med. Woch., No. 2, 1895.

organs, particularly the kidneys, took place before the use of serum-therapy.

(7) Among the after-effects of diphtheria, paralysis occurs as before the use of serum; but the writer thinks it is not so severe, nor so frequent, but has not had sufficient experience to give an opinion on the matter.

(8) The local injuries arising from the injection of antitoxin were almost nothing, a little redness, urticaria, two abscesses about the place of injection that are not worth mentioning, comprises them all.

THE TREATMENT OF DELIRIUM TREMENS DURING AN ALCOHOLIC SERVICE IN BELLEVUE HOSPITAL.

Dr. Russell Bellamy,⁶ during this service, had nearly 500 patients; in such cases at this hospital the highest mortality has always been in those suffering with the acute form of delirium tremens, experience having shown that if the delirium continues for any length of time, the patient usually dies; serous effusion occurring on the surface of the brain, as is shown by the autopsy. The author, believing that the best results would be obtained if the delirium could be quickly controlled and natural sleep induced, adopted an extreme hypnotic and feeding plan, rather than the popular feeding, profound hypnotic or the alcoholic stimulant. In 25 of these 500 cases the writer used trional exclusively, and the mode of treatment was as follows: Immediately on the admission of a patient a calomel purge and twenty grains of trional mixed in water, with ten minims of tincture of capsicum to hasten absorption, were administered; and if the condition would warrant, a very hot bath was given, its temperature being gradually lowered. The patient was then placed in bed in a well-ventilated room, and restrained with sheets and shackles. If the delirium showed no signs of abatement in thirty minutes, ten grains of trional were given. If this had no effect in an hour, twenty grains were added. In nearly every instance in the cases reported, sleep followed the administration of fifty grains, and the pulse and respiration were stimulated. The drug can be administered either as a mixture with water, in capsules, dry on the tongue, or by rectum.

In several cases, on account of the feeble and weak condition of the pulse, digitalis (preferably the fluid extract) was administered. Beyond trional in a limited number of cases no medication was given, except a routine tonic consisting of strychnine with a mixture of the vegetable bitters and ammoniated tincture of valerian. In no case was a marked depressing effect from trional observed. The pulse remained good, and except in Case X, where forty minims were administered hypodermically shortly before death, whiskey was not used. Possibly on account of the ethylic and methylic elements in its composition, the drug acted as a cardiac stimulant rather than, as was supposed by many, as a depressant. The writer has found that a moderately high temperature is almost a constant accompaniment of severe delirium tremens, and therefore thinks it important to note that in no case treated with trional did the temperature rise above 102°; consequently the drug certainly possesses antipyretic properties.

In all cases forced feeding, in small quantities often repeated, was followed—the diet consisting of milk, eggs and soups.

⁶ New York Medical Journal, 1894.

In the 25 cases treated with trional exclusively the amount administered varied from 70 to 185 grains.

Dr. Bellamy closes his article with the following summary:

(1) Delirium was controlled with greater rapidity and safety by trional than by other hypnotics.

(2) In the majority of cases a marked stimulant effect was observed, possibly on account of the methylic and ethylic elements which enter into the composition of the drug.

(3) On account of the low temperature noted in all cases, trional must possess antipyretic properties, thereby simulating its allies of the phenol group.

(4) It was always well borne by the stomach, and in one case was rapidly absorbed when administered per rectum.

(5) No unpleasant after-effects were observed, and in all cases (barring Case X, and a tuberculosis complication) recovery was speedy.

A CASE OF CHRONIC POISONING FROM THE USE OF TRIONAL.

Dr. H. Reinicke, assistant physician in the Lunatic Asylum at Osnabrück⁸ states that an account of three cases of poisoning from the use of trional has been published (two of which ended fatally), and then details the following case which was treated in the Osnabrück hospital:

The patient, twenty-six years of age, suffering from acute insanity, but in good bodily condition, was given trional at intervals from October 15, 1894, to January 29, 1895, on account of great sleeplessness. During this time the patient was in bed except for two days and received the usual diet. Care was taken that there should be regular dejections and the urine was examined at certain intervals, and up to January 23d, was free from blood and albumin. One gramme of trional was given every second evening in the usual way, that is, in a hot drink half an hour before the intended effect was desired. No trional was given from December 1, to December 22, 1894, nor from January 14, to January 22, 1895. The patient received in all 40 grammes in 107 days. The last dose was given on January 29th, and there were no apparent ill effects.

On January 30th, the patient complained of headache, dizziness, loss of appetite, epigastric pain. Temperature 38.5°. No dejection. Macroscopically the urine showed no change. January 31st, the same symptoms were increased. The temperature in the evening was 39°, the color of the face was bad; the pulse rapid and weak; nausea; five very thin, almost odorless, dejections. The urine was not evacuated separately. On February 1st, with a moderate rise of temperature, there were three similar dejections; 250 c. c. of urine were passed, of acid reaction, odorless, and with much sediment. The chemical analysis of the urine showed two per cent. of albumin in the unfiltered and one-half per cent. in the filtered urine. Heller and guaiac tests were positive; the other reactions showed nothing of consequence. The examination under the microscope showed a few white and red blood-corpuscles, bladder epithelium, numerous hyaline and granulated casts and much granular detritus. The examination of the urine gave the same or similar results until February 18th, except that the daily quantity passed increased, the color became clearer and the albumin and

⁸ Deutsche med. Woch., No. 13, 1895.

the blood less. In time the patient was out of danger, but was left in a very weak and anemic condition.

The writer concludes by saying that it remains to be seen whether time will not show that, even when trional is used with the utmost caution, there is security from ill effects and that in this respect it does not differ from the latest hypnotics.

THE ACTION OF TRIONAL.

M. Vogt⁹ draws the following conclusions:

(1) Trional is preferable to sulphonal, as it acts more promptly and produces a calm sleep with a normal awakening.

(2) The dose is from fifteen to twenty-two grains dissolved in liquid as hot as possible and is taken at bedtime.

(3) The treatment should be stopped in every case at the end of five or six days. If this is done there is no fear of poisoning, and generally during this time the patient is relieved of his insomnia.

(4) It is always a good plan to diminish the acidity of the urine in order to avoid grave accidents from the destruction of the blood-corpuscles, and this is done by the administration of alkalies.

(5) The constipation which frequently follows the administration of this remedy should not be neglected, on account of the accumulation of trional through lack of elimination.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, April 1, 1895, Dr. C. J. BLAKE in the chair.

DR. HAMILTON OSGOOD read a paper on

THE TREATMENT OF SCLEROSIS, OF VARIOUS FORMS OF PARALYSIS AND OTHER NERVOUS DERANGEMENTS, BY SUGGESTION.¹

DR. J. J. PUTNAM: I have been much interested in Dr. Osgood's paper, and am glad of an opportunity of expressing my recognition of the importance of his cases. As regards the patient with sclerosis and spastic paraplegia, to whom he first referred, I can bear witness that she had been pretty much confined to her chair and improved very considerably under treatment by suggestion, though I had not gathered from her mother's account that she had improved quite so much as appears from Dr. Osgood's account to have been the case. The anatomical diagnosis was confirmed by autopsy, and in fact the sclerosis was remarkably extensive [specimen shown]. As regards the nature of the condition in which this patient was at the time the suggestions were made, some doubt exists in my mind as to whether some other name ought not to be found for it than that of the "first stage of hypnotism." The patient herself did not realize that she was in any peculiar condition, and it may be questioned whether the strong influence of a confident physician might not have brought about the result that was obtained without any attempt at hyp-

notism at all, or, again, whether the hypnotism does anything more under such circumstances than impress the patient with a sense of the physician's power. As regards the possible hysterical element in the case, I hardly think we have evidence that any such was present, even in view of the increased power of walking during somnambulism. My idea is that patients with sclerosis who still have a certain number of active nerve elements often do better if they rely blindly on their instincts, and that it is partly on that account that tabetic patients who have mental symptoms rarely stagger very much.

From that point of view I should like to speak of the treatment of locomotor ataxia. I think it is very striking indeed that a disease which is recognized to be practically incurable does show a good many cases of very distinct amelioration. One case was reported some years ago by Schultze which it seems to me ought to have more recognition than it has received. The case was under treatment, mainly by Erb, for twelve years by galvanism and other methods, and during that time made rapid improvement, took long walks and lost a good part of his symptoms. He had no lancinating pains for a number of years, and finally died from some intercurrent disease. Schultze found signs of the tabetic process well marked, though not of the severest form, showing how, apart from suggestion, the patient is often capable of doing more than he realizes that he can do. I have in mind a young man who finally died with bulbar paralysis and whose symptoms through a long period of sickness, showed most extraordinary oscillations.

I should like to speak of other kinds of treatment of locomotor ataxia that I have been carrying out in the past year which have given fairly good results, namely, the treatment by modified suspension which was taken up and largely abandoned some years ago, and also that by injections of testicoline and by static electricity. I have had several cases at the hospital which have improved a good deal. One private patient has gained in gait and in the relief of pain far more than I could have anticipated. I dare say the result is produced wholly by suggestion, but it is a method of using suggestion which would recommend itself to many physicians as relatively easy of application. Perhaps, also, there is something more to these treatments than simple suggestion. Another matter in which I have been interested is the study of the temperature as affected by these treatments. I should like to know if Dr. Osgood has made observations of that kind with reference to hypnotism. During the treatments by suspension the temperature almost always changes from a few tenths to one-half a degree and almost a degree occasionally, and it generally falls, though sometimes it rises. I have lately been taking the temperature of patients who have been semi-hypnotized, and got very quiet, if not drowsy, under the use of prolonged static electricity, and there also the temperature alters quite extraordinarily. I have the records of two cases, one of exophthalmic goitre which has improved very much, and the other of chorea which also improved distinctly under this treatment. In both these cases the temperature went up four-tenths of a degree to a degree. Sometimes no electricity was given, but the patients simply lay quiet and relaxed in a reclining chair. Even then the temperature generally rose to a marked degree, though not always.

¹ See page 32 of the Journal.

⁹ American Journal of American Sciences, March, 1895; original article in Les Nouveaux Remedes, 1894, No. 21, p. 489.

I should certainly agree with Dr. Osgood that most of us do not use as systematically as we ought the beneficial forces that come from a regulation of the influence of the mind and I think there are many ways of doing it besides that of the verbal suggestion.

DR. PRINCE: I have listened with a great deal of interest to Dr. Osgood's paper. I scarcely think any one will accuse me of scepticism as to the influence of the mind on the body; but I confess I was somewhat staggered by the title of Dr. Osgood's paper, as it led me to believe that Dr. Osgood took the ground, or believed, that suggestion could affect organic processes of the nature of sclerosis. However, after hearing his paper I must confess that I am unable to see anything in the results he has reported which is at all incredible, and which may not be considered natural. As I understand the position, it is not that suggestion affects the sclerotic process, but merely that there are a certain number of functional symptoms over and above that caused by organic disease and that these may be affected by suggestion. At any rate, it seems to me that the results which Dr. Osgood has described to-night can be accounted for without the assumption that suggestion in any way affects the organic disease. I think it is pretty well recognized now by neurologists that in many organic diseases the symptoms are of far wider distribution than is the organic process, that is, that the organic process produces symptoms which have a wider distribution than would be affected by the mere anatomical portion of the body affected. Bernheim quotes a case of hemiplegia following apoplexy which he claims was cured by suggestion. It is well known that in hemorrhage into the basal ganglia of the brain, unless the hemorrhage affects the motor fibres passing down between the ganglia, the paralysis is not permanent. There is a temporary paralysis at the beginning, owing to the fact of pressure upon these fibres by the hemorrhage. Now it is a pretty well understood fact that sometimes in a case that is going to get well the symptoms persist long after they should, and that many kinds of treatment will often cause these symptoms to clear up. I think in this way we should explain some of the apparently extraordinary results that follow suggestion in organic disease. I may cite in proof what I may call a very extreme case, and one that was very amusing, which occurred in my experience at the City Hospital. There was a patient in the service of Dr. Bradford who had met with fracture of the spine from a fall, and was treated in the usual way with plaster jackets. When he was in the surgical ward he had complete paraplegia with paralysis of the bladder, etc. He recovered sufficiently to be discharged from the surgical ward and to be sent to the out-patient department, where he came under my care. The first day I examined him he was unable to stand without crutches; could stand with crutches, but suffered great pain so that it was difficult to sit down. He was doubled up in a heap, was crooked, his back was bent, and it appeared to be a case of paraplegia due to organic injury of the spinal cord. The first day I examined him the symptoms seemed to be somewhat contradictory. I was then interested in the spinal cord localization, and was trying to localize the height of the lesion in the cord. I could not quite satisfy myself regarding the condition of affairs, and after a long examination told him to come back and I would examine him again. He came back a second time, and

we were unable to give him the attention we wished; but not wishing to disappoint him, I told my assistant to give him some static electricity, thinking that might amount to something. Presently I went into the next room and found him sitting on the chair and receiving these sparks; and as I looked at him an inspiration came into my mind, and I said, "Get up and walk, you are well." He looked at me incredulously. I repeated it several times in a stern way. He at first did not seem to believe I was in earnest. He gradually got off his chair, stared at me, and walked around the room, and walked faster and faster around the room. He walked over to South Boston that day. But he was not as well as he thought he was. A careful examination showed that there was a foot-drop in both feet, atrophy of the corresponding muscles, or, in other words, he had a limited organic lesion the result of paraplegia, but not of sufficient gravity to completely lay him up; but over and above this there persisted this extremely widely distributed set of symptoms. It was the mental paralysis cured by suggestion, whereas the organic disease was not affected at all. I think all neurologists will agree that the coincidence of functional symptoms—I will not say hysterical symptoms, because hysteria has a stigma about it that conveys the idea of excitability to people's minds—that it is very common to have engrafted upon symptoms due to organic disease a large number of other symptoms of purely functional nature, and in most cases might be said, I think, to be due to auto-suggestion. It is these symptoms, I think, that are cleared up in the majority of cases of these organic diseases which are affected by suggestion. This is only an explanation of the facts which Dr. Osgood has brought forward to-night. I can concur in what Dr. Putnam has said of the extraordinary results sometimes seen in the treatment of locomotor ataxia from the treatment which he has alluded to. It is sometimes extraordinary to see how the symptoms will clear up under treatment, but I think it is particularly ataxia. I cannot help thinking the mental element plays a much larger part in exaggeration of the ataxia than is usually supposed. Let a man have the idea that he cannot balance himself, and he won't make the slightest effort to control himself. Such people are often very much benefited if made to understand that they can if they choose.

Regarding the effect of suggestion in the first stage, which Dr. Putnam has spoken of, I think that is rather a practical point. I cannot help thinking too much stress is laid on the word hypnotism. Hypnotism has nothing to do with it. You might as well talk about cutting off a leg with ether. As to whether a person is in the first, second or third stage is not important. A good way sometimes is to write out on a piece of paper the idea you wish the patient to believe; the patient is requested to carry it round and read it night and day, and that will take effect. There is one way in which suggestion rather appeals to me, and that is in those cases where you wish to produce a mental effect on the patient. It appeals to me because it seems one of the most honest efforts you can use. We do not beat about the bush. We say up and down in a straightforward way we are going to use suggestion, no deception.

DR. PUTNAM: Dr. Prince has alluded to the first stage of hypnotism and the matter of being honest. Those are important points. My only desire in allud-

ing to the first stage of hypnotism is that I think it is important to understand exactly what we are doing. In regard to being honest I see very little in what Dr. Prince said. I think it is best to say as little as possible to a patient about what we are going to do unless there is some definite reason for doing so. If we say we think his nervous system will be improved and he will be better, that his symptoms will be relieved if he does as we tell him, it is as honest as if we use the word suggestion. I cannot see how that word adds anything to the case, and I think, on the other hand, it does sometimes bring in an element which is objectionable. You try to make a patient a partner in a mode of treatment which he really cannot understand.

DR. DEBLOIS: I should like to mention a case which occurred a good many years ago. I saw in Dorchester, in consultation, a lady, married, who had not spoken for two years; no sound had escaped her lips. It was a case of hysterical aphonia. I had with me in my bag a galvanic battery, and while charging the battery I said to the husband, "as soon as I apply this battery she will speak, and go on speaking," because, having examined the larynx, I saw that it was in perfect order, perfect movements of phonation, only she would not allow any sound to pass through it. I applied the battery and she said: "Stop! Stop! Stop!" and she went on talking. That might have been mental suggestion, but I thought it was faradism.

DR. OSGOOD: With reference to my account of the improvement in the case of sclerosis I did not wish to gild my case and did not do so, my information as to the patient's progress after she went home having been gained from her letter to me and later from her mother, whose replies to my questions I wrote down as she made them. In using the term normal that simply meant that when I last saw her at St. Margaret's in the standing or sitting position, the patient could lift her legs normally. I did not say she could walk normally, and I showed the intermittent character of her progress.

As to the sleep-walking I reported that precisely as the mother reported it to me, namely, that she saw her daughter walk to the door naturally. She added: "I went and waked her up, and it was difficult to get her back to bed." The main point which this case brings out is this: I find a young woman unable to move at all, who has not stood once in two years, she cannot lift her feet, cannot bend her legs, and under the effect of the treatment she is able to get about the house again. With reference to the first stage into which I said she passed: I do not trouble myself very much as to what stage of somnolence the patient reaches so long as he remains quiet, for I have discovered that suggestibility may exist in the first stage as distinctly as in deeper stages. And I may add that hypnotism and its stages are wholly secondary to suggestibility. The latter is the source of relief. In fact, a patient may fall asleep and yet not respond to suggestion — though this is a rare occurrence. When a patient says I have not affected him at all, at the same time while in my office he lies in my chair perfectly still for the thirty minutes I give him there, never moving, never opening his eyes, I believe there exists a certain amount of inhibition of his brain, involving the objective mind, an amount sufficient to increase that patient's suggestibility, or to bring it into activity and

to keep the patient's attention. The undeniable proof of this is the improvement in the patient's condition. On one occasion a very blunt old lady came to me with chronic eczema of the scalp, hands and feet, insomnia, and very much depressed mentally. After twelve treatments as I dismissed her, she said: "I came to you with such-and-such symptoms. I am absolutely well. The eczema has disappeared. I sleep like a child and am happy. In your office I have not been asleep at all and so far as I know have been unaffected; how did you do it?" I tried to make clear to her the difference between somnolence and suggestibility. That was a case in which the patient was suggestible without being very somnolent. Another striking illustration is the case of a notoriously intemperate man, who, after receiving the suggestive treatment said to me: "I do not think I have ever been sleepy in the least, but, somehow, I have wholly lost my lifelong craving for liquor." And this man has not touched alcohol in the past three years. To me the first stage is a clear one and I have accomplished a great deal of relief in that stage. It is the stage in which a man finds himself in the morning when he says: "I must get up; it is time to get up," but does not, is not able to move. It is inhibition, which of course has not gone very far. When I emphasized the fact that the young woman with sclerosis was so hopeful as to expect recovery, it was to show the difference between the mental depression in which I found her and the state of mind in which she was when she last wrote to me.

In regard to honesty: I was invited to speak upon the subject to the Essex County District Society two years ago and afterwards to come again and answer questions. One gentleman said: "The thing I do not like in this treatment is that it seems to me it is not honest. You treat cases you do not expect to recover." I asked him whether he did not treat cases which seemed to him beyond help and yet which sometimes recovered. "Yes." "Did you never give a patient a prescription and assure him it would help him and find it failed?" "Yes." "Was that dishonest? When I tell the patient that certain symptoms are going to be relieved by suggestion, my former experience leads me to believe they will be relieved, and I feel I have a right to make that assertion."

With reference to the temperature of patients. There was a time some years ago when simply out of curiosity I tried to make observations, but it did not seem to me of any importance. I observed a slight change and nothing more, but if a patient went into a profound sleep and remained thus thirty minutes I should expect physiologically, that the temperature would fall.

DR. A. K. STONE read a paper on

PROSTITUTION: THE RELATION OF THE EXPERIENCE OF EUROPE TO THE SOLUTION OF THE PROBLEM IN BOSTON.²

DR. DEBLOIS: I won't commence with the examinations in Boston; I will go a little further back to the government service, and will give you a few notes of things I remember at that time. In the various departments of the naval academy where 300 to 400 young men from eighteen to twenty-two, were kept within walls during eight months of the year and then taken off on a cruise and occasionally turned

² See page 29 of the Journal.

loose on the shore, it is not to be wondered at that they were like the bull kept ready for the bull-fight in the arena, that they rushed madly to their own destruction. I remember one foreign cruise in which most of these young men were turned loose in Paris and went to one of the proverbial houses (a show-house). These were not entirely show-houses, for I met afterwards a French nobleman who had lived in Paris a great deal, and he told me these houses were great resorts with the French themselves; they go and stay there several days. The examination of these houses was very carefully made. The women were very careful themselves. They always examined their company, and knew enough to make a gross examination. From Paris we went to Portsmouth, and though there are licensed women in England, there are no houses as we understand them in this country and in France and on the Continent. The women were loose and rambled about. There was a great deal more venereal disease in Portsmouth, England, than in Paris. In Paris we had very few cases. Afterwards in Spain and Portugal, Lisbon, Cadiz where there were government houses to which the most went. There were 250 to 300 men on the ship; and in Lisbon there are well-regulated government houses where inspection is carefully made, and the amount of venereal disease contracted was very small indeed. I have been on ships in other parts of the world, the West Indies particularly, and some in South America; and there venereal disease was very frequent. There was neither licensing nor examination.

I was led to look a little into venereal disease in Boston from the amount that I saw because I was obliged to take syphilis to keep my throat cases, and I have had to do with it in young students in Harvard and Technology, and last year I had three cases of disease transmitted from lip to lip. Twice since I have been in Boston I have made examinations in houses—once, a long time ago, in not a very high-priced house where there was much less disease than I found later. Last year I was asked to make regular examinations of one of the best houses in Boston, and I did during last year carry out the thing faithfully as far as I was able. There were no microscopic examinations made. Had there been I do not suppose a woman in the house would have been allowed to continue. I think Dr. E. W. Cushing has pretty well demonstrated the fact that the gonococcus lives forever in the tubes and ovaries of a woman of that kind when once afflicted. That house was closed during the advent of reform, and it worked so effectually that I was never able to get my instruments out of the house. In this case I made examinations three times a month, and examined from five to nine women. I insisted that the women should be examined before they dressed. At my first visit I threw out two out of seven with secondary syphilitic throats. The examination consisted of the skin, throat and nose, and the genitals with the speculum always. I found several cases of primary trouble, and I believe that those women were thrown out of employment for a short time; I do not know how long. I never knew of but one case of disease having been contracted while I made the examinations there. There was one woman who persistently refused to be examined, and I know she imparted disease to a young man across the river. The greatest difficulty in these cases is the unwilling-

ness of the women themselves to be examined. Under all kinds of excuses they avoided it. The amount of menstruation these women had, according to their own accounts, was fabulous. They would menstruate three times a month if you would credit it. They had to be driven from the beds to the bath-room and from the bath-room to the room where I made the examination. They came in before they were dressed, so that I could make as careful an examination as I knew how for evidences of syphilis on the skin. I think if I had had any other authority behind me except the word of the woman who kept the house I might have done more good than I did. I feel sure that I saved a great many young men from disease, because I know I threw out several cases of gonorrhea which would have been passed round. I do not discuss the ethics of the case any more than Dr. Stone does. This is a thing that has existed from the beginning of the world, and has got to exist. Young men are growing up; and it is in their youth they are reckless and contract disease which goes with them through life. Many of them never get over it, because they will not take proper treatment. It seems to me there should be some place where these women can be taken care of.

DR. FORSTER: I saw in the paper this morning that there was a bill reported to the legislature making it mandatory on every city of 50,000 to have a hospital that would take venereal disease. A friend of mine, one of the senators, has made a special effort to have that rule which prohibits venereal disease from hospitals abrogated. I think he is about to accomplish his purpose. My own experience in treating venereal diseases leads me to think that most of the cases are not contracted inside houses of prostitution. I am very glad to see that the people are waking up to the fact that such cases should be admitted to hospitals.

DR. FOLSOM: I think a great deal can be learned from the experience of England with reference to regulating these diseases in the army. In the first place, it shows that in an inquiry of this kind it is impossible to get at the facts. In the second place, it shows, in my opinion, that no examination of prostitutes which is practicable will materially control the amount of venereal disease that prevails in the community. And, in the third place, it shows that laws licensing prostitutes or regulating prostitution cannot be maintained in any English-speaking country, and that they cannot be passed in any English-speaking country where people know what they are doing. I suppose the gentlemen all know that the laws controlling syphilis and gonorrhea in England applied only to certain garrison towns in England, Ireland and India; and in certain cases of some of the larger towns, only to that portion of the town where the soldiers were quartered. The gentlemen who were very anxious to have this bill passed knew perfectly well that no such laws could be passed unless under some name which did not betray their significance, and so they were called the Contagious Diseases Acts. They were passed; and I do not remember how many years they were in existence, but long enough to have had quite a number of parliamentary inquiries and an immense deal of literature on the subject published by the government, beside a great deal by the adherents of the law and those opposed to it. The statistics were interpreted in diametrically opposite ways by the two parties. The facts in regard to the case were, so

far as I could learn, that the amount of gonorrhea in the army was considerably reduced, about one-fourth I think, but the amount of syphilis not very much. The opponents of the laws used the same statistics in such a way as to show that this was not the result, if one considered the whole population and not the army alone, but that the laws actually made matters worse. After reading quite a number of parliamentary and other reports it is difficult to satisfy one's self how much reduction there was.

With regard to the effect on the women themselves, the facts probably were, I think, that there was very much less marked evidence of disease than in other places, but of course the evidence of gonorrhea cannot always be seen by the naked eye and women may be in a state to infect and nothing be seen by ocular examination, and it would be impossible in every case to have microscopical examination.

In regard to chancres, everybody knows that they are often very difficult or impossible to find; and moreover, women within a few days or hours after examination may manifest signs of syphilis. The opponents of the laws stated that the effect of these examinations was to drive the infected women away from the garrison towns into the population in general, and they also maintained, and in some cases their evidence was without contradiction, that virtuous and innocent women had been taken by police and examined who not only had not had venereal disease, but were absolutely virgins. The evidence was so contradictory and the moral offence of the laws was so great that just as soon as the community in general found out the real purport of the laws they were repealed by act of parliament.

With regard to the hospitals for syphilis and gonorrhea, the experience of England is interesting in that respect. Throughout the kingdom, some thirty-five years ago, more or less, quite a number of hospitals were established, called from Mr. Locke their originator, Locke hospitals. The general impression in many parts of England and in this country was that they were hospitals where prostitutes were detained under lock and key until cured. I find that the universal experience was that their influence in reducing the amount of venereal disease in the community was nothing. There was no law which could be passed by the English parliament which would make it possible to detain these women there beyond the length of time they were willing to stay. They came in in their helpless condition and as soon as well enough to be about went out, and just as much in a condition to infect men as before and in some cases more so. It is alleged that a few were reformed.

It is a difficult problem. I suppose the gentlemen know that St. Louis is the only place in this country where an attempt has been made to regulate these diseases by licensing and inspection, and there the city ordinance was very short-lived.

DR. C. P. PUTNAM: As many of the gentlemen may know, at the Almshouse Hospital at Tewksbury and at the Long Island Hospital a great many syphilitic patients are cared for. There is a statute allowing the keeper of almshouses to detain patients as long as the disease is in an active condition.

Of course the number is not great as compared with all needing the treatment, but a still greater number might be induced to go to these hospitals.

DR. FOLSOM: I dare say Dr. Putnam will re-

member that the law of which he speaks is a revival of what used to be called the Omnibus Act, passed a number of years ago. It worked quite well in detaining a few women with venereal disease. It gave the State Board of Charities the power to retain vagrants and all sorts of disorderly persons. It did not mention prostitutes or people with venereal diseases, but prostitutes were retained under that law and women with syphilitic disease were retained until thought to be pretty well. It was necessary for somebody to appear at the State House almost every year to prevent the repeal of the law. But finally the law was repealed. But, as Dr. Putnam says, it has been revived in a different form now, and a few women are kept at Tewksbury and Bridgewater, but I do not fancy the number is sufficient to make any material difference in the amount of venereal disease in the State.

DR. STONE: I did not know that I stated that the houses in Boston were better than those on the other side, only no worse and it must be remembered that the Europeans furnish about sixty per cent. of the diseased inmates. The amount of disease in one of the best houses in Boston as seen by Dr. DeBlois would bear out my statement.

In regard to the Contagious Acts, I did not consider them for many of the reasons the gentlemen have spoken of. It was an Act entirely confined to the garrison towns, many of which were almost small villages having nothing but the houses in which the prostitutes lived and a few stores which were required to run the people who took care of the army, and so in many ways it did not seem to enter into this discussion. Some of the arguments used at the present time are about the same as used then. It was brought out at one of the hearings that the women called themselves the Queen's women as the soldiers were the Queen's men. One argument used by those opposed to the law was the danger of the spread of the disease by the use of the dirty speculum. That argument has disappeared under the beneficent reign of aseptic surgery. An argument used by those in favor of the Contagious Acts was that it was no expense to the taxpayer, that the expense was all to be paid by women. This argument has been turned round and those in favor of the extension of more severe measures in the Continental cities are having it distinctly understood that they advocate doing away with the payment of the money by the women themselves and having it done at the expense of the government.

What I meant by waiting a decade was that these new methods backed perhaps by some of the bacteriological work that is being done might possibly have a certain amount of effect, and at the end of that time something more definite could be stated in regard to what position we could take before the country. But during the time that is to be we have got, as has been said, to maintain public sentiment and do what we can for these unfortunates. It seems as though the time was ripe for doing away with the regulations in regard to our hospitals.

I am told by those who have charge of some of the societies that a great change has come over the people. Twenty or thirty years ago a woman who had made a misstep in a sexual way was practically damned, no house open to her and no way to reform. At the present time, they said if they could have gotten hold of the 5,000 women supposed to have been

turned out of the houses in the last eighteen months they could have furnished places in families for every one of those women without any trouble, showing the change of sentiment among a certain class of the people in their willingness to try and help such women. I do not mean to say the women would have wanted to go.

The possibility of making a satisfactory examination is pretty hard. I have tried at my hospital clinic, seeing a good many women with suspicious secretions, to demonstrate the gonococcus and in a very large number of cases where I was perfectly certain that the secretion from the urethra was gonorrheal and a perfectly straight case I have been unable to prove it with the ordinary bacteriological examination. Further I know that some writers in Germany have entirely given up searching in the vaginal and cervical secretions of women for the gonococcus on account of the great difficulty of demonstrating it.

It seems to me under the circumstances that we must do what we can to repress the evil to as small a compass as possible and we can do that best by keeping the women separate rather than allowing them to be housed together. If the people at large know that certain houses are tolerated, are not liable to be raided, and that they can go there in peace and quiet, they will go there often when they have no strong desire of seeking relief, simply for the sake of the good time, having "a circus." A large number of those I see say they got their disease at a time when they had not really any desire, but were perhaps going away on a trip and thought they would go to see a woman just before they went away in case they might feel desire later on. The amount a man does is largely due to the opportunities offered and if the evil is kept in the smallest possible compass then we shall have the least likelihood of extensive spread of the disease.

AMERICAN SURGICAL ASSOCIATION.

NEW YORK, MAY 28, 29 AND 30, 1895.

THE first meeting, Tuesday morning, began with a DISCUSSION ON THE OPERATION FOR THE RADICAL CURE OF HERNIA,

which was opened by DR. JOHN H. PACKARD, of Philadelphia, who seemed to differ considerably from many other surgeons as to the course which is pursued by an inguinal hernia. In support of his theory he made a number of diagrams, stating that the majority of these hernias do not come down under the infundibuliform fascia, as has often been stated. To prove this, he gave the results of over twenty dissections which he had made within the past two weeks on elderly subjects. He said that if the inguinal hernia comes down and pushes its way into the scrotum, we would find a very large variety of what are known as "infantile hernias." He made on the blackboard a diagram of hernia as given in several of the older anatomies, showing distinctly the sac laid open, with a portion of it dissected away, and the testes and duct lying in a separate envelope. The speaker said that he simply ventured the statement that the existing theories as to the course pursued by an oblique inguinal hernia were incorrect, in the hope that some of the members of the Association would make dissections to convince themselves whether or not he was right in

his opinion. He spoke briefly of his method of performing the operation, and stated that in two recent operations, one on a man fifty-four years of age, and another on a girl thirteen years old, the hernias had not descended since the operation, even when there was violent coughing, although before the operations the hernias had descended.

DR. CHARLES MCBURNEY, of New York, confined his remarks entirely to inguinal hernia, as he considered that sufficiently illustrative of the subject. He differed somewhat from Dr. Packard. He called attention to the extraordinary rapidity with which operative surgery of hernia had developed within the last eight or nine years. He said that, contrary to Dr. Packard, he considered the presence of the cord and of the transversalis fascia about the entrance of the canal of the utmost importance in speaking of the anatomy of inguinal hernia. He thought that, the sac having been removed, the next problem was to prevent its re-formation, and stated that Dr. Halsted, of Baltimore, had solved that problem. Although Dr. Halsted's operation is still advisable in many cases, in other instances it has been superceded by later devices. He spoke briefly of the operation which goes under his own name, and said that this was first suggested at a time when there was the gravest necessity for a substitute very different from that then in vogue. He thought the recurrences after his operation had been about thirty per cent., and he certainly would not advise any operation at the present day which gave such a percentage of recurrences. He considered the operations of Bassini and Halsted of great value, and he thought Dr. Halsted's the most perfect operation now in existence for the treatment of inguinal hernia.

DR. JOHN E. OWENS, of Chicago, said he had nothing original to suggest, but did not entirely agree with Dr. McBurney regarding the importance of removing the sac, thinking it better to retain it and fold it up into a plug. He considered Dr. Halsted's operation a very good one. He referred to the length of time that a patient should be kept in bed after an operation, and mentioned an instance of one of his patients going home on the eighth day, but being compelled to take to his bed immediately thereafter.

DR. HALSTED, at the request of the President, made a few remarks. He said that theretofore he had refused to either write or talk any further about the subject of hernia. He would caution surgeons against making too indiscriminate excision of the veins in the operation which bore his name. He said there had been 180 cases of his operation, in three of which there had been recurrence, and in all of which, where the veins were enlarged (about 75 per cent. of the cases), they were removed. The reason for great care in excising veins is that in many instances loss of the testicle followed; but he was sure that it was better to take one chance in fifty or sixty of losing a testicle, than one in four or five of having the operation done over again, where excision of the veins was deemed essential in order to prevent recurrence. He considered the opening of the sac, for many reasons, was very necessary. As to the time patients should be kept in bed, he did not think three weeks too long.

The next paper was entitled the

RESULT OF TREATMENT OF HYPERTROPHY OF THE PROSTATE,

and was read by DR. J. W. WHITE, of Philadelphia.

As to the causation, he referred to Sinot's theory that prostatic hypertrophy was the natural hypertrophy of age, whereas others claim it is the result of various causes, among these being excessive sexual intercourse. The changes which are caused in the male by the change in the testicles correspond to the changes in the female due to the change in the ovaries. The testicles secrete spermatic fluid for some considerable time after spermatozoa cease to exist in it, and after the loss of reproductive powers. He claimed that the removal of the testicle in these cases had the same effect upon the prostate as if the reproductive functions still existed. He stated that the functions of the testicles were dual: in the first place, that of the reproduction of the species; and, in the second place, to impart masculinity to the individual. The reader had collected 111 cases of double castration for prostatic hypertrophy; and, to show the genuineness of these cases, and that the conclusions arrived at could be relied upon, he related the history of each of them in detail. All the cases were of the worst possible nature, and had been treated by leading surgeons. The reader thought it necessary to refer to these cases at such length in order to prove that they were sufficiently reliable for the operation to be no longer regarded as experimental. Alluding to the 111 cases quoted by him, he said that one had been considered entirely hopeless previous to the operation, and yet he received great benefit from it, even if perfect cure was not effected. Out of the 111 cases there were 20 deaths, and it was shown that several of these were due to existing complicated conditions.

Dr. White summarized as follows:

(1) The function of the testes, like that of the ovaries, is twofold; the reproduction of the species, and the development and preservation of the secondary sexual characteristics of the individual. The need for the exercise of the latter function ceases when full adult life is reached; but it is possible that the activity of the testes and ovaries in this respect does not disappear coincidentally, and that hypertrophies in closely allied organs, like the prostate and the uterus, are the result of this misdirected energy. This hypothesis would increase the analogy between the fibro-myomata of the uterus, and the adeno-fibromata of the prostate, which, from a clinical standpoint, is already very striking, and is further strengthened by the almost identical results of castration in the two conditions.

(2) The theoretical objections which have been urged against the operation of double castration have been fully investigated by clinical experience, which shows that in a very large proportion of cases (thus far approximately 82.2 per cent.) rapid atrophy of the prostatic enlargement follows the operation, and a disappearance or great lessening in degree of long-standing cystitis (52 per cent.), more or less alteration of vesical contractility (66 per cent.), amelioration of the most troublesome symptoms (83 per cent.), and the return of local conditions not very far removed from normal (46.4 per cent.) may be expected in a considerable number of cases.

(3) The deaths have been 20 in 111 cases, a percentage of 18; but of these there seemed to be 13 that may fairly be excluded in an attempt to ascertain the legitimate mortality in patients operated upon under surgically favorable conditions; that is, before the actual onset of uremia, or, better, before the kidney had become disorganized by the two factors, rarely

absent in advanced cases — backward pressure and invasion. This, then, would leave a mortality of 7.1 per cent., which would probably be decreased as advancing knowledge permits of a better selection of cases. It is important to know that even in the desperate cases (15), 75 per cent. showed improvement of symptoms, or shrinkage of the prostate, before they died.

(4) A comparison with other operative procedures seemed to justify the statements that, apart from the sentimental objections of aged persons on the one hand, and the real, entirely natural and very strong repugnance to the operation felt by younger persons, castration offers a better prospect of permanent return of normal sexual conditions, than does any other method of treatment. The relatively greater degree of improvement in successful cases should be considered, as well as the mortality, in comparing the operation with the various forms of prostatectomy and prostatotomy. So, too, should the absence of any risk of permanent fistulæ, peritoneal or suprapubic, and the ease and quickness with which the operation may be done.

(5) The evidence as to unilateral castration is at present contradictory, but there can be no doubt that in some cases it is followed by unilateral atrophy of the prostate, and in two cases at least this has resulted in a very marked improvement of symptoms. It is worthy of further investigation.

(6) My experiments on dogs have shown in nearly every case in which the vas deferens was tied and divided on both sides, that without much change in the testicles there was beginning atrophy and considerable loss of weight in the prostate. These experiments need repetition and confirmation, as the absence of corresponding testicular change seems to make the results somewhat anomalous. It is possible that the occlusion or severance of small but important nerves may account for the effect on the prostate.

(7) Ligation of the vascular constituents of the cord, or of the whole cord, produces atrophy of the prostate, but in my experiments only after first causing disorganization of the testes.

CLINIC AT THE BELLEVUE HOSPITAL.

DR. LEWIS A. SAYRE presented the patient on whom was performed the first successful excision for hip-joint disease which was ever done. He briefly reviewed the history of this operation up to the present time, and showed three other cases which were operated upon many years ago, in each of which the result was most gratifying, complete motion of the joint being secured with but very little, if any, shortening.

DR. PHELPS showed several cases of fracture of the patella, and stated that he had operated upon over 100 cases, only two of which had given him any trouble, the results in every other case having been very good. In some cases perfect motion had been obtained at the end of the sixth week.

DR. FRÜHRER showed a large number of instruments which he had devised, the uses of which he explained at considerable length. Among other instruments shown were several varieties of sounds, drills, probes and other appliances used in genito-urinary surgery.

DR. ALEXANDER exhibited a couple of cases which illustrated his method of performing prostatectomy. The first case on which he operated was in 1894, and the advantage he claimed for his method was the very small amount of hemorrhage resulting.

DR. MARKOE presented several cases of removal of the spleen. In each instance the patient improved very much, one having gained thirty-one pounds.

DR. WOOLSEY stated that he had taken a stone from the esophagus of a patient, whom he presented, and that he had operated in a like manner on 28 cases, all of whom had made a good recovery.

DR. MEYER gave the case of a little girl from whom a portion of the upper jaw had been removed for malignant disease. The deformity was almost nil and only a very slight scar remained.

DR. F. S. DENNIS showed several cases, including two upon whom he had operated for sarcoma, one for removal of cancer of the breast, one resection of the hip-joint, and one for ankle-joint disease, in which the lower end of the fibula was removed. In all these cases the results were most excellent.

CLINIC AT THE PRESBYTERIAN HOSPITAL.

DR. BRIDDON presented three cases, one of which was a man suffering from large and extensive infiltration of the glands of the groin on both sides. The second was an Irishman with a tumor on the sternal end of the clavicle and a lump in the stomach, which was thought to be carcinoma. The third was of a little girl with a very pronounced carcinoma. In the first a successful operation was performed, but in the others nothing of an operative nature had yet been done.

DR. PILCHER showed a very interesting case of anterior meningo-encephalitis in a child one year old, upon whom he had performed two operations, each time removing large protrusions in front of the nasal bones. Primary union was secured, and the child bore the operations very well. The speaker called attention to the great rarity of cases of this character.

He also referred to some extent to the treatment of fractures of the lower extremities and to the possibility of so applying plaster bandages in cases of fracture below the knee that the weight of the body should be received upon the parts above the point of fracture, the fracture remaining suspended below. He offered to view several cases in which this method had been employed, in each of which the result was very favorable.

DR. J. S. WIGHT, of Brooklyn, exhibited three cases of cancer, all of which were of a very serious nature, and in each of which upon operation good results were obtained. He further showed a case of broken thigh-bone, in a patient whose legs were bent directly backward. After repairing the broken thigh-bone, the legs were straightened by removing four and a half inches of bone from each one, and the patient has been able to walk about quite well ever since.

DR. MCCOSH offered several patients, one upon whom he had recently performed thyroidectomy for exophthalmic goitre, with good effects; another from whom one very large and several small stones in the common bile-duct were removed with excellent results; a third, upon whom operation had been performed seven days previously for a congenital hernia of the Fallopian tubes and ovary, the patient so far having done well; a fourth, a neoplasm or carcinoma of the cecum, which was incised, the great peculiarity about the case being the extreme age of the patient; and a fifth, in whom the diagnosis of possible abscess of the brain was made, which was found upon operation to be the case, and eight ounces of pus were removed.

(To be continued.)

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THE LAST SICKNESS OF NAPOLEON BONAPARTE.

THE intense interest which still centres around the first Napoleon is manifested in the numerous publications concerning him which are constantly emanating from the French press, and magazine articles appearing in this country.

A volume has lately been issued containing the hitherto unpublished reports of the Marquis de Montchenu,¹ who was for a long time in an official capacity on the island of St. Helena during the captivity of Napoleon. This book, while comparatively barren of new facts and of little worth as compared with the earlier memoirs of O'Meara and Las-Casas, contains interesting details respecting the last sickness and death of Bonaparte.

The autopsy revealed carcinoma of the stomach. The report was signed by Antommarchi, Napoleon's last physician, and several regimental physicians and surgeons. Very extensive cancerous disease was found—it was what French pathologists would call *cancer en nappe*; while the carcinomatous thickening and ulceration were most conspicuous at the pylorus. Strong adhesions bound the scirrhus pylorus to the left lobe of the liver. An inch above the pylorus, there was a large perforating ulcer. There were considerable morbid changes in the lungs and pleura, of recent date. There was fatty accumulation about the heart, and the muscular walls seemed paler than natural. There was an excess of adipose tissue everywhere; a layer of fat an inch and a half thick covered the abdomen. The liver and other abdominal organs were healthy.

The symptoms of the disease were obscure from the first, nor does it appear that any accurate diagnosis was ever formulated by the physicians in attendance. There is no evidence that any special examination was ever made over the region of the stomach for a tumor, or that any localized hardness was ever detected.

¹ La Captivité de Sainte Hélène, Paris, 1894.

Certain of Napoleon's symptoms were misleading, and he proved himself from the first a very wilful and unmanageable patient. Among the first of the morbid manifestations was a painful swelling of the lower extremities (an edema?), a sponginess of the gums which often bled, frequent micturition and a distressing insomnia, etc. These symptoms were attributed by Antommarchi to the too sedentary life lead by the emperor, who would sulk in the house day after day because he could not take his rides without being watched by a British officer. He had a chronic hostility to the governor and frequent altercations with members of his suite. His principal amusement seemed to be in finding fault and in execration. In short, Napoleon proved himself a very poor philosopher, and did not well adapt himself to the conditions of exile on a lone and barren island.

It is difficult to account for the edema of the lower extremities from which he so much suffered, unless we assume it to have been of neuropathic origin (enfeeblement of the vascular tonus). Such a form is admitted by pathologists. Montchenu says that this swelling was accompanied by a complete moral and physical inertia. The emperor would often remain for days in a stupor.

In the record of the autopsy, it is said that the kidneys and liver were sound. The autopsy, however, must have been a superficial and hasty one, and only a naked-eye observation of the organs was made; of course, at that date (May, 1821) a considerable amount of really coarse lesion in an important organ, like the kidney, might readily have escaped detection by the ordinary pathologist.

There was enough, certainly, in the environments of the emperor at this time to depress vitality and favor the development of any hereditary diathesis. It is known, too, that cancer of the stomach was hereditary in the Bonaparte family. Napoleon, in fact, correctly indicated the nature of his own malady a few days before his death: "The vomitings which succeed each other almost without interruption impress me with the belief that the stomach is of all my organs the most diseased, and that it is affected with the lesion which sent my father to his grave, namely, scirrhus of the pylorus."²

Among the earliest of the hypotheses respecting Bonaparte's malady, and one that lead to much bad treatment, was that he had obstruction of the liver. "His nerves," says Montchenu, "suffered from the mercury he took, and his teeth were loosened. His hair fell out. There was toward the last much agonizing pain in the epigastric region and in the right side; and finally the nausea and vomiting were constant and uncontrollable; almost all ingesta were immediately returned, and the vomited matters contained much coffee-ground material. The symptoms pointing especially to the stomach were not very marked till at a somewhat late date of the five years' exile, and there were frequent deceptive lulls and remissions in the

sickness, but with the supervention of the vomitings he went down rapidly."

Doubtless there was much needless officiousness on the part of the physicians of the staff who felt the responsibility of their charge, and were anxious to do something; certainly an amount of medicine was given which was not warranted in an incurable affection. Dr. Oliver Wendell Holmes alludes to this in a dissertation written in 1836, or only fifteen years after the death of the exiled emperor.³ Holmes's observations are certainly confirmed by de Montchenu.

"The importance of ascertaining the existence of organic disease of the stomach is rather in preventing us from employing remedies under mistaken ideas of some disease which requires active treatment than because it offers any peculiar indications. No better illustration of the wild empiricism with which an incurable disease may be treated can be found than the treatment of the prisoner at St. Helena. Half the resources of the materia medica were promiscuously applied to his irritated organs, comprehending different forms of tonics, anodynes, stimulants, purgatives, emetic preparations, anti-emetics, and antacids! Well might he exclaim: 'Laissez-moi avec vos médecines! Je vous ai déjà dit cent fois qu'elles ne me valent rien; je connais mieux que vous ma maladie et mon temperament.'"

THE TREATMENT OF EXOPHTHALMIC GOITRE BY THE ADMINISTRATION OF THYMUS GLAND.

AN account of three cases of exophthalmic goitre treated by the administration of fresh thymus gland is given by Cunningham in the *Medical Record* of June 15, 1895.

In the first of these cases the treatment by thyroid tablets was first tried, but was unsuccessful, the patient growing rather worse under the treatment, which was carried out, however, for only two days. The raw thymus gland from lambs fed on milk was then tried, but found to cause nausea, so that it had to be slightly broiled. Five months of this treatment resulted in an apparently complete recovery.

In the second case in which the symptoms, as in the first, were well marked, the treatment with thymus irregularly carried out for two weeks resulted in marked improvement.

In the third case thymus-gland tabloids (five grains) at the rate of twelve to fifteen a day were administered, with the result that within one week a marked diminution in the size of the thyroid gland occurred, and in two and a half weeks the pulse had fallen from 124 to 96, and the patient's general condition was much improved.

These cases, as the writer remarks, taken in connection with the case reported by Owen in the *British Medical Journal* of February 16, 1895, of exophthalmic goitre successfully treated by the accidental

² Montchenu, loc. cit.

³ Practical Medicine, vol. vii, (published by order of the Massachusetts Medical Society), p. 283.

administration of the thymus gland, tend to show that in certain cases, at least, of exophthalmic goitre a diet of thymus may be followed by surprising and gratifying results.

Whether it is the nuclein of the thymus gland, or the derivative base, adenine, shown by Schindler to exist in the thymus of the calf, which acts in exophthalmic goitre in a manner analogous to that of the nucleo-albumin of the thyroid body when the latter is given in myxedema, cannot be positively stated.

The results of the experimental study of the effects of the removal of the thymus from young animals have so far been unsatisfactory.

Macalister, in 1893, called attention to the remarkable metabolic effects which occurred during a diet of thymus in a case of pseudo-hypertrophic muscular paralysis, and his results tend to substantiate the idea of some of the older writers that the thymus stands in relationship with the state of development of the muscular system. Certain symptoms of exophthalmic goitre, which are manifested by the muscular system, have led to the belief that in this disease a specific muscle-poison is secreted by the pathologically-altered thyroid which alters the normal muscle tonus into a series of small contractions. These facts have led Owen to suggest that the thymus adds to this blood some substance which opposes the action of this muscle-poison.

That a certain functional relationship, at present unknown, exists between the ductless glands is obvious from both experimental and clinical observation. Hypertrophy of the thyroid is known to follow extirpation of the spleen. Cadéac affirms that enlargement of the thyroid follows thyroidectomy in lambs, and Rogowitsch has found hypertrophy of the pituitary body after thyroidectomy in rabbits. "Clinically, Boyce and Beadles emphasize the frequency of the same occurrence in myxedema, sporadic cretinism and cachexia thyreopriva in man. In acromegaly, hypertrophy not only of the hypophysis, and either hypertrophy or atrophy of the thyroid occur, but an hypertrophy or a 'revival' (Marie) of the thymus has often been reported. In myxedema, and especially in exophthalmic goitre, a similar hypertrophy or revival of the thymus is frequently found, as is evident from the cases of the latter disease reported by Johnston, Hale White, Mosler, Spencer, Marie, Moebius, Lasvenes, Raymond and several other observers."

It is conceded by many eminent observers that the increased secretion of the thyroid is not the sole cause of all the symptoms of exophthalmic goitre, and the observations above quoted by the writer point to the possibility, at least, of changes in the action or secretion of certain of the other ductless glands being a causal factor.

The fact that in certain of the cases of exophthalmic goitre treated by extirpation of the thyroid a temporary moderation in the symptoms occurs, followed later by an increase of some of the former symptoms, tends strongly to confirm this opinion.

The case reported by Bécélève in which the symptoms of exophthalmic goitre ensued in a myxedematous patient who had taken ninety-two grammes of thyroid extract in eleven hours, is also suggestive in this connection.

On the other hand, the treatment of exophthalmic goitre by thyroid extract has in some cases resulted in improvement, the improvement, according to Kocher, being due to the thyreoidin producing a retrograde metamorphosis of the hypertrophied thyroid. Cunningham would explain this fact by the theory that the "thyreoidin" causes some of the symptoms to disappear in some cases, while others are only moderated and in certain cases unaffected or even increased. He is led, by a comparative study of the above evidence and of the symptoms of exophthalmic goitre, myxedema, acromegaly and their combinations, to the conclusion that alteration in the function of one or more of the ductless glands may play a more or less prominent part in some of their symptoms. Whether the alteration of these glands is itself secondary to a primary derangement of the nervous system, or to a toxic-blood state of thyroid or gastro-intestinal origin, can only be determined by careful clinical and experimental study of these glands and their functions.

MEDICAL NOTES.

HERING SUCCEEDS LUDWIG. — Professor Hering has been called from Prague to succeed the late Prof. Carl Ludwig in the chair of Physiology at Leipsic.

A FATAL OVERDOSE OF CHLORAL. — A case of death from an overdose of chloral has recently occurred in Berlin. The physician who wrote the prescription had failed to write explicit directions, but had depended upon verbal directions to the patient, which were not carefully observed. The physician was sentenced by a local court to one month in prison for criminal carelessness. The case should be a warning to physicians to give explicit directions in writing, since only a duplicate of a written prescription will protect the physician in case of suit.

DEATH OF A DISTINGUISHED WOMAN. — The heaviest woman in America died at Millersburg, O., on July 1st. Her weight, according to the *Medical Record*, was 675 pounds.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the two weeks ending at noon, July 10, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 128, scarlet fever 45, measles 121, typhoid fever 18.

A STEP IN ADVANCE. — By vote of the Trustees it has been decided to raise the standard of admission to the Dartmouth Medical College.

COMMENCEMENT AT THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF VERMONT. — The commence-

ment exercises of the medical department of the University of Vermont were held at Burlington on July 8th. The degree of M.D. was conferred on 45 candidates.

THE MAINE MEDICAL REGISTRATION BOARD.—The Maine Medical Registration Board was organized on July 9th by the election of Dr. Sumner Laughton as Chairman, and Dr. A. K. P. Meserve, of Portland, Secretary. The first regular meeting of the board will be held in Augusta on the first Tuesday in August.

NEW YORK.

DEATH OF DR. ARONSON.—Dr. Alexander I. Aronson, a well-known physician of the east side, died suddenly of apoplexy on June 24th, at the age of thirty-seven years. He was a native of Germany and was graduated at the University of Jena in 1879. He came to New York to practise in 1881.

THE STAFF OF THE HARLEM HOSPITAL.—The Commissioners of Charities and Correction have partially completed the reorganization of the Medical Board of Harlem Hospital. Drs. Charles G. Truax and A. Palmer Dudley, of the old Board, have been reappointed, and the new appointments include Drs. Richard Van Santvoord and Irving S. Haynes. When completed the visiting medical and surgical staff will consist of eight members, instead of five, as heretofore.

THE FLOATING HOSPITAL.—The first trip of the St. John's Guild floating hospital for the season was made on July 1st. The trips will be made on each week day during July and August, three trips a week from the east side and three trips from the west side of the city. Last summer the floating hospital made fifty trips, carrying 46,719 women and children, and at the seaside hospital of the Guild, situated at New Dorp, Staten Island, 1,836 patients were cared for. The boat stops at the seaside hospital on each trip.

A GENEROUS SUBSCRIPTION.—A communication has been received by the Park Board from Cornelius Vanderbilt, President of the Botanical Gardens Society, stating that \$250,000 have been subscribed by private individuals for the contemplated garden and asking that 250 acres in Bronx Park be set aside for the purpose. The city authorities some time ago agreed to appropriate land in one of the parks for the botanical gardens as soon as \$250,000 should be raised by the Society, and doubtless the request for the Bronx Park site will be granted.

A DISPENSARY FOR THE LONG ISLAND COLLEGE HOSPITAL.—The memory of the late Henry D. Polhemus is to be perpetuated by the erection of a dispensary building in connection with the Long Island College Hospital in Brooklyn. It will be the gift of Mr. Polhemus's widow, who has purchased three city lots for the purpose. The building will be five stories high, and will be known as the Polhemus Memorial Dispensary. The estimated cost of the structure, with its furnishings, is \$250,000, and in ad-

dition to this Mrs. Polhemus will present the dispensary with an endowment fund of \$250,000 for its maintenance.

Miscellany.

AN ACT TO REGULATE THE REGISTRATION OF BIRTHS IN RHODE ISLAND.

It is a fact well known to collectors of vital statistics, both in Rhode Island and elsewhere, that either from carelessness or design, a failure to register births is very common, resulting in marked detriment to vital statistics and in a recorded birth-rate much smaller than the actual.

In order to obviate this, at the instigation of the State Registrar, the legislature of Rhode Island in January, 1895, passed the following Act, entitled "An Act in Addition to Chapter 85 of the Public Statutes."

SECTION 1. Physicians and midwives shall, on or before the fifth day of each month, report to the clerk of each city or town a correct list of all children born therein during the month next preceding, at whose birth they were present, stating the date and place of each birth, the name of each child (if he has any), the sex and color of the child, the name, place of birth and residence of the parents, and the occupation of the father. The fee of the physician or midwife shall be twenty-five cents for each birth so reported, and shall be paid by the city or town in which the report is made.

SECT. 2. All acts and parts of acts inconsistent herewith are hereby repealed, and this act shall take effect upon its passage.

The State Registrar has issued a circular to physicians, appealing for their coöperation in carrying out the provisions of the Act.

BUFFALO BILL AND THE SICK CHILDREN.

DURING the late visit of Buffalo Bill and his "show" to this city the grounds upon which the show was held were very near the Children's Hospital. The music of the cowboy band, the sound of the gunshots in the attack on the settler's cabin, etc., attracted the children's attention, and when they were told that the noises were made by *Indians* their grief at their confinement increased in proportion to their desire to see a real live Indian. One of them asked the visiting surgeon if there were no way in which this could be brought about, and the surgeon suggesting that he write a letter to Buffalo Bill and ask him. The boy wrote the following letter:

"**DEAR MR. BUFFALO BILL.**—We are a lot of little children lying on our backs in the hospital and we cannot move. We want to see an Indian very much. We have never seen one in our lives and cannot get out. Will you please send us one, so that we can see him?"

Buffalo Bill was evidently touched by this appeal, for presently six Indian braves, a squaw and a papoose visited the hospital and walked about the wards in full regalia, greatly to the delight of the children. The Indians were about to execute a war dance for the children in one of the wards, when the chief demurred on account of the waxed floor, which he thought was too slippery for a proper performance of

the ceremony, so that this part of the entertainment had to be given up.

Later, we are informed that those of the children who were able to walk were given tickets to the performance and went under the guardianship of one of the sisters.

It is doubtful if a greater treat could have been devised for the sick children than a sight of Buffalo Bill's Indians, and they probably never exhibited themselves before a more highly appreciative audience.

Correspondence.

THE ILLINOIS STATE BOARD OF HEALTH AND THE NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL COLLEGE.

MR. EDITOR:— Enclosed please find copy of a set of resolutions unanimously adopted by the Illinois State Board of Health at its recent meeting held in Chicago, June 25, 1895.

Whereas, The Faculty of the Northwestern University Woman's Medical College adopted a set of resolutions, criticising the Illinois State Board of Health for having issued to three non-graduate students of said College, the State certificates entitling them to practise medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

Whereas, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had opportunity to make any defence;

Whereas, The said College has not made any investigation of the methods or policy of the Board, and could not be in possession of information upon which to found such serious charges; and

Whereas, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and so were not applicable to the present Board; and

Whereas, In the past two years no certificate has been granted to any applicant upon an average rating of less than eighty per cent. on all branches, and the questions and examination papers, and a tabulated record of all examinations are preserved, and are matters of record in the office; and

Whereas, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examinations," and further prescribing that "the examinations shall be of an elementary and practical character"; Therefore, Be it

Resolved, That justice demands that the Faculty of the Northwestern University Woman's Medical College, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations with a view to the establishment of the charges made, or of making such withdrawal, alteration or explanation of the charges as the facts may warrant, and further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

B. M. GRIFFITH, M.D.

SARAH HACKETT STEVENSON, M.D.

Will you kindly give the same publication in the next issue of your journal? and greatly oblige,

J. W. SCOTT, M.D., *Secretary.*

METEOROLOGICAL RECORD.

For the week ending June 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...23	29.93	70	76	63	86	78	82	W.	S.	5	8	
M...24	29.95	70	79	62	65	70	68	E.	S.W.	5	5	
T...25	30.02	65	68	62	84	94	87	N.E.	E.	2	5	.22
W...26	30.10	61	64	58	95	87	91	E.	E.	8	4	
T...27	30.11	60	62	59	90	95	93	E.	E.	7	9	.21
F...28	30.12	62	64	59	95	95	95	E.	N.E.	13	6	.50
S...29	30.19	66	72	69	92	91	96	N.E.	E.	3	10	.05

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 29, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	798	417	27.04	10.53	15.73	3.90	3.25	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	432	176	24.15	9.20	19.64	4.37	1.38	
Brooklyn	1,043,000	442	228	32.20	7.59	20.24	5.98	2.30	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	159	48	11.78	6.82	2.52	4.96	.62	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	105	47	21.85	5.70	20.50	—	—	
Cincinnati	325,000	115	50	12.12	10.56	7.04	.88	4.40	
Cleveland	325,000	82	32	18.30	7.32	8.54	—	1.22	
Pittsburg	272,000	—	—	—	—	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	35	9	17.16	5.72	8.58	—	—	
Charleston	65,165	63	36	18.84	—	15.70	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	19	—	5.16	10.52	5.26	—	—	
Fall River	92,233	34	16	26.46	2.84	26.46	—	—	
Lowell	90,613	—	—	—	—	—	—	—	
Cambridge	79,607	—	—	—	—	—	—	—	
Lynn	65,123	14	5	14.28	14.28	—	—	—	
Springfield	50,284	17	6	29.40	5.88	23.52	5.88	—	
Lawrence	49,900	—	—	—	—	—	—	—	
New Bedford	47,741	13	5	15.38	7.69	15.38	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brooklyn	33,939	8	0	—	25.00	—	—	—	
Salem	33,155	9	2	—	11.11	—	—	—	
Haverhill	32,925	3	3	—	42.84	—	—	—	
Malden	30,209	10	3	10.00	20.00	—	10.00	—	
Chelsea	29,806	6	1	16.66	16.66	—	16.66	—	
Fitchburg	29,383	1	0	—	—	—	—	—	
Newton	28,837	6	1	—	50.00	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	9	3	—	33.33	—	—	—	
Waltham	22,058	5	0	—	—	—	—	—	
Quincy	19,642	8	4	12.50	12.50	—	—	—	
Pittsfield	18,802	2	1	—	—	—	—	—	
Everett	16,585	2	2	—	—	—	—	—	
Northampton	16,331	5	0	—	20.00	—	—	—	
Newburyport	14,073	0	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,474; under five years of age 1,116; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 579, consumption 225, acute lung diseases 189, diarrheal diseases 355, diphtheria and croup 90, measles 49, whooping-cough 28, typhoid fever 22, scarlet fever 20, erysipelas 8, malarial fever 6, small-pox (Cleveland) 1.

From whooping-cough New York 16, Brooklyn 6, Philadelphia 4, Nashville and Lynn 1 each. From typhoid fever New York and Cleveland 5 each, Brooklyn 4, Philadelphia 3, North Adams 2, Providence, Nashville and Charlestown 1 each. From scarlet fever New York 5, Boston 4, Philadelphia and Brooklyn 3 each, Providence 2, Nashville, Lynn and Quincy 1 each. From erysipelas New York 4, Philadelphia and Brooklyn 2 each. From malarial fever New York 2, Brooklyn, Washington, Cleveland and Charleston 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending June 22d, the death-rate was 16.2. Deaths reported 3,281; acute diseases of the respiratory organs (London) 186, measles 124, diphtheria 111, diphtheria 67, whooping-cough 49, fever 24, scarlet fever 23, smallpox (Liverpool and Oldham 1 each) 2.

The death-rates ranged from 6.8 in Croydon to 25.1 in Liverpool; Birmingham 17.1, Bradford 17.0, Cardiff 14.4, Halifax 18.9, Leeds 17.4, Leicester 14.5, London 15.1, Manchester 20.4, Newcastle-on-Tyne 12.8, Nottingham 15.2, Sheffield 16.9, Swansea 12.9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 27, 1895, TO JULY 5, 1895.

Leave of absence for two months, to take effect upon his relief from duty at Fort Yellowstone, Wyoming, is granted CAPTAIN CHARLES M. GANDY, assistant surgeon.

Leave of absence for one month, to take effect upon his relief from duty in the Dept. of the Colorado, is granted LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general.

Leave of absence for two months is granted CAPTAIN CHAS. B. EWING, assistant surgeon.

FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon, now at Fort Sam Houston, will proceed to Fort Bliss, Texas, not later than July 1st, and report for temporary duty, during the absence on leave of MAJOR BLAIR D. TAYLOR, surgeon.

Leave of absence for one month, to take effect about July 1st, is granted FIRST-LIEUT. CHAMPE C. McCULLOCH, assistant surgeon.

Leave of absence for one month, to take effect between July 1st and 10th, with permission to apply for an extension of ten days, is granted MAJOR BLAIR D. TAYLOR, surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JUNE 30, 1895.

PURVIANCE, GEORGE, surgeon. To proceed to Delaware Breakwater Quarantine as inspector. June 19, 1895.

GODFREY, JOHN, surgeon. Detailed as chairman, Board for physical examination candidates, Revenue Cutter Service. June 17, 1895.

IRWIN, FAIRFAX, surgeon. Detailed as chairman, Board to consider Necropsy Reports. June 15, 1895.

CARTER, H. R., surgeon. Granted leave of absence for fifteen days. June 24, 1895.

BANKS, C. E., passed assistant surgeon. Detailed as member Board to consider Necropsy Reports. June 15, 1895. Detailed chairman, Board for physical examination candidates, Revenue Cutter Service. June 19, 1895. Detailed chairman, Board for physical examination of officers, Revenue Cutter Service. June 27, 1895.

KINYOUN, J. J., passed assistant surgeon. Detailed as member, Board to consider Necropsy Reports. June 15, 1895.

YOUNG, G. B., passed assistant surgeon. Granted leave of absence for thirty days. June 19, 1895.

BROWN, B. W., passed assistant surgeon. Detailed as recorder, Board for physical examination officers, Revenue Cutter Service. June 27, 1895.

ROSENAU, M. J., passed assistant surgeon. Detailed as recorder, Board to consider Necropsy Reports. June 19, 1895.

NYDEGGER, J. A., assistant surgeon. Granted leave of absence for five days. June 19, 1895.

STEWART, W. J. S., assistant surgeon. Detailed as recorder, Board for physical examination candidates, Revenue Cutter Service. June 19, 1895.

BLUE, RUPERT, assistant surgeon. Detailed as recorder, Board for physical examination of candidates, Revenue Cutter Service. June 17, 1895.

PROCHAZKA, EMIL, assistant surgeon. Granted leave of absence for twenty-six days. June 29, 1895.

ERRATUM.

In Dr. Mason's discussion of Dr. Welch's paper on Diphtheria in the report of the Association of American Physicians (page 648 of the JOURNAL of June 27, 1895), Dr. Mason is reported as saying that since the use of the antitoxin treatment the expenses of the Boston City Hospital for local re-agents, such as peroxide of hydrogen, have diminished \$700. Dr. Mason's statement was several hundred dollars, not \$700.

RESIGNATION.

DR. T. M. ROTCH has resigned the position of visiting physician to the Boston City Hospital.

RECENT DEATH.

ALBERT C. GORGAS, Medical Director, U. S. N., died at his home in Germantown, a suburb of Philadelphia, June 29, 1895. Dr. Gorgas was a native of Philadelphia and was graduated from the Jefferson Medical College in 1856. He entered the Navy August 30, 1856, as assistant surgeon, the sloop *Germantown* being his first appointment. He served on the East India Station from 1857 to 1860, then being ordered to the Receiving-ship *North Carolina* at New York. Commissioned surgeon in 1861, he was attached to the *Vandalia* of the South Atlantic Squadron until 1863. He then served for a year at the Naval Hospital at Norfolk, when he joined the *Junata* of the South Atlantic Blockading Fleet. In 1867 he went out on the *Brooklyn* as fleet surgeon of the Brazil Squadron. Shortly afterwards he went to Portsmouth Navy Yard and from 1870 to 1873 was attached to the European Squadron as fleet surgeon, being stationed on the *Wabash*. He was on duty at the Naval Hospital, Annapolis, from 1873 to 1877, and went to sea for the last time in 1879 as fleet surgeon of the South Atlantic Squadron on the Flag-ship *Hartford*. He was at the Naval Academy in 1880 and at Chelsea Naval Hospital 1882 to 1885, and president of the Examining Board from 1885 to 1889. From this date to 1893 he was in charge of the Naval Hospital, Philadelphia. He then was transferred to the Museum of Hygiene in Washington, being only recently relieved. He was commissioned medical inspector October 6, 1873, and medical director March 4, 1884. He was present at the bombardment and taking of Fort Pulaski and the assault on Fort Fisher.

BOOKS AND PAMPHLETS RECEIVED.

Pettingill & Co.'s Newspaper Directory. Third edition. Boston, 1895.

Report of the Dairy Commissioner of the State of New Jersey for the year 1894.

King's College Hospital Reports; being The Annual Report of King's College Hospital and the Medical Department of King's College. Vol. I (October 1, 1893—September 30, 1894). London. 1895.

Cod Liver Oil and Chemistry, by F. Peckel Möller, Ph.D., Author of *Veiledning ved Bedømmelsen af Medicentran Nogle Norske Forhold et Hundredaars Jubilarum*, co-author *Parma-copia Norvegica* 1870, etc. London: Peter Möller. 1895.

Twentieth Century Practice, an International Encyclopedia of Modern Medical Science, by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Vol. II, Nutritive Disorders. New York: William Wood & Co. 1895.

Epitomes of Modern Surgical Progress for Students and Practitioners. Urinary Surgery, by E. Hurry Fenwick, F.R.C.S., Eng., Surgeon to the London Hospital; Surgeon and Pathologist to St. Peter's Hospital for Stone and Other Urinary Diseases, etc. Illustrated. Bristol: John Wright & Co. 1894.

Ectopic Pregnancy: Its Etiology, Classification, Embryology, Diagnosis, and Treatment, by J. Clarence Webster, B.A., M.D., F.R.C.P., Assistant to the Professor of Midwifery and Diseases of Women and Children in the University of Edinburgh, with eighty illustrations of naked eye and microscopic appearances. New York: Macmillan & Co. 1895.

Dissections Illustrated. A Graphic Handbook for Students of Human Anatomy, by C. Gordon Brodie, F.R.C.S., late Senior Demonstrator of Anatomy, Middlesex Hospital Medical School; Assistant Surgeon North West London Hospital; with plates drawn and lithographed by Percy Highly. In four parts. Part IV, The Abdomen, with 16 colored plates and 13 diagrams. London and New York: Whittaker & Co.

Nerve-Suturing (Neurorrhaphy): Degeneration and Regeneration following Section; Microscopical Appearances. One of the Mutter Course of Lectures delivered before the Philadelphia College of Physicians, by DeForest Willard, A.M., M.P., Ph.D., Surgeon to the Presbyterian Hospital, Philadelphia; Clinical Professor of Orthopedic Surgery in the University of Pennsylvania. Reprinted from the International Medical Magazine. 1894.

On Diseases of the Vermiform Appendix, with a Consideration of the Symptoms and Treatment of the Resulting Forms of Peritonitis. A Dissertation presented to the University of Oxford for the degree of Doctor of Medicine, in April, 1894, by Herbert P. Hawkins, M.A., M.D., Oxon., F.R.C.P., Assistant Physician to, and Lecturer on Pathology at St. Thomas's Hospital, Assistant Physician to the London Fever Hospital, Late Radcliffe Travelling Fellow of the University of Oxford. London: Macmillan & Co. 1895.

Lecture.

THE NEW ENGLAND INVALID.¹

SHATTUCK LECTURE FOR 1895.

BY ROBERT T. EDES, M.D., JAMAICA PLAIN, MASS.

THE provisions under which the Shattuck lecture-ship was established specify "Historical and other essays on the climate of Massachusetts or the diseases of its inhabitants, or such other subjects as said Society or its government may select."

These alternatives are surely liberal enough, and the committee have given me not the least hint to limit my choice, but it certainly seems in accordance with the wishes of the founder that some matter of decided local interest should be discussed in the discourse provided for by his liberality.

Common report and more or less jocose remarks attach the name of New England to one at least of the supposable causes of nervous affections. How justly is another matter, but it hardly requires this facetious etiology to make it appropriate for me to choose as my subject one which must have for every one of you, not strangely and exceptionally favored by fortune, a deep professional and often personal interest.

An eminent physician, not herself a native of New England, who looks upon a relative impairment of the reproductive functions as largely a phenomenon, though a highly complicated one, of acclimation and as closely connected with the neurotic constitution, says that "it *should* be more conspicuous in New England, whose rigorous climate differs more from that of old England than does the climate of the Middle States."²

Statistics, I think it is not rash to assume, are unobtainable as to the relative frequency of nervous invalidism in different portions of this country.

Inquiries of colleagues, whose wide and varied experience extends over more degrees of latitude than my own, have furnished me only with impressions, that less invalidism prevails north and south of the densely populated strip of coast from Boston to Washington and the great cities west of it. This, however, has undoubtedly far greater reference to mode of life than to climate, except so far as the latter influences the amount of out-door life.

Americans are called a nervous people. In fact, nervousness has been called the American disease.

Can we easily believe otherwise when we consider how rapidly the proportion of city dwellers is on the increase, and then the "fundamental morbid social conditions and tendencies which give rise to the nerve-shattering character of the life in great cities. To the city throng, especially those classes of the population which are discontented with their social position and seek to better it, the clerk and store-keeper who wishes to become a merchant and millionaire, the mechanic who would make of himself a manufacturer, the artist, writer, and specialist who thirsts for gold and distinction, the official who looks for a swift promotion; and, not less, the country laborer who hopes to find there better wages and a more enjoyable life. All these meet, in their struggles to better their cir-

cumstances, a crowd of competitors who look and strive just as eagerly after the shining mammon, after the idol of fame and distinction beckoning in the distance; and are not always careful of their means of reaching it. Then all the strength must be exerted, and if the nervous tension is not sufficient for the demands upon it, it must be helped with stimulants: tea and coffee and strong cigars must be made to spur on the jaded nerves, and hypnotics force a troubled sleep."

You give me credit perhaps for a good piece of description and a just appreciation of our dangerous conditions; but undeservedly so. These last sentences do not describe Boston or Chicago, but are from a writer in the quiet city of Munich, supposed to be devoted to classical art and to beer. Here can be no restless political ambition, no worship of the almighty dollar, no complicated American drinks.

This author (Lowenfeld) explicitly rejects the claim of Beard for nervous prostration as an American peculiarity.

Is not the disposing cause the spirit of the times and not the spirit of the country? Nervousness attacks the centres of civilization and of great interests, because there are concentrated those whose nervous disposition renders them more sensitive to the irritations of unrest, discontent and worry.

Whether we have more than our share is not easy to say; it would certainly not be strange if it were so. But there is no doubt that we have enough to make the subject one of the highest importance.

There are directions in which a historical treatment of the subject might be made very interesting, but neither my time, my opportunities nor my sense of what is due to this Society have permitted me to offer a *résumé* of the literature instead of my own gleanings, however scanty, from a field unfortunately only too familiar to most of you.

The question as to the gradual increase of nervousness, of nervous invalidism, like that of insanity, is a very interesting one, but, again like that, a difficult one to answer with precision; even more so in our case, since we have not even the approximately accurate information of hospital and census returns.

It must, of course, be admitted that these are not conclusive. And that any apparent increase of recorded insanity, instead of showing a progressive deterioration, is more likely, on the contrary, to be an index of more careful diagnosis and more efficient treatment, we are glad to believe.

Even such an approximation as a comparison of these returns afford, we cannot have in a matter so much less distinct, and affecting the community legally and financially so much less than does insanity. When the question of the relative health of successive generations comes up, one is apt to bear that some one remembers his grandmother or his great-grandmother who had a very large family and hardly knew a sick day. This, however, is not so conclusive as it appears, for it is most probable that it is one out of two grandmothers or four great-grandmothers who had the large family who is best recollected, while the other three who had only one or two children have naturally left fewer descendants to sing their praises; or, what is much more to the purpose, one remembers his robust grandmother better than he does his invalid great-aunt.

Neurasthenia has not been long enough separated

¹ Delivered before the Massachusetts Medical Society, June 11, 1895.

² Dr. Mary Putnam Jacobi: MS.

off as a distinct condition to have accumulated around itself a mass of ancient literature.

Hysteria, however, has done so, and its columns in the "Index Catalogue of the Surgeon General's Library," No. 34, include 210 titles of books on the general subject alone, going back to the latter part of the seventeenth century and becoming quite numerous in the early part of the eighteenth.

If, however, we accept, as I think we are justified in doing, miracle cures in the case of young women invalids, as very strong presumptive evidence of some kind of purely functional nervous affection, we can hardly say when we begin to get such cases.

I hope I shall not be accused of irreverence if I say that some of the miracles of the New Testament seem to have been of this kind. Hysterical trance is not an excessively rare phenomenon, the Jews are notoriously a neurotic race, and such cases have been mistaken for real death.

Cases and epidemics, evidently hysterical, are not rare in history, although of course it is those of a violent and, so to speak, picturesque character which are more likely to be recorded than the neurasthenic and bedridden types.

Even if it turns out that nervous invalidism is not a disease exclusively of the present century, or of Massachusetts, or of New England, it is certainly not necessary to tell you that the conditions at work to produce it are as abundantly present here and now as anywhere, and it would only be a reminder of a considerable portion of your own labor, anxiety and trouble if I were to insist upon the importance and living interest of the subject to every one of you.

The New-England invalid is with us all. The old doctor has carried her all his professional life, and yet she is ready to bestow the care of herself upon the young man just making his reputation, and proud to be trusted where so many have failed. No specialist can escape her, for she has a symptom for every organ. The physician cannot dispose of her to the surgeon, for, after her braces have given out, after her spine has been shortened by a vertebra or two, after her pelvis and her pocket-book are alike empty, she comes back to him "needing ONLY to be built up."

The surgeon can never flatter himself that he has seen the last of her, for when her ovaries and uterus have been safely bottled up where they can do no more harm, her kidneys may desert their proper sphere, descending to carry on the nefarious practices of their predecessors at the old place, or his first operations are successful only in providing a new location for a pain, to be cured by another.

But your troubles are the least. You see her occasionally. You must go, to be sure, when you know there is nothing to be done and you have not the time to do it. You must listen to the thrice-told tale of symptoms which you are as morally sure have nothing to do with any tangible lesion as if you had the patient upon the dissecting table. You must prescribe drugs which you know are useless and which you hope are inert, because you must appear to do something, or, worse yet, you may be driven to use those which are worse than useless, and which you too well know are not inert, because the necessity is absolutely forced upon you, and you cannot bear the charge of wanton cruelty, hoping that at some future day their use can be easily abandoned.

You are doing the most discouraging of work. You

feel that you are in a treadmill from which there is no escape until you can resign your burden to another whose ignorance will give him enthusiasm, or are dropped discredited for a newer sensation.

But the mothers and the sisters, the husbands! for whom there is no holiday. The unwearying response to the constant call for relief from the pain which it is no satisfaction to them to call "functional irritation," from the distresses, the burnings, the flutterings, the quiverings, the throbbings, the tensions, the relaxations; the reproaches for indifference, the accusations of selfishness and the more trying repentance therefor, the ostentatious resignation of the misunderstood, the sympathy which they crave, the constant outflow of nervous force for which there is no adequate resupply in a confident hope of recovery; is it strange that we hear so often: "If you cannot take her there will soon be another?"

Is she not worth studying?

Among the earliest to call attention to the health of American women as a class, and not simply with a view to the treatment of individual cases, was Miss Catherine Beecher in her "Letters to the People on Health and Happiness," published now some forty years ago.

Without pretending to speak from a strictly medical point of view, but rather as an experienced teacher and philanthropist, and evidently a cultivated woman of sound common-sense, she took great pains to ascertain facts. The quotations I shall make are of value as testifying not merely to the conditions at the time of writing, but, by contrast, to that of her childhood some fifty years before. Miss Beecher was born in 1800, and for many years kept a large and celebrated school for girls.

She says: "But the American people have pursued a very different course. It is true that a large proportion of them have provided schools for educating the minds of their children; but instead of providing teachers to train the bodies of their offspring, most of them have not only entirely neglected it, but have done almost everything they could do to train their children to become feeble, sickly and ugly. And those who have not pursued so foolish a course, have taken very little pains to secure the proper education of the body for their offspring during the period of their school life.

"In consequence of this dreadful neglect and mismanagement, the children of this country are every year becoming less and less healthful and good looking. There is a great change in reference to this matter within my memory. When young I noticed in my travels the children in school-houses or on Sunday in the churches; almost all of them had rosy cheeks, and looked full of health and spirits. But now, when I notice the children in churches and schools, both in city and country, a great portion of them either have sallow or pale complexions, or look delicate or partially misformed.

"When I was young I did not know of any sickly children. But now, the children grow less and less healthy every year.

"Every year I hear more and more complaints of the poor health that is so common among grown people, especially among women. And physicians say that this is an evil that is constantly increasing, so that they fear, ere long, there will be no healthy women in the country."

Later, after several pages of statistics, evidently gathered in a scientific spirit and with a clear appreciation of the possible errors in that deceptive source of knowledge, based on inquiries among hundreds of representative individuals, and finding among them and their acquaintances a very large proportion of invalids, with a very small number of really healthy women, she speaks of her personal knowledge as follows:

"I am not able to recall, in my immense circle of friends and acquaintances all over the Union, so many as ten married ladies born in this country and century, who are perfectly sound, healthy and vigorous. I have nine married sisters and sisters-in-law, all of them either delicate or invalids except two. I have fourteen married female cousins, and not one of them but is either delicate, often ailing or an invalid. In my wide circle of friends and acquaintances all over the land out of my own family circle, the same impression is made. In Boston I cannot remember but one married female friend who is perfectly healthy." And the other great cities according to her are no better.

Miss Beecher saw in all the melancholy picture which she drew merely the natural result of a neglect of well-known hygienic laws, and published her book in order to call the attention of her country-women to them. Let us hope with effect. It is certainly my belief that many of these laws are, if not better known, more generally heeded than they were then.

I have so far made but little distinction between the various forms of chronic ill-health among women, and this for the reason that the distinctions were practically but little known to the lady whom I have quoted. Miss Beecher, indeed, is inclined to lay especial stress upon uterine displacement, but those who are familiar with the rapid and constant changes in gynecological theory will see in this nothing more than a deference to the prevailing fashion at the time she wrote. Her statistics are not detailed enough to have great weight in this particular. Her therapeutics are of more general application.

For three years and a half I have had opportunities for observing a considerable number of chronic female invalids from among whom serious pelvic disease, other chronic diseases, and distinct forms of insanity, have already been weeded out by competent diagnosticians; and also a proportion of the more acute and curable forms removed, so that my clientele includes very largely cases of selected chronic invalids without obvious organic disease. It is this circumstance, and not any desire to prejudge the question, which has made me use the feminine gender throughout.

How the number of female invalids in the community would divide up between ourselves and the gynecologists it is not easy to say, since the numbers we receive, as well as those which we find help in the hospitals devoted to the diseases peculiar to their sex, are limited not by the demand, but by the number of beds these institutions respectively offer; and these are not enough.

Many also go from one to the other, and it is by no means beyond the limits of possibility that the mere fashion of the day or the personal views of the patient determine at which kind of institution she first seeks relief. Indeed, even in the concrete, when the case is actually before us, I find that my gynecological brethren as well as myself are sometimes at a loss to know upon which set of symptoms, pelvic or nervous,

both being present, the chief importance is to be put, and to determine which is cause and which is consequence. That vicious circle of which these two sets of symptoms form a large part of the circumference is likely to be completed and complicated by a third set seated in the digestive apparatus.

In going over the records of one thousand persons, with a view to classification, I have made, excluding cases which are either not essentially nervous or of a kind not to interest us in the present connection, the following classes: melancholia, neurasthenia, hysteria and hypochondriasis. This list does not indeed take cognizance of all the doubtful and mixed cases, of which there are endless combinations; but a classification which should undertake to do this thoroughly would amount to but little beyond affixing a name to each individual case, or at any rate would break up our figures into such small groups as to have no value for statistical purposes.

I have arranged 97 as melancholia, 490 as neurasthenia, 197 as hysteria and 33 as hypochondriasis.

I have no doubt, however, that if the same material were submitted to a dozen different neurologists every one of them would make a different distribution from this and from all the others, often widely so.

Even if we admit that neurasthenia is a distinct and separate well-marked morbid entity, I think no one of experience will doubt that it is easy for hysteria to assume many of its features, as well as those of melancholia and hypochondriasis, and, on the other hand, the soil of neurasthenia is one upon which any or all the other symptom-groups may very easily flourish.

A little more elaborate, and perhaps quite as practicable, a classification might be as follows:

- (1) The Maligner, pure and simple.
- (2) The Exaggerator.
- (3) The Constitutional Neurotic.
- (4) The Hysterically Excitable.
- (5) The Neuromimetic.
- (6) The Confirmed Neuromimetic.
- (7) The Tense Neurasthenic.
- (8) The Limp Neurasthenic.
- (9) The Melancholic.

The extreme cases of many of these classes take us very close, and in melancholia distinctly beyond, the line of actual insanity. To speak of these in a little more detail:

(1) The malingering, feigning disease out of whole cloth, in which she has no belief, I do not think I have ever seen in the female sex. I am inclined to doubt her existence outside of hospitals or work-houses, or perhaps in the rare case of malicious girls seeking to gratify a grudge or gain notoriety, like those, for instance, who were the principal accusers and witnesses in the days of Salem witchcraft.

I think that most women, unless instigated by some very special motive, who might feign disease for any length of time, would be almost sure to end by believing in it themselves.

(2) The exaggerator we all know well, honest but whimsical, silly and self-indulgent.

(3) The hysterically excitable, with her acute exacerbations, is also sufficiently familiar. Much of the earlier literature under this title of hysteria relates to this form.

(4) If one were willing to use the vernacular in a form which might be offensive to those to whom it

applied, he would be likely to speak of that class here called "constitutional neurotics" as "cranks" or "crooked sticks," persons whose inherent peculiarities of nervous organization are such as prevent them from acting or living in harmony and comfort with a community of a more average and less peculiar character. They are mild embryo paranoiacs.

Some theorists might substitute for the word "constitutional" "congenital," but this seems to me objectionable as emphasizing too strongly the tendency which undoubtedly exists in many if not in most cases; but which, I believe, can be, to a considerable extent, either aggravated or relieved by the environment of the early years, to the extent even that education may have almost as powerful an influence as heredity. Habits of thought are largely formed and modified in childhood.

(5-6) The next two groups, or neuromimetics, for which, with some enlargement, Sir James Paget's expressive name is used, are, in the first, those grades of hysteria involving anesthetics, paralyzes of all sorts, severe neuralgias; which, in the second, become contractures more than spasmodic, with wasting and with a marked decrease in the hopefulness of prognosis as time goes on. Among these are the most remarkable cases of invalidism, and also of the marvellous cures thereof.

It must be acknowledged, though I hardly know whether with sorrow or with pride, that the hysteria rendered classical by Charcot, the concentrated, highly educated and fully developed hysteria of the Salpêtrière, is not the prevailing type with us. The American neurologist must content himself with fewer and less picturesque cases.

Neurasthenia has been divided into two groups, according to its type rather than anatomically as is more usual, the latter appearing to be a classification according to what we might expect rather than what we see.

(7) The tense neurasthenic is apt to be small, slightly underweight, with a dark complexion (though with many exceptions), poor appetite, constipation, flatulence, a quick pulse and heart beat, and a sphygmogram that indicates no great amount of force in the heart, but considerable resistance comparatively in the arteries, like that supposed to belong to interstitial nephritis, although of much less vigor. She will talk to you about books or science, if inclined in that direction, and often very interestingly, as well as about herself; but when she does reach the more important subject she describes herself as "all keyed up," "thinks she shall fly," and so on. You can see that she is making constant movements for no purpose except to work off nervous tension, and many of her muscles are in a state of contraction when doing no useful work. A limb is kept in position, not by relaxing all the muscles and letting it rest, but by contracting the antagonists on each side. Her rigging is set up too taut.

By reason of these feelings, and not always because of any pain, she is likely to sleep badly. She cannot work without headache and backache, but she tries to get sleep by overexertion, and usually with poor success. It is upon this class of cases that the usefulness of the Delsarte system as a therapeutic agent chiefly rests. It aims to cut off a useless and wearing expenditure of force.

Some fourteen years ago I took a number of

sphygmograms among the patients of the Adams Nerve Asylum³ and found nearly all of them to have a character closely resembling that to which Mohammed was at that time exciting a great deal of attention by declaring the precursor of chronic Bright's disease. In fact they agreed very well with some which were actually of that character.⁴ Several of these patients have recently been heard from, and, so far as I am aware, not one of them has died of renal disease.

(8) The limp neurasthenic is apt to be of a lighter complexion, and may or may not be well fed. Her bowels are sluggish, but less obstinately constipated, and her appetite and digestion are below par. She does not speak of her "nervous" feeling, but talks of being tired, and when she sits or lies is quiet and does not strain her muscles. She is apt to say that "all she wants is rest," and yet she may have been doing nothing but rest for years. She is less likely to care for matters outside of her own condition, and I should say her prospects of recovery were on the whole more distant than those of her predecessor on the list.

Either of these conditions may be more or less chronic, and accompanied by more or less of the headache, backache and incapacity for mental exertion.

(9) The melancholia of our inmates includes chiefly the milder forms known to alienists under that name, although of course now and then a case is met with which has very evidently gone far beyond the line of insanity.

As I have reminded you, the literature of hysteria goes back many centuries, but chiefly with reference to the more acute and striking forms, while anything like a careful study of the neuromimetic, for our purpose much more important, forms, is a more modern growth, reaching its culmination only under the auspices of Charcot and his school. It is quite evident that the cause of hysteria, or, at least, of the spasmodic hysteric manifestations, is to be sought for in no modern or local conditions. It might perhaps be questioned whether the more modern habit or manners of repression, of keeping the feelings concealed, a habit which increases with civilization and fashion, with higher social position, and is especially strongly marked in our Anglo-Saxon race, has not a good deal to do with the diminished prevalence of the more outspoken and striking forms, and the substitution thereof of the quiet, insidious, obstinate paralyzes which so closely counterfeit organic disease, and are in reality so much more serious than a good old-fashioned hysteric "fit" which comes on slight provocation and is soon over.

Would it not be better if our customs and "good form" permitted a patient to scream, as she so often says she wants to, instead of restraining her feelings for propriety's sake, and developing a neuralgia or paralysis or an attack of "nervous prostration."

It is held by Breuer and Freud that the essential part of the action of mental or moral shock in the production of hysteria lies in the absence of the appropriate motor reaction, as, for instance, when a lower official received from his superior an insult which he could not resent. The correctness of this view seemed to be demonstrated by the result that when the history of the affair was completely elaborated by hypnotism and fully talked over, the hysterical

³ See Boston Medical and Surgical Journal, May 19, 1884.

⁴ Compare tracings No. 1 and 14. No. 1, typical interstitial nephritis; death. No. 14, cure by faith; now well.

symptoms disappeared. This is not far removed from ordinary observation that it is much better to "get mad" and be done with it than to cherish the grievance in silence. The effort of inhibition seems to call for as much nervous expenditure as that of action, and in such a case as that just cited is of that peculiarly unremitting and wearing character which is so silently destructive of nervous integrity. There should be a proper balance between inflow of irritations and the outflow of motor energy.

Neurasthenia, on the other hand is, by name at least, a much more modern development. The name is hardly twenty years old, and although the condition itself must have been occasionally met with, perhaps for all ages, yet its prevalence is a growth of modern times and a part of the price which we pay for a more complicated civilization. It is certainly much less prevalent among those whose labor is chiefly manual and involves but little responsibility. The histories of one thousand persons show this quite clearly, in the great preponderance of teachers, students, nurses, milliners and dressmakers, over domestic servants or factory hands. In this respect it differs distinctly from hysteria.

I do not recollect hearing of a case among the negroes, nor does my scanty knowledge of the subject furnish instances among the uncivilized races, where again hysteria seems to be well known. It is somewhat difficult to draw the line with certainty, however, between the different occupations which may be claimed as nervously exhausting. I recollect a girl in the City Hospital who said that her doctor had told her that "her brain was all worn out," and when I inquired further as to the nature of this exhausting employment, was informed that it was pasting stamps upon shoes.

(To be continued.)

Original Articles.

ABNORMAL ATTACHMENT OF THE ATLAS TO THE BASE OF THE SKULL.

BY DANIEL DENISON SLADE, M.D., CHESTNUT HILL, MASS.

DURING the past year I received at the Department of Osteology, in the Museum of Comparative Zoölogy, Harvard College, for purposes of identification, portions of a human skeleton which had been lately exhumed at Chicopee, Mass. Among other interesting points presented by the bones, my attention was particularly directed to the cranium, with the base of which the atlas was fused. The comparatively small size of the skull, which was generally well preserved, the delicacy and moderate predominance of its various prominences and processes, as also the dental series, which was normal, these, together with certain characteristics presented by the bones of the limbs, unmistakably pronounced the subject to be that of an aboriginal female, aged twenty-five or thirty years.

The interest excited by the above-mentioned case induced me to investigate the subject of atlanto-occipital fusion, as far as my limited means allowed, and to present the results arrived at in the present paper. Much to my regret, it has been impossible, from the lack of material, to ascertain the frequency of its occurrence among the North American Indians.

The atlas of the human subject may morphologically exhibit several variations from its normal condition. As these variations occupy different regions of the bone, they have been classified in the order of their frequency in any one situation.

(1) The transverse processes of the atlas may present diminution or exaggeration in development. In the former case their normal size may be simply diminished, while in the latter different directions may be taken by the increased growth, producing in some cases a foramen, and in others osseous pillars which may fuse with neighboring parts of the base of the cranium, as, for instance, with the jugular process.

(2) The posterior arch may present deficient or increased development. Under the first condition, the deficiency produces a space in the median line which is the result of an entire absence of co-ossification between the lateral halves. Under the second condition the variation consists of an enlarged and prominent posterior tubercle, or of an increased depth of the laminae.

(3) The anterior arch may in adult specimens exhibit at its median line a suture which usually disappears at an early age. This abnormal condition is probably due to non-union of the lateral masses, which, in the failure of the usual centre of ossification to appear, furnish too feeble a supply of osseous material for their consolidation. Again, the anterior tubercle may become much enlarged and project downwards and backwards in front of the axis, constituting a hypophyseal spine, such as is seen normally existing in the New World monkeys, especially in *Mycetes* and *Lagothrix*.

(4) There may be several abnormal variations simultaneously in different parts of the atlas. Thus there may exist complete fusion of the lateral masses with the occipital condyles, and both arches may present a similar condition in their relation to the borders of the foramen magnum.

The posterior arch may be thus completely fused while the anterior arch is free, or the anterior arch is partially or entirely ankylosed and the posterior free. These abnormalities have been considered as the result of early inflammatory action, followed by more or less absorption, to which process the disappearance of parts is to be attributed.

Dr. William Allen, in his paper entitled "Varieties of Atlas in the Human Subject," cites several cases which illustrate the various conditions that I have mentioned above. Some of these are given by him on the authority of other writers. Two cases, however, had come under his own observation.

In one of them, that of an aged female, whose history is unknown, deficiency occurred in both arches. The posterior arch was entirely deficient, and in the anterior arch there was a symphysis in the middle which admitted of considerable movement. The transverse processes, lateral masses and articulations, were normal. On dissection of the soft parts — after giving a detailed description of bundles of ligamentous fibres which sprang on each side from a slight tubercle behind the lateral mass, and which being traced backwards, interlaced with verticle fibres uniting the posterior margin of the foramen magnum with the arch of the axis — Dr. Allen says: "During the rotation of the head, and the consequent angular motion induced between the lateral halves of the arch, a slight slackening of the transverse ligament of the atlas

takes place, also a slight narrowing of the transverse measurement of the atlantal part of the spinal canal; but displacement backwards of the odontoid process is prevented by an unusually strong suspensory ligament, and the narrowing of the canal compensated for by the absence of the laminae."

A second specimen, of which Dr. Allen gives a drawing in his paper, is described by him as presenting the following peculiarities, namely, a deficiency of the posterior arch, accompanied by an increase of the width of the spinal canal; and the anterior arch, although perfect, is nearly straight, while the transverse processes are depressed and thrown forward to such an extent that their front parts lie in the same line as the anterior arch. By pressing on the sides of the laminae their free ends are approximated so as to close the posterior deficiency and reduce the width of the spinal canal to its normal dimensions. By this means also the proper curve is given to the anterior arch, and the tips of the transverse processes made to assume a more natural direction. The writer thinks that these abnormalities are not due to deficiency of osseous growth but rather to some force exerted at an early period, which, acting like a wedge between the back parts of the atlantal articular surfaces, produced their separation and thus altered the direction of the transverse processes, and also caused the disjunction between the halves of the posterior arch. "The effect is such as might result from the forcing of the wide back parts of the occipital condyles forwards between the anterior narrower parts of the superior articular surfaces of the atlas by strong extension of the head on the vertebral column in parturition in cases of face presentation, and it is highly probable that this is the explanation."

In a case described by Luschka, the lateral masses and upper edge of the anterior arch, as also half of the posterior arch, were joined with the corresponding parts of the occipital bone, while the other half of the posterior arch was absent.

Boxhammer¹ gives a case, in which the lateral masses were completely fused with the occipital condyles; the anterior arch was perfect and free; the posterior arch was open in the middle, one of its halves being free, the other completely fused with the occipital.

Schniffer² describes a case in which the atlas was so intimately fused with the occipital bone as to be with difficulty distinguished. Its lateral masses were so developed and so much displaced as to allow the occipital condyles to articulate with the axis directly. The axis was fused with the third cervical vertebra, the assimilation between their arches being so great as to give one the impression that the common spine belonged rather to the third vertebra than to the second.

A case, similar in some respects to the last, is given by Kussmaul, where the patient, a boy of twelve years, was subject to convulsive attacks of epilepsy, which were induced whenever the head was strongly moved to either side. A post-mortem examination showed that the atlas had a deficiency in its posterior arch and a very movable joint in the centre of the anterior arch. "The imperfect laminae," says Kussmaul, "were caused to overlap whenever the head was

rotated, a constriction of the canal being brought about. This, no doubt, was the cause of the epileptic seizures, by producing pressure and irritation of the membranes of the cord."

Mr. Lawrence, surgeon at St. Bartholomew's Hospital, exhibited an interesting specimen to his class. This showed a bony union between the three first vertebrae and between the atlas and the occiput. The patient from whom it was taken was a boy of twelve years at the time of his death. Five years previously he had suffered from a tumor in the neck, of considerable magnitude, which, being pressed upon, produced a complete state of coma; at other times, the functions of the brain were not impaired. After some time the tumor entirely disappeared and the child apparently recovered a good degree of health. At the end of three years a fresh tumor appeared in the groin, in the situation of a psoas abscess, which was opened, and the patient eventually died from exhaustion. On examination of the specimen the foramen magnum was found natural; but at its anterior left side a thick process of bone, half an inch in length, projected into the cavity of the skull. This proved to be the odontoid process of the axis, which was thinner and more sharply pointed than is normal. On looking downwards through the foramen magnum the rings of the atlas and axis were found to be very irregularly placed, and in such a manner as to contract the foramen magnum to little more than one-third of its normal size. Instead of the posterior arch of the atlas being placed immediately below the foramen magnum, it was contained within the foramen itself. The right half of the ring also encroached considerably within the circumference of the foramen, while the left half had been destroyed by the disease. The axis was also displaced, the left part of the ring still further narrowing the canal, already much diminished by the displacement of the atlas and by the odontoid process which occupied the left side and front part of the foramen magnum. The spinal cord, however, in this confined and tortuous portion of the canal was sufficiently loose to indicate that it had not undergone pressure. The atlas was considerably removed from its relative situation with the base of the skull, being placed obliquely and pushed in front of the condyles, where it was firmly fused with the occiput. The left transverse process had been absorbed, and also the left side of the ring, to the extent of nearly an inch. The axis was removed a little backward; and from the loss of the left part of the ring of the atlas it had ascended so that the upper part of its body was in contact with the edge of the foramen magnum, and its odontoid process had passed through the foramen and projected into the cavity of the skull. This vertebra was of normal size, but was firmly united to the atlas above by bony union, and below to the third vertebra, which last was natural in appearance and position.

The above case illustrates what amount of pressure the brain and cord will endure when it is gradually applied, and how effectually the restoration of the bony parts is due to osseous fusion and to the process of absorption.

In a paper entitled "Abnormal Attachment of the Atlas to the Base of the Skull," published by Professor Macalister, of Cambridge University, reference is given to specimens in the Cambridge Pathological Museum, as also to cases reported by other writers.

¹ Die angeborenen Synostosen an der Enden der beweglichen Wirbelsäule. Zeitschrift für rationelle Medizin, 111. Riecke, Bd. 13, p. 1.

² Virchow's Archiv, vol. lxxiv, p. 320.

This author remarks that congenital fusion of the fetal cartilage of the atlas to that of the occipital region is extremely rare. By pathological processes, however, the whole ring of the atlas may become entirely united to the margin of the foramen magnum. In a Cambridge specimen — which is comparable with the case reported by Schiffner, which I have mentioned — there is perfect fusion of the right side of the anterior arch, of the articular processes, of the true transverse process, and of the posterior arch, with the contiguous part of the occipital bone; “indeed, the transverse process and the paroccipital are so far blended into a single process that it juts down from the skull and apparently touches the transverse process of the axis, for which it has a facet.”

The articular process and posterior arch, or part of it, may be fused with the contiguous parts of the occiput, while the central part of the anterior arch is separated from the basi-occipital by a small interspace.

In another specimen from the Cambridge Museum, the anterior arch is complete, but has an immature appearance, being developed in the centre and slender on each side where it joins the lateral mass. The interval between the arch and the basi-occipital is a narrow transverse slit. The condyles of the occipital bone and the superior articular processes are perfectly united. The posterior arch is complete and ankylosed to the hinder lip of the foramen magnum. On the left there is no interruption in the fusion of the arch and the occipital bone. The posterior segment of the transverse process is on this side ankylosed with the occipital, behind the paroccipital process, and stretches out to impinge on the paramastoid of the temporal by a convex surface. The costal process is slender and its extremity is joined to the transverse process by a very fine bony spicule.

Professor Macalister refers to the cases of Boxhammer, Somner and Luschka, mentioned by Dr. Allen; and also to a specimen from the Berlin Museum, described by Grawitz,³ in which the posterior arch is fused while the left transverse process is free. In another, from a young child, the posterior arch is completed by a fibrous cord.

The articular processes may be ankylosed to the occipital condyles while the arches and transverse processes are free. This form of synostosis is by far the most frequent, and, according to Macalister and other authorities, is an acquired pathological condition due to osteitic or arthritic inflammations. Among other examples of this most common form of synostosis in the Cambridge Museum, cited by the writer, the skull of an ancient Persian, a middle-aged man, exhibits one that is complete. “There is a wide atlanto-occipital gap anteriorly, and the four condylar foramina are normal. The oblique and check ligaments were unossified, and the paroccipital processes are small. There are bony spicules around the ankylosed surfaces, but few other traces of disease. The upper edge of the posterior arch is thick and upturned, extending towards the wide foramen magnum. The whole atlas appears to have slipped a little forward, so that the anterior arch appears to lie on a plane in front of the anterior lip of the foramen, and the plane of the foramen magnum extends behind the prominent posterior tubercle of the atlas.”

The atlas may be attached to the base of the skull by the osseous union of the transverse process with

the jugular process of the occipital bone. A paroccipital process may become lengthened, and in this condition ankylosed with an ascending spur-like process from the axis. Macalister has a specimen somewhat of this form, but in his, the two processes are not ankylosed at their place of meeting.

The paroccipital process may be a descending column, starting from the outer edge of the exoccipital next to the occipito-mastoid suture, and either articulating with the transverse process of the atlas by a flat surface or being ankylosed to it.

Again, cases are recorded in which a styloid process is produced from the posterior angle of the transverse process of the atlas and becomes articulated or ankylosed with a normal paroccipital process.

Examples of these methods of union between the transverse process of the atlas and the neighboring regions of the base of the skull are given by various writers, as mentioned by Macalister. Such cases are dependent upon ossification of the ligamentous structures connecting the several parts.

The following paper by Sommer, is interesting and instructive:

Synostosis of the atlas is not of the rarest occurrence, but it demands special attention when found in a subject whose previous history has been known. With few exceptions the specimens in existence are from individuals whose identity during life had been lost, and the abnormality has been only discovered after maceration, when it was no longer possible to obtain its history. At the lunatic asylum at Allenberg only two instances have been observed where the identity has been fully established. In regard to the rarity of the occurrence of synostosis, there is no doubt that many instances of its presence escape notice, no noteworthy symptoms having presented themselves during life, and even when an autopsy was made, there was no special reason calling for an examination of the base of the skull. Whenever an adequate search has been made in any extensive collection of dissections, these abnormalities have proved to be comparatively numerous. Under these circumstances it has not been possible to establish a percentage of their occurrence. In the entire literature which contains the statistics of autopsies scarcely 20 to 30 undoubted cases of synostosis are published; and while, according to this statement, its occurrence seems to be extraordinarily infrequent, and even to be disappearing entirely, Italian observers, especially Lombroso, with his methodical investigations, have recently found a very considerable number of examples. Among normal male skulls from the collection of bones made at the battlefield of Solferino, Lombroso met with synostosis of the atlas in .34 per cent., which might express the true probability of frequency, in view of the very large amount of material examined. On the other hand, the number which have been found among the skulls of criminals ought certainly to be too large. Lombroso records finding this condition in four out of 51, and his pupil found two in four criminal skulls.

It may be remarked, parenthetically, that these investigators do not think that they are obliged to see any mere coincidence in the above statement, but rather look upon this abnormality as a somatic indication of moral depravity, even as they so regard the presence of a third median groove in the cerebellar portion of the occipital bone. Whether this interpretation is correct, farther investigation can alone show. Moreover, if one desired to suppose that the Italian race was particularly favored in this respect, Rust's old statement could be produced in evidence, which considers inflammation of the spinal cord at the atlanto-occipital articulation, in those cases where the malformation is not congenital, to be traceable to the practice of bearing heavy burdens upon the head. That this custom is more widespread in Italy than in Germany, for example, admits of no doubt, and a greater frequency of inherited synostosis would, therefore, not be improbable.

³ Virchow's Archiv, lxxx, p. 463.

In regard to the two cases in the Allenberg Lunatic Asylum, it may be said that both were diagnosed during life, and the conditions presented were discovered, after maceration, in a search for other anomalies. In 100 lunatic skulls only two cases of synostosis! But, surely, still it cannot be said that two per cent. is a correct ratio of its frequency among lunatics. I give this number with all reservations, and simply remark that in 50 skulls that I have since carefully examined, I have found no cases.

The first of these two Allenberg cases has just been described by Dr. Casprzig, in a dissertation little known; and it was also briefly announced by me in a work upon lunatics' skulls. Here, therefore, I need to give only a synoptical extract describing the relations between the occurrence of synostosis and the health of the individual. The patient, previously quite healthy, was found in his sixteenth year unconscious after a night passed roaming about in the open air. Soon afterwards he complained of violent pains in his head and of anginal symptoms. Then a rheumatic inflammation of the atlanto-occipital articulation evidently arose, which later disappeared, but left behind an ankylosis permitting rotatory movements to a limited degree but which rendered bending and extending the head quite impossible. Moreover, on the third day of the illness, a violent attack of epileptic convulsions, which had not been observed professionally, came on. Afterwards this affection was less marked, but the patient rapidly became insane, and was received at the lunatic asylum as a person dangerous to the public. Here he finally died, at the age of thirty-six. Nothing worthy of note occurred to interrupt the regular progress of his disease, so well known to professional experience.

The second Allenberg case occurred in a girl who was apparently healthy until the fourth year, when epileptic fits were developed. At twenty she lost her mind, and two years later became an inmate of the asylum, where she died at the age of thirty-six. The following conditions were shown at the autopsy: The atlas was rudimentary in its development. The middle portion of the posterior arch was wanting, so that it was only represented by its roots behind the articulating masses. On the right side the synostosis is more extensive than on the left, where the arch is quite free. The anterior arch is fused only at the articulating surfaces. In consequence of the stronger compression of the ankylosed mass of bone on the right side the otherwise normal articulating surface of the axis here stood some millimetres higher than on the other side. The anterior portion of the margin of the foramen magnum, which at the middle is left free, is sharp but in no wise atrophied. Upon the external surface of the basilar portion of the occipital no abnormalities were found.

In conclusion, let me add to the above descriptions, a few remarks from the clinical standpoint. Both skulls belong to the epileptic class. In the first case there is no doubt that after a "cold," an arthritis of the atlanto-occipital articulation was set up and so—as an immediate consequence—epilepsy developed itself. In the second instance every indication of the period when the synostosis may have developed itself is evidently wanting; the commencement of the epilepsy was, however, determined at the fourth year of age. It is most probable that synostosis occurred before this period, because the atlas in this case, the patient being thirty-six at the time of her death, is only in a rudimentary form, and, therefore, an infantile, if not even an embryonic disease of it, is probable.

In both instances, there is in connection with this abnormality a not inconsiderable narrowing of the foramen magnum. Now, Casprzig has remarked, in his above-mentioned dissertation, that Solberg, in several cases of epilepsy, has made the final cause of the convulsions a probable stenosis of the vertebral cord, especially of its uppermost portion, by which the medulla oblongata might be functionally encroached upon. Casprzig accordingly believed that in his case he could refer the epilepsy, almost simultaneously appearing, to the arthritis and to the stenosis of the foramen magnum brought on by it. In regard to the second case of synostosis, likewise an epileptic, the con-

dition is a coincidence to which I allude for the sake of further investigation, without wishing to draw a decided conclusion from the scanty material afforded.

The following case, reported by Langerhaus, is instructive as showing the very early age at which synostosis may occur, while the synchondrosis between the anterior arch and the lateral masses was as yet unossified.

The subject of it was a boy of five years who had generally been in good health, until he was prostrated by scarlet fever and carried to the hospital, where his death occurred from renal complications.

On maceration of the parts a slight asymmetry at the base of the skull was perceptible. Portions of the atlas were not united. The anterior arch consisted of small detached bones which occupied their normal position beneath the middle of the basi occipital. The lateral masses were decidedly congruent. The projections on the right side were very short and ended in a sharp point, while on the left they were somewhat thin and longer and did not reach the anterior rib rudiment. The articulating surfaces were smooth and not fused. The left side of the posterior arch was united with the edges of the foramen magnum by a bony bridge, so that the foramen was bounded on that side by the inner margin of the atlas, and was thus so encroached upon that its form was rendered rhomboidal. The right side of the posterior arch terminated in a sharp point, but otherwise was normally formed. The axis presented no pathological conditions.

The following specimens of atlanto-occipital fusion have lately come under my own personal observation. Unfortunately, the existence of this condition is only made evident after death, when in all the cases that here follow, the identification of the skull with the individual during life was lost and their history before death is therefore unknown.

The skull of the adult female Indian discovered while excavating a sand bank in Chicopee, Mass., and alluded to at the outset of this paper, presented a complete fusion of the right lateral mass and the corresponding half of the anterior arch with the occipital bone. The left portion of the anterior arch remained free. The atlanto occipital articulating surface upon the right side was reduced in size and flattened. The posterior arch on its right side was much reduced in thickness, and was ankylosed with the margin of the foramen magnum by a thin osseous plate, which, projecting downwards and backwards gave the appearance of an outgrowth from the occipital bone, and thus interfered with the normal contour of the foramen. There was no trace of any portion of the left side of the posterior arch, which had evidently been completely removed by absorption. The basi-occipital is considerably asymmetrical. The facet upon the anterior arch, in correspondence with the odontoid, is rather to the right of the centre, thus giving an appearance of a turning in that direction. The amount of absorption which the atlas has undergone in this case, throughout nearly its entire surface, is remarkable.

A skull from the collection of the Biological Laboratory of the Museum of Comparative Zoölogy presents the following conditions: The basi-occipital is nearly symmetrical. The lateral masses of the atlas and the anterior arch, with the exception of a small portion at its centre, are fused with the occipital condyles and the basi-occipital. The posterior arch is

entirely free and a slight diminution in its thickness is evidently due to absorption. The median tubercles of both arches are well developed. This specimen is remarkable for the prominence of all the features presented in well-marked and complete cases of synostosis.

With the assistance of Dr. Dorsey I have examined the collection of the skulls in the Peabody Museum at Cambridge with the following result. Only six cases were discovered among the entire number where synostosis was present even in the smallest degree. The life history of none could be ascertained.

No. 27,290. Stone grave, Brenthwood, Tenn. Female, adult.

Both lateral masses are completely ankylosed. The left transverse process is joined to the occiput by a strong bony process which seems to be formed equally by the atlas and the occiput. The posterior arch is entirely free. The anterior arch is completely ankylosed, except for the extent of three millimetres to the left of the anterior tubercle. The left lateral mass projects much beyond the right, and the left articular surface is also considerably larger than the right. The inclination of the ankylosed atlas is such that a line passed through it horizontally would form an angle of 15° with a line passing through the bregma and the alveolar point.

No. 9,185. Female, adult.

In this specimen, the entire atlas, with the exception of the right transverse process, which is ankylosed firmly to the occipital condyle, has been broken away. Owing to this imperfection it is impossible to ascertain to what extent the synostosis had proceeded.

No. 25,132. Female, aged.

Synostosis complete, including the transverse processes. The posterior arch is separated for a space of two millimetres. The alveolar arch is partially absorbed, and this process of absorption has attacked the atlas in certain places, and also the occiput.

No. 13,287. Male, adult.

Both lateral masses completely fused with the occiput, more especially the left. The anterior arch is perfectly free. The right half of the posterior arch is also free.

Ancient skull from a cave in the Sierra Madre, Mexico.

In this case there is no synostosis between the atlas and the occiput, but there is a slight amount between the atlas and the odontoid process of the axis. The central portion of the posterior arch is absent, owing to absorption, a condition which has also produced a cavity in the basi-occipital.

Modern skull from Labrador. Female, aged.

In this specimen the synostosis is slight and imperfectly shown. The posterior arch of the atlas is very delicate, rounded, and absent at the central portion, a condition probably due to absorption.

I have lately received from the Curator, Professor Whitney, the following communication in regard to specimens of synostosis in the Anatomical Museum of the Harvard Medical School.

"The skulls with synostosis of the atlas have been reduced to two, as in one the union was simply accidental. The following is the description: No. 3,590. Of unknown origin, probably female, middle aged. The right half of the atlas is smoothly united to the base of the skull by its posterior arch, which is very much thickened laterally and encroaches somewhat upon the foramen magnum. The articular surface for the axis is flattened, instead of being cup-shaped. There is no roughening or enlargement of the openings for the vessels in the neighborhood. The left half is wanting; to what extent it may have been developed cannot be stated; certainly there was no bony union of the anterior arch. The articulating surface of the condyle of the occiput on the right side is directed outwards instead of backwards and upwards as normally.

This is a case of irregular development, with partial synostosis."

Unnumbered specimen (Dr. Dwight's collection of spines) from a white male, aged twenty-four.

This is a ligamentous preparation, so that an accurate description of the bone cannot be given. There is an evident atrophy of the posterior arch on the left side, with a bony union to the base of the skull. There is no evidence of disease.

The following case, of which I give a synopsis, was published in the *Journal of Anatomy and Physiology*,⁴ by Dr. Thomas Dwight. Although the life history of the subject was unknown, the conditions presented by the specimen were so similar to those of the one reported by Kussmaul, of which I have previously spoken, that it is fair to infer that in the present case, epileptic symptoms might have been induced by any strong movements of the head to either side.

The atlas consisted of three separate pieces. The left lateral mass and the posterior arch reached nearly to the median line. The right lateral mass, with the beginning of the posterior arch and a portion of bone two cubic centimetres long held by ligaments at either end, represent the greater part of the posterior arch; neither of these reach the median line. A small fibrous band between the two sides completes the arch behind. There is no anterior arch whatever; the lateral masses are entirely separate, being, however, connected together by a firm transverse ligament, and also attached to the axis by ligaments extending from the sides of the back of the odontoid to the inner side of the lateral mass. No ankylosis is spoken of. The deficiency of rotation in the atlas is compensated for by the flatness of the occipital condyles.

In regard to the etiology of synostosis, only suggestions can at present be offered. It has been advanced by several authorities, as I have already stated, that this condition is due to arthritic affections, commencing at an early period, the presence of which, however, is very rarely determined during life. Professor Dwight is of the opinion that, in some cases, especially where the arches are separate, the joints become ankylosed through disease; "but, I think," he says in a communication to me, "that in many of the striking cases, in which the arch seems little more than a ridge on the occiput, we must look for the cause in some early disturbance in the development of the spine, such as causes the suppression of a vertebra or occasionally of half a vertebra, or the increase or diminution in the number of ribs."

While there can be but little doubt that, in the occasional cases reported, the epileptic convulsions observed are due to abnormalities discovered only through maceration and after death, we have as yet very little basis upon which to found the theory that their origin depends upon synostosis, either in an incipient or in an established condition. As to the theory, which was originally advanced by Rust and since maintained by Italian observers, that synostosis may be traceable to the practice of carrying heavy burdens upon the head; it should be said that, while this may not be impossible, especially as the greater frequency of this abnormality is stated to be found among the Italian than among other Continental nations—where the custom is not pursued to the same extent—a much larger number of well-established facts must be brought together before synostosis can be proved

⁴ Vol. xxi.

to become hereditary, or that epilepsy is dependent upon its presence as a factor. The same may be said in regard to traumatic causes, such as heavy blows upon the back of the neck, either criminal or accidental, as by snow-slides from houses, injury to the spinal column, by falls upon stairs and sidewalks, to children by falls from bed during sleep, by strains however produced; all of these may cause inflammation that extending upwards, terminates in an anchylosis between the atlas and the base of the skull, to be verified only after death.

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A CASE OF SPONTANEOUS PERFORATION OF THE HEART, WITH OBSCURE SYMPTOMS.¹

BY J. A. TANNER, M.D., DORCHESTER.

ON the 6th of December, 1894, about six o'clock P. M., I was called to Mr. E., a well-built, well-preserved, strong and active man for his age of eighty-four years, and found him suffering from a severe pain in the epigastric region, the pain extending to the right hypochondriac region. Accompanying the pain were nausea and straining efforts to vomit, with eructations of gas. The pain came on suddenly, and no cause could be traced of over-eating or error of diet. There was a history of a slight slip of his right foot on the ice several hours previous, as he was returning home from his business. There was no rise of temperature; the pulse was full and strong and beating about 80 per minute; the respiration was regular, and no more rapid than would be looked for in any one suffering with pain. No complaint was made of distress in breathing. I found on inquiry that he had

felt well during the day, had eaten his dinner with a relish, had a movement of the bowels and passed water freely. Remembering that some eighteen months' previous, I had seen him in an attack somewhat similar, which was considerably relieved by the vomiting of undigested food, and fully relieved by the after administration of Squibbs' compound tincture of opium, I gave him a mild mustard draught as an emetic. This in a short time caused an easy evacuation of the stomach, a small amount of partially-digested food and considerable gas appearing.

The nausea and straining to vomit was relived, but there was only a slight relief from the pain. One teaspoonful of Squibbs' mixture, well diluted with water, was then given; and in the course of three-quarters of an hour, the pain was much abated. I left the patient about 7.30, when he was quite comfortable, with respiration and pulse regular and normal. At 9 o'clock the patient was visited again; and as there was some return of the pain, half a teaspoonful of the Squibbs' mixture was given with good effect, and at 10 o'clock he was easy and comfortable. At 3 A. M. I was called in a hurry. I found the patient in a state of collapse, the respiration rapid and catchy; the pulse feeble, intermittent and beating at rate of 120 per minute; the hands and arms, feet and legs were clammy and cold, there was an abundant frothy, watery, bloody, mucous expectoration, with a loud and coarse rattle in the throat on inspiration and expiration, a condition of general edema of lungs; the finger-nails and lips were cyanotic; half a teaspoonful of aromatic spirits of ammonia was given by mouth, and brandy was used hypodermically. The pulse and breathing improved, and these remedies were continued, a steady improvement of the symptoms following, so that in an hour the patient was practically out of the collapse, but he commenced to complain of severe pain.

At this stage I wished to use morphia, but finding the family and patient had an *extreme* prejudice against it, and considering the age of the patient, I gave up the use of it, and concluded to use Hoffman's anodyne, which would relieve pain and also act as a stimulant of the heart and respiration; so a teaspoonful was given every half-hour, until relief from pain was secured. In two hours' time the patient was so comfortable and all the symptoms were so much improved that I left and went home; the pulse then beating regular and at the rate of 90, the respiration regular and 24, with very little expectoration, and all signs of edema of lungs rapidly disappearing.

I saw the patient again about 10 o'clock, when I informed the family that I did not know what was affecting him and a consultation was desirable. Dr. R. was called, who suggested old man's pneumonia with referred pain, and on examination detected râles on the right side. I admitted the possibility, but demurred, as the pulse and respiration did not point that way, and three-quarters of a degree of fever was rather low for pneumonia. Having nothing else to base a diagnosis upon, that idea was held to during that day and up to the morning of the third day, when another consultation was held with Dr. R. Nothing was brought out this time, and time was relied upon to decide. In the meantime there were intermissions of freedom from pain, though it was gradually becoming less amenable to the Hoffman's anodyne, while it shifted somewhat from the epigas-

¹ Read before the Boston Society for Medical Improvement, April 15, 1895.

trict to the right hypochondriac and lumbar regions. A peculiar distress was complained of at intervals in reference to the lower part of the chest. The patient could not describe it, excepting that he felt like tearing something out that was gnawing. The patient ate with a relish and the kidneys and bowels acted well. This state of affairs continued until the fifth day, when all idea of pneumonia had to be abandoned; at this time tympanites and tenderness showed up in the right lumbar region, considerable gas passing from stomach and bowels. The idea of appendicitis was then to be considered and guessed at; and as I was becoming more puzzled than ever as to what I was contending with, Dr. H. was called, and after a careful survey of the entire field we could determine nothing and decided to continue the previous treatment. We so informed the family, and the case continued, the symptoms gradually growing worse and the pain and distress in the chest becoming harder to control. Repeated examinations of liver, chest and heart revealed nothing, excepting a dulness of the valvular sounds, something to be expected in the aged. The examination of the urine revealed nothing. So, absolutely in the dark as to what was the cause of so much trouble, the case continued to be handled as it had been, entirely upon the expectant plan.

The symptoms progressed from bad to worse until the seventh day, when I made up my mind that whatever the cause, death would be the result. I so informed the family, and said to them to call in any one they wished to; so Dr. H. was called again.

The pain and distress of the chest had now ceased to be amenable to the anodyne and was so strong and wearing that I had the trained nurse use inhalations of chloroform. Three ounces were used in the course of three or four hours, but with results almost negative.

Dr. H. then arrived; and the result of the second consultation was to tell the family the case was a puzzle and beyond us, that we fully agreed as to the result being death, and all we could do was to make that as easy as possible, to do which, the hypodermic morphia must be used.

About 5 P. M. the morphia was commenced, one-eighth of a grain, with the appropriate amount of atropia, being injected into the forearm; after waiting twenty minutes and there being no apparent relief, one-tenth of a grain more was injected; and again in twenty minutes one-tenth of a grain was used, when relief followed, and in about an hour the patient dosed off into a quiet sleep, which lasted about eight hours. He awoke quite bright and comfortable; but in an hour's time the pain returned with renewed vigor, and the distress of the chest was very bad. The trained nurse then injected morphia, having to use one-half grain before relief was obtained. Rest and some sleep followed for six hours, when the morphia was again resorted to. The patient at this time was weak and showed signs of rapid failure. Relief was obtained again by the use of nearly one-half grain of morphia, which lasted for only three hours, when rapid failure followed and death about 6 o'clock, the pain and distress disappearing without morphia an hour before death and the mind being clear up to a few minutes before death.

He was taken sick on the afternoon of the 6th, about 6 o'clock, and died about 6 o'clock on afternoon of the 14th, just eight days. During the sickness, especially during the first six days, there was a peculiar

nervous element in the case that is worth noting. On entering the house I could hear him groaning from pain; but when I entered the room and talked with him a few minutes, the pain and distress apparently disappeared, and he would feel comfortable and talk with me as if nothing was the trouble. After leaving the room, the pain and distress would return. This happened night or day when I went into the room. Especially marked was this remission of symptoms when Dr. H. was first called; so marked was the remission then, that there was apparently nothing the matter with the patient, and I was somewhat afraid that the doctor might think he had been called out from the city on a foolish errand. The last two days this peculiar action was not present.

I then asked for an autopsy upon the ground, that we did not know the cause of death, and that the result might be of benefit to suffering humanity.

Dr. W. F. Whitney made the autopsy, Dr. H. and I being present. The result was as follows:

Body of a well-developed old man. Autopsy eighteen hours after death. Rigor mortis well marked. Moderate lividity of dependent parts of the body.

Head not opened.

Lungs bound to the chest walls and diaphragm by scattered fibrous adhesions. Did not collapse fully. On section a very abundant red, frothy fluid flowed and could be squeezed from the cut surface. No solidification found.

Pericardium adherent over the greater part of the left ventricle by soft fibrinous adhesions readily torn away. When this was done a hole the size of a knitting-needle was found in the wall of the left ventricle from which dark fluid-blood oozed. This hole was situated about one-and-one-half inches from the apex and about the same distance from the septum. A little reddish serous fluid was found in the pericardial sac, but no free blood. A section through the wall of the left ventricle showed its walls to be thinned and softened towards the apex while at the base it was of normal thickness, but yellow and opaque. Over the thinned and softened portion was an adherent, more or less stratified, red-and-white thrombus which filled by estimate a third of the cavity of the ventricle. All of the cavities of the heart were distended with dark fluid-blood. The valves were normal.

The right coronary artery was normal, though slightly contracted shortly after leaving the aorta.

The left coronary artery was rigid and contracted about one inch from its origin, and there was a clot completely filling the vessel at this point and adherent to the walls.

The peritoneum was normal, and the abdominal viscera, beyond slight senile atrophy, presented nothing abnormal beyond marked venous engorgement.

The diagnosis is: Atheromatous degeneration of the coronary arteries; thrombosis of the left coronary artery; myomalacia cordis; with perforation and cardiac thrombosis; recent fibrinous pericarditis; edema of the lungs; old pleuritic adhesions; venous engorgement.

The thrombus and the pericardial adhesions seem to have been sufficient to have prevented the escape of any considerable amount of blood through the rupture.

The autopsy cleared up the cause of death, but not the symptoms for future application; and on looking up the literature of the subject I find nothing that would have helped out in making a diagnosis even had any suspicion existed as to the actual trouble. I will quote but little, as all authorities give about the same as to symptoms, etc., of ruptured heart.

Flint's "Practice of Medicine," in speaking of rupture of the heart, says: "This accident is generally incident to fatty degeneration. It occurs, however, as an effect of cardiac aneurism, or myocardiac abscess. It rarely happens in persons under seventy years of

age. Usually it causes instant or speedy death; but, if the perforation be small, it may be temporarily plugged by a clot, and life continue for hours and even days. I have known death to be delayed for six hours after the symptoms denoted the occurrence of the rupture. The symptoms are those which sudden compression of the heart by the accumulation of blood in the pericardium would be expected to produce, together with the loss of blood. In most cases, however, there is no time before death, for the observation of symptoms. Rupture has been repeatedly observed to occur in connection with a paroxysm of precordial pain resembling angina pectoris."

Quain says: "The symptoms of rupture of the heart may be described as those which are premonitory, and those which occur at the time of the accident. The former are such as indicate a diseased condition of the organ, namely, breathlessness on exertion, palpitation, more or less irregularity of pulse, and faintness. In some instances recorded these symptoms were so slight as hardly to attract attention; in others so severe as to cause intense suffering. In the majority of the cases noted in the table referred to, no mention is made of any preceding symptoms, death being sudden. In several cases it is distinctly stated that no symptoms preceded the fatal attack. The occurrence of the lesion itself, when the patient has lived long enough to describe the sensations, has always been marked by intense cardiac suffering, more or less distress in breathing, restlessness, rapid and irregular pulse, faintness, pallor, coldness of the skin, sometimes vomiting, and by various nervous symptoms. When life is prolonged beyond a few minutes, there may be more or less intermission in the progress of these symptoms; but the whole attack is marked by anguish more or less severe. The duration of the attack itself from the first fatal seizure varies remarkably. In 71 out of the 100 cases alluded to, death was sudden, occurring within one or two minutes. One patient, however, lived eight days; one, six days; one, three days; five lived over forty-eight hours; three lived under twenty-four hours; and 19 under twelve hours. . . . The special symptoms indicative of a fatal seizure are, in addition to those already mentioned, severe precordial pain, dyspnea, vomiting, cyanosis, pallor, loss of consciousness, and convulsions. . . . In the way of treatment of rupture of the heart little can be done. The patient's suffering may be relieved by hypodermic injection of morphia or by the use of other sedatives. Perfect rest should, if possible, be obtained."

In the case I am reporting the pulse was regular, full and strong during the entire period, excepting when in the state of collapse in which I found him nine hours after the seizure, and on the forenoon of the day of death when it showed some intermission. There was no precordial pain whatever; at first there was no dyspnea or any chest symptoms; the distress coming on the third day was not dyspnea, but seemed to be a pain low down in the chest, more on the right than left-side; so low was this, I at times thought the diaphragm was in some way affected, rheumatism or rupture of the diaphragm entering my mind as a possible cause of the suffering. There was no vomiting after the first clearing of the stomach by an emetic. Cyanosis was only present when in the collapsed state, and that passed off in four hours. Pallor was only noticeable in the collapse. Loss of consciousness

was not present at any time. Convulsions were absent, but severe cramps in the gastrocnemius muscles bothered the patient at times after the second day; he was subject to these and had been for several years.

Taking a view of the symptoms as given in the quotations and contrasting them with those in the case I have described, it hardly seems possible that the same affection is referred to; and after carefully considering these symptoms, I see nothing that specially points to rupture of the heart more than to other affections not of the heart, in which we meet the same symptoms. So it would seem that a diagnosis of rupture of the heart cannot be made out with any certainty in any case during life. An autopsy gives the only positive diagnosis.

Clinical Department.

A CASE OF OPHTHALMOPLÉGIA EXTERNA, BILATERAL, COMPLETE.¹

BY EDWIN E. JACK, M.D.,

Ophthalmic Surgeon to Out-Patients, Boston City Hospital; Assistant Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary.

THE patient, a girl, two years of age, was first seen by me in February, at the infirmary, in the service of Dr. Standish. At that time both parents were living; they were and always had been well. Since then the father has died of pneumonia. There is no history on either side and there are no signs in the mother of tuberculosis or syphilis. There is one other child, which is perfectly well and there have been no miscarriages. The patient when born was perfectly healthy, no skin trouble of any kind has ever been noticed. She has recently been examined by Dr. J. J. Thomas, who found heart, lungs, etc., normal. I have found nothing abnormal in the urine.

The history of the case, as near as it can be got, is as follows. When six weeks old the child had "spasms" which were said by her physician to be due to "palpitation of the heart." At that time there were no eye symptoms. She seemed to be well in every way till last June, when she became cross and restless, cried at night a good deal, rolled the eyes around and at times looked cross-eyed. The mother stated that during or shortly after this sickness the left lid drooped and the left eye turned out. In August the child was seen by Dr. Bullard at the Children's Hospital, and with his kind permission the result of the examination at that time is given. Everything normal except the eyes. Left external strabismus, left partial ptosis, enlargement of left pupil.²

The present condition of the patient, which is the same as when first seen by me in February, is this, Partial ptosis both eyes. With the chin somewhat elevated in her habitual way, the right lid comes just to the upper periphery of iris, the left slightly below this. The occipito-frontalis is in almost constant contraction, arching the eyebrows. There are the characteristic retracted head and sleepy appearance of partial ptosis. An apparent very slight divergence is present; the globes are not unduly prominent. Right eye can be moved very slightly to the right, not at all

¹ Read before the Boston Society for Medical Improvement, April 15, 1895.

² In a more recent examination by Dr. Bullard some enlarged glands behind the right ear and in the supraclavicular region were found.

to the left. The left eye cannot be moved either way. There is no upward movement of either eye, movement downwards is possibly present to a very slight extent. Power of convergence wanting. In looking in any direction the head is invariably turned fully. Both pupils respond readily to light, but the left does not become quite so small as the other. The fundus of the right eye is normal. In the left there is a large patch of atrophied choroid, irregular in outline, extending downward and inward from the disc; it is at least four discs breadth in its longest dimension and three in the widest. Over this area black pigment is irregularly scattered.

There is little difficulty, I think, in referring the ophthalmoplegia in this case to a nuclear origin. There has been apparently a progressive paralysis of all the external muscle, the internal being exempt, except possibly in the left eye. This, in connection with the partial nature of the ptosis and the bilateral occurrence, leaves little room for doubt.

Von Graefe reported the first case of this kind in 1856. He supposed that there was an intracranial trouble, probably a tumor, at the base, and thought it remarkable that the sight was unaffected and that there were no mental symptoms. This view, however, he altered later in 1866, on account of the negative result of an autopsy by Klebs in a case wholly similar. In 1868, by a new observation, he compared ophthalmoplegia externa to labio-glosso-pharyngeal paralysis without suspecting a nuclear origin, at the same time remarking on the integrity of the sphincter and ciliary muscle and the partial nature of the ptosis. The first autopsy in which change in the nuclei was found was by Gayet in 1875. The details of the anatomy of that region, however, were not then known, and Gayet was unable to explain the exemption of the internal ocular muscles. In the same year the hypothesis of vascular trouble at the origin of the paralyzed nerves was brought forward by Camuset. In 1878 Hensen and Völckers by experiments, made the knowledge of the nuclei more certain and on the basis of what they found Förster was the first to explain the exemption of the internal muscles by the partial affection of the nuclei. Without knowledge of these later facts Hutchinson attributed ophthalmoplegia externa to a nuclear origin and ophthalmoplegia interna to an orbital lesion. In 1880 Parinaud demonstrated that the internal as well as the external paralysis could be explained by lesion of the nuclei, but situated at different points. About this time Hutchinson and Gower, by actual demonstration in a chronic case of progressive ophthalmoplegia, proved the nuclear seat of the trouble and urged strongly the analogy of such cases with progressive bulbar paralysis and progressive muscular atrophy. Lichtheim in 1882 stated these facts still more forcibly and agreed with the nomenclature given by Wernicke — acute and chronic poli-encephalitis superior, this in contradistinction to poli-encephalitis inferior in floor of the fourth ventricle, or bulbar paralysis.

This short history which shows the seat of lesion in such cases has had much to confirm it in autopsies since that time. I will briefly mention the results of all the post-mortems which I have been able to find up to the present time, including both acute and chronic cases. There have been 22 cases in which there was destruction or compression of the nuclei secondary to other processes. In 11 of these there were tumors,

mostly tubercles. One of these was a case of ophthalmoplegia externa, complete and bilateral. In 10 there was hemorrhage in the region, eight being acute and two ophthalmoplegia externa, bilateral — facial paralysis and other symptoms were present. There were two cases of softening. In 19 cases the nuclei themselves were affected primarily. Acute hemorrhagic inflammation in seven cases: one of these ophthalmoplegia externa, bilateral, incomplete, with other symptoms. Another of the same kind had right facial paralysis, somnolence, optic neuritis and alcoholic delirium. Still another, bilateral ophthalmoplegia externa with somnolence and delirium. In these was found an acute inflammation of the nuclei with abundant punctate hemorrhages. It was on the basis of these observations that Wernicke gave the name poli-encephalitis superior. There were in this group two other cases of ophthalmoplegia externa, bilateral, complete, but without ptosis, both with alcoholic delirium, one with unilateral facial paralysis. In 12 cases there has been found degeneration of the nuclei, either inflammatory or atrophic. In some of these cases the same lesion was found in the nuclei further down as in the ocular group, this fact pointing strongly to the analogy of the two diseases. In the atrophic form the cells were less numerous, shrunken, and often deprived of their prolongations. One of these was a case of congenital ptosis. In two cases there was sclerosis or proliferation of the ependyma and in another patches of sclerosis. In one case there is no mention of the nature of the nuclear lesion and in eight autopsies nothing was found in the nuclear region. This may be explained by the fact that the microscope was not used and the lesions were too slight to be recognized without. In one a careful microscopic examination revealed nothing. Mauthner supposed that the disease had not lasted long enough to allow atrophy or other alteration to become manifest.

The 19 cases in which the nuclei were primarily affected, represent the genuine nuclear ophthalmoplegias. The full typical form of this is the progressive paralysis, in which one after another of the ocular muscles becomes attacked either with or without reference to function. The exemption of the internal muscles proves almost without doubt the central origin. An exception to this rule, however, has been reported by Möbius. A man, sixty-two years of age, had ophthalmoplegia externa and at his death the brain and medulla showed nothing, but the external branches of the third, the fourth and sixth nerves were wholly degenerated; other cranial nerves showed a like change.

Most of the writers on this subject give as the probable anatomical cause in cases which have not died, a degeneration of the nuclei, and in our own case, in the absence of other indications, we must suppose the same.

Nuclear paralysis may exist alone as a single disease or as is more common, it is complicated with or a part of other diseases. Of these, bulbar paralysis, tabes and syphilis are the most frequent, and after these disseminated sclerosis, general paralysis, progressive muscular atrophy, facial paralysis, trigeminal disturbance and others. These are the chronic cases. In the acute form, bulbar symptoms, facial paralysis, diabetes and trigeminal disturbance, tuberculosis and alcoholism are the commonest. In at least thirty-two reported cases bulbar paralysis or progressive muscular atrophy have

been associated and in three the three diseases have been present together. In four cases there has been an involvement of the orbicularis, this pointing to the probable connection of this branch of the facial with the nucleus of the third nerve. Somnolence, sometimes almost invincible, psychical disturbance and general body weakness are often present.

There is still left for inquiry the primary cause of the affection. In the chronic cases little is known. Alcohol, trauma, syphilis and diphtheria are the only real primary causes given. In the acute form, however, more is known. Alcohol, diphtheria, tuberculosis, diabetes, injuries, chemical poisons, constitutional anomalies, cold, acute and chronic infectious diseases and decayed meat are all mentioned.

The disease is more common in males than females and more frequent in adults, though many cases in childhood are reported and many congenital paralyses are doubtless of central origin. Möbius has given a classification of eye paralyses which are congenital or slowly develop in childhood; he attributes them to a probable primary atrophy of the nuclei. The full form, he says, is ophthalmoplegia externa, bilateral, total: all other forms can be regarded as parts of this. The internal muscles are never affected, the facial may be involved. Disturbances of sensibility are wanting in all cases and the patient is, as a rule, wholly sound.

In general, the health may be perfectly good or there may be present any of the diseases which are so frequent accompaniments.

The prognosis as regards life depends upon the nature of the case. If the nuclei are affected secondarily it depends, of course, upon the primary process and on whether other vital nuclei become involved. In the nuclear cases proper, leaving out of consideration the complicating diseases, the intensity of the original cause, alcoholism, etc., and the spreading to more vital centres are the chief things on which the prognosis rests. Some acute cases die, many recover with disappearance of the eye paralyses. The paralyses of single muscles which occurs so frequently in tabes and in disseminated sclerosis very often go away. The chronic progressive paralyses usually persist. I have found the records of but few cases which got better. One was a complete bilateral ophthalmoplegia externa which got well in less than two years under potassic iodide and galvanism. Dr. J. J. Putnam has kindly spoken to me of another case, unpublished, in which the eye paralyses were complicated with bulbar paralysis, weakness of limbs and other symptoms. At the end of two years the patient was practically well. In the present case the cause is unknown, for I do not think much importance can be attached to the choroidal atrophy or the few enlarged glands. As far as they go I should suppose they pointed to syphilis. The prognosis is unfavorable, the more so from the lack of apparent cause.

Treatment is indicated by the original cause and in absence of such indication, potassium iodide, strychnia and galvanism should be tried.

PHYSIOLOGY IN THE PUBLIC SCHOOLS.—A letter was received by the principal of the — school the other day, from a parent whose daughter is a member of the class in physiology, and is as follows: "Dear Miss —: I don't want you to learn my daughter any more about her insides. It ain't decent and it turns her against her victuals. Respectfully, —."

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, April 15, 1895, Dr. C. J. BLAKE in the chair.

Dr. J. A. TANNER reported

A CASE OF SPONTANEOUS PERFORATION OF THE HEART, WITH OBSCURE SYMPTOMS.¹

Dr. WHITNEY demonstrated the specimen, and spoke of the conditions which lead to rupture of the heart. The rupture had occurred near the apex of the left ventricle and its course was irregular, and the opening into the pericardium was covered by adhesions, and little blood had escaped.

Dr. VICKERY: I have listened with great interest to the account of this case, and I never met with a case either in my experience or reading like it. It would seem to me that the cause of death was the weakness of the left ventricle and not the effects of the rupture. The seat of the pain was interesting and perhaps in a way throws us into a little more obscurity about the diagnosis of similar cases than we were in before, because pain in the abdomen in cases of rupture of the heart has been noticed by several writers, and it has been regarded as due to the distention of the pericardium with blood. Last year Dr. John Gordon, of Aberdeen, and Dr. Naismith both spoke about cases where pain in the abdomen was complained of as a symptom of slow hemorrhage into the pericardium; and Dr. Gordon explained it as probably due to irritation of the vagus nerve, but here in Dr. Tanner's case is the pain, and not so good a chance for irritation of the vagus. The duration of the case, as has been said, is unusual.

Dr. SABINE: In connection with this case I should like to mention one which I saw two or three months ago. I was called one afternoon to see an old lady who had that very afternoon come down from the country making a railway journey of three or four hours. She was then suffering from a severe sub-sternal pain, more a distress as she described it than sharp pain. The day before she had eaten a very hearty dinner in the middle of the day, and among other things she had eaten quite a number of apples at the end of the dinner. Soon after that she began to have discomfort; this same pain which followed her up, kept her up all night; and on the morning of the day when I saw her a physician was called, who told her that she had a severe indigestion and I believe advised her to go home. I told her that I thought the same as the physician who saw her before. I gave her some simple remedy to stimulate digestion. Her pulse was perfectly good. The heart sounds were normal, the lungs normal. She had slight nausea. I was called to see her again late in the evening, and found that the pain had increased considerably. I gave a small subcutaneous injection of morphia, which gave her a comparatively comfortable night. The pain, by the way, came on more or less in paroxysms; it was not continuous. She would say, "Now the pain is coming." She showed a good many nervous symptoms. I thought at the time she was a little hysterical. On the following morning when I went to see

¹ See page 62 of the Journal.

her she was quite comfortable. Her pulse was not as good, a little irregular, and soon after I left the house she said to her daughter, "that pain is coming back," and fell over dead. In other words, she died almost forty-eight hours after the distress began. Dr. Councilman made the autopsy, and found a rupture of the heart. The pericardium was enormously distended with blood. The rupture was rather large, much more than a pin-hole, and not very tortuous, pretty direct through the wall, near the apex of the left ventricle; so it seems as though there must have been quite a good deal of effusion even at the time she made this railway journey.

DR. TANNER: This gentleman, after the morning of the collapse any time up to the sixth or seventh day, was able to get up and walk around, and would have done so if I had allowed him. I found in looking up gunshot injuries that they claim cases of incised wounds of the heart with permanent recovery — not very deep wounds. I have seen one other case in which I was quite positive of rupture of the heart, but could not get an autopsy. This man complained a good deal of difficulty in breathing and precordial pain. I signed the death-certificate, rheumatism of the heart.

DR. E. E. JACK read a paper on

OPHTHALMOPLÉGIA EXTERNA, TOTAL, BILATERAL.²

DR. WEBBER: The case has been so fully and well reported that there is not much to add. I have seen only one or two cases of nuclear origin, and the particulars are not in my mind with sufficient distinctness to report them. I have seen quite a number of cases where there was evidently a tumor pressing on the nerves and affecting only or chiefly the nerves of the eye — one especially in a lady who had had a cancer removed from her breast, and the only other nerves affected were the sensory and motor branches of the fifth; that was a unilateral case. I was in hopes to have an autopsy. It was promised, but the son-in-law was a doctor and objected, as he said it was only curiosity that led me to wish an autopsy. I have been very much interested in the paper, and I wish I could add more to the subject.

DR. JACK: I have nothing to add except this: the involvement of the facial, the trigeminus, etc., is simply due to extension of the process taking in the nuclei farther down.

AMERICAN SURGICAL ASSOCIATION.

NEW YORK, MAY 28, 29 AND 30, 1895.

(Continued from No. 2, p. 47.)

WEDNESDAY.

DR. PILCHER, of Brooklyn, opened the discussion on Dr. White's paper, saying that since 1893 it has been demonstrated that after removal of the testicles in aged men a rapid disappearance of prostatic overgrowth takes place in many instances, although this desirable result does not always follow. He said, referring to obstructive prostatic enlargement, that it was only such enlargements as produce obstruction to the flow of urine that become the objects of surgical attention. Glandular elements may preponderate in the enlargement, and muscle fibre is the chief element,

although, in most frequently occurring enlargements, glandular, muscular and fibrous elements all enter. The reaction of castration in various pathological conditions is very different, and the sudden obstructions due to congestive accidents, of course, do not call for castration. If the enlargement is due to fibrous hyperplasia, one would expect comparatively little effect upon the size of the altered prostate from the removal of the testicle. The speaker referred at considerable length to two cases of double orchectomy, the one for prostatic hypertrophy in a man seventy-four years of age, and the other for chronic orchitis in a man sixty-seven years of age. The first case had had symptoms of prostatic obstruction for twenty years, but had never used a catheter. He was first seen in January, 1895, for temporary complete retention. The bladder was distended to a level four inches above the pubes, and rectal touch demonstrated a greatly enlarged prostate. Both testicles were removed. While the patient was being anesthetized, attempts were made to introduce various catheters, but without success. Primary union took place after the operation, and on the sixth day following a catheter was passed with ease, and 32 ounces of urine were voided. The patient's general health was greatly bettered, and he became able to pass spontaneously about an ounce of urine at a time. Recent rectal examination showed that the apparent size of the prostate is the same as in January last.

The second patient had suffered for fourteen years from anal neuralgia. When a young man he had had double hydrocele, which was cured after tapping. Both testicles were extirpated under chloroform, and as the effect of the anesthetic wore off violent delirium manifested itself. The temperature and pulse rose steadily until the sixth day when they were respectively 102.5° and 145 per minute. The patient died from exhaustion on the sixth day, although primary healing of the wound had taken place.

DR. ARPAD G. GERSTER, of New York, in the absence of Dr. Roswell Park, continued the discussion, emphasizing the importance of the subject and saying that every fair-minded man should use every opportunity he had to learn more about it. Dr. Gerster's experience was limited to three operations, in one of which — a man seventy-five years of age, fairly well preserved, with a very large prostate, which had been giving trouble for ten years — the result was unfavorable. The other two cases had passed beyond the speaker's observation, and he was unable to state what became of them. In the first case the condition became so desperate that it was demanded that operative measures be taken for relief, and double castration was suggested. This was done with very little loss of blood, and the patient made a good recovery. A copious discharge from the urethra followed, however, and in the urine was found considerable blood, this having apparently flowed from the prostate into the bladder. The patient's condition gradually deteriorated, and he was taken to the operating-room, under the suspicion that there might be an abscess of the prostate, which proved to be the case. Death ensued on the eleventh day after operation, this case showing that the operation is not as free from danger as some think. Many objections to this operation are raised by men who have never given it a trial, but it is the duty of all surgeons to investigate the subject.

Two other cases occurred during the speaker's

² See page 64 of the Journal.

service at the hospital, in which the operations were carried out by another surgeon. In one of these patients there was an enormously enlarged middle lobe of the prostate, and the man was in constant agony; but two weeks after operation he was able to void his urine without the use of the catheter. One other case was seen in consultation with Dr. Lillenthal. In this patient the testicles had been removed ten years previous, and after the operation he was able to pass his urine without difficulty.

DR. W. H. CARMALT, of New Haven, discussed the paper, saying that an adenoma was primarily the preliminary stage of carcinoma, and that in conditions of hyperplasia and affections of the prostate causing obstruction, he thought it might be well perhaps to obviate the possibility of occurrence of carcinoma by means of castration.

DR. ALEXANDER, of New York, differed from Dr. Gerster as to the advisability of a surgeon speaking about an operation with which he had had no experience. He referred to the cases reported by Dr. White and Dr. Griffith, and stated that the recovery in Dr. Griffith's case, which was published sixteen days after operation, had not been sufficiently tested by time to be called a complete success. He considered that the process was going on in the prostate at the time of the operation, and was not altogether a result of the operation. The second point made by the speaker was that the second of the vesical muscles at the time of the operation seemed to be overlooked; and he stated that he considered the results obtained within a few days after an operation were due largely to the aseptic catheterization by the surgeon and not to the operation.

Dr. Alexander criticized the way in which cases are reported, and considered that the facts connected with these operations are not given with sufficient fulness by surgeons at present. He stated that he considered the operation a physiological experiment as yet.

DR. JOHN H. PACKARD, of Philadelphia, said there seemed to be one point entirely overlooked in the discussion, namely, the stage of the disease at which the operation should be performed. He referred to the case of a very intelligent German, about seventy years of age, who had kept a memorandum of his control of the bladder for every day for four months. Prior to the operation the patient could not hold his water for more than an hour, but one week afterward he held it for three hours, which rapidly increased to four and five hours.

DR. THEODORE A. MCGRAW, of Detroit, was very much impressed with the results which had been secured by Dr. White from this operation. He spoke of one case which he had seen with Dr. Walker, of Detroit, in which ten days after operation the patient was able to pass a large stream. The speaker had operated on an old man, who immediately thereafter seemed to be somewhat relieved, but the trouble returned and the patient died. As to the question of whether or not taking out one testicle would have any effect, the speaker alluded to the case of an ex-Governor of Michigan, who was under his care, in whom no effect whatever was produced upon the prostate after one testicle had sloughed completely away.

DR. BROWN showed an instrument which he had devised for perineal section.

DR. F. H. GERRISH, of Portland, Maine, read a paper entitled

THE RELATIONS OF THE LYMPHATIC SYSTEM TO THE VARIOUS REGIONS.

There is probably no chapter in anatomy less understood by the average medical man than that devoted to the lymphatic system. The lymphatics are less regular in their course and relations than any other part of the vascular system.

Diagrams were presented to show the usual relations between each group of those glands which are accessible to operative procedure. Distinction was made between the parotid and internal maxillary nodes, often included under the former name, the one being situated upon and in the parotid salivary gland, the other on the side of the pharynx just behind the buccinator muscle.

The next paper, by DR. JOHN HOMANS, of Boston, THE FEMALE GENITAL ORGANS, INCLUDING THE UTERUS AND VULVA,

was read by title.

The title of the next article was

CANCER OF THE LIP, TONGUE, FLOOR OF MOUTH, AND PHARYNX,

which was read by DR. P. S. CONNER, of Cincinnati, O.

Carcinoma is for a time local, its generalization being practically altogether through the lymphatics. Recurrence in the immediate vicinity of the primary growth shows incomplete removal of such growth; re-appearance in the neighboring glands being evidence of failure to discover and take away such glands already infected. No operation completely fulfils the indication which does not result in the total extirpation of the disease; but when from the situation and extension of the cancer, it cannot be thoroughly cut away, that procedure is preferable which, while preserving life for the time being, secures the longest immunity from secondary growths, external and internal.

Cancer of the lip usually affects more or less widely the free border, with some infiltration of the underlying tissues. As long as its locality is restricted, it can be safely taken away by means of the ordinary excision of a V-shaped mass, all the diseased area being removed. In most cases, however, the disease is not thus limited, as in a few months after the initial lesion, infiltration of one or more glands under the jaw has generally occurred. To this secondary lymphatic disease is due the great majority of the 60 per cent. or 65 per cent. of failures to effect a cure. In all cases in which any enlarged gland, no matter how slight, can be felt, it should be cut down upon and removed.

Cancer of the tongue is seen in about one-tenth of all the subjects of carcinoma. There is usually glandular enlargement, which develops early. The final results of operations have been far from encouraging, as mortality is great and recurrence very constant.

Diagnosis once established, free excision of the affected area should be made without delay, that glandular involvement may, if possible, be prevented. Even if the malignancy of the ulcer or the tumor is questionable, but little time should be spent in removing the doubt, for it is better that occasionally a tubercular or syphilitic tongue should be unnecessarily operated upon than that a carcinoma should be allowed to widely extend its growth. The best method of

operating must depend upon the circumstances of the individual case. When the growth is recent and is located in the free portion of the tongue, ablation of that part should be made with the knife or, better, the scissors. Any operation through the mouth, unless done very early and for a limited disease of the tip or possibly of the side of the tongue, should be followed by an exploratory incision in the submaxillary region and the extirpation of discovered glands. In order, however, to materially increase the percentage of recoveries, it is necessary in this region to operate more thoroughly, more widely; and it is through the neck and the floor of the mouth that we must reach the tongue, as along such route only is it practicable to reach all the affected tissues. Hemorrhage can be reduced to the least amount by ligation of all the vessels as they are reached, especially the linguals; or by the use of hemostatic forceps and ligations in the wound. The advantages of the extra-buccal operation are (1) the more perfect drainage that it secures, and (2) the greater facilities that it offers for maintaining approximately aseptic conditions of the wound.

Cancer of the pharynx, other than by direct extension from contiguous parts, is rare, and affects almost solely the soft palate or the tonsils. When secondary and associated with grave disease of the tongue or cheek, any operative interference, as a rule, is useless and can only hurry the necessarily fatal termination of the case. If primary and confined, however, it can be readily removed by scissors or cautery, and if this is early and widely done, such extirpation is not unlikely to secure exemption from recurrence.

THE OPERATIVE TREATMENT OF CANCER OF THE MALE GENITALS,

was the title of the following paper, read by DR. HUNTER MCGUIRE, of Richmond, Va.

Cancer of the penis will be found in about every 100 cases of cancer. The disease ordinarily makes its appearance after middle life, appearing in men between forty-five and seventy years of age. Its first attack is upon the inner surface of the prepuce or glans penis, more often the latter. Its beginning is as a small vesicle or nodule, which soon breaks down, leaving an ulcer with densely hard base and edges. Involvement of the glands is probably more frequent than usually believed; Kaufmann found it to exist in 40 cases out of 48. The same writer gives twenty-two months as the average duration of life in cases not operated on. As soon as a diagnosis is made of the disease, which is usually epithelioma, radical measures should be adopted. Syphilis is the only disease with which it may be confused. The appearance of the ulcer, which is covered with dead epithelium and has a very hard base, the induration extending some distance around, but intense, and with an ill-defined limit, will generally tell the character of the malady; if not, the microscope will determine. If phimosis exists, as it frequently does — in the reader's experience often producing the cancer — the prepuce should be split, to allow of complete examination. The prognosis is good in early operation; but after some delay, especially if iodide and mercury are used constitutionally, the outlook is discouraging, and after still further delay, and glandular infection, is almost if not quite hopeless. It is not at all advisable to amputate the penis by galvanic cautery, or by the ecraseur.

In cancer of the scrotum, there must be a radical

operation, removing by the knife all the diseased parts. If one testicle is affected, it, too, must be sacrificed, and if the glands in the groin are enlarged and indurated, they should also be extirpated. If the disease recurs, there should be a second, or even a third operation.

In cancer of the testicle the medullary form is the most common. Two years is about the average duration of the disease. The following points of diagnostic value are given by Jacobson: (1) Continual progressing, solid enlargements without inflammation; (2) unequal consistence of the swelling at different parts; (3) absence of translucency; (4) tendency of scrotal veins to become enlarged; (5) increasing aches and painfulness; (6) in doubtful cases antiseptic tapping or exploratory incisions, preferably the latter; (7) enlargement of the cord and *a fortiori* that of the lumbar glands.

In these days of modern surgery, the danger to life in castration for cancer is very slight. Permanent cures are uncertain. Still, life is lengthened, and the patient's comfort increased. When the disease has progressed to such an extent that secondary masses can be demonstrated in the iliac fossa, or lumbar region, and especially if cachexia is marked, the operation should not be performed, no matter how urgently the patient may demand it.

The symptoms which should lead the surgeon to suspect hard cancer of the prostate, and to distinguish it from prostatic hypertrophy may be stated briefly: (1) There is great frequency and difficulty of urination, and the urgency of call is more imperious than can be accounted for by the size of the prostate or amount of residual urine. (2) It is difficult, often impossible, to introduce a metal sound into the bladder through the warped urethra. (3) There is continuous pain in the pelvis, often extending to the thighs and legs. (4) Blood sometimes precedes or follows the stream of urine. (5) The prostate is enlarged, as hard as a stone; and the finger in the rectum can often detect induration of one or both vesiculæ-seminales.

Soft cancer, however, is not so easily diagnosed; and it has in most cases progressed very far before its existence is suspected. The first symptoms are rectal, the patient having frequent calls to empty the rectum, tenesmus, blood and mucus in operations; secondarily, there is frequency of micturition, incontinence or retention. Rectal examination demonstrates a large, soft, elastic tumor, springing from the prostate, pushing backward into the rectum, eventually making its way into that organ and filling the pelvis. The bladder should, if necessary, be regularly emptied by a catheter in cases of complete or partial retention, the rectum should be unloaded by enemata, and the stools kept soft by laxatives given by the mouth. In some cases, where the rectal symptoms are distressing, the formation of an artificial anus by colotomy may be done with advantage.

As yet no radical operation for the permanent cure of cancer of the prostate has been devised. Suprapubic cystotomy and drainage give physiological rest to the bladder and very great relief in these cases. After the bladder has been opened by the simple suprapubic incision, there can be a thorough examination of the diseased prostate by the finger introduced into the bladder; or a small electric light may be introduced through the suprapubic opening to permit of complete inspection of the vesical surface of the growth.

The author mentioned a case of suprapubic artificial urethra for hard cancer of the prostate, where the patient wore for a year a silver plug to prevent the tract from closing. When the urine had accumulated in the bladder, the plug was withdrawn and a soft gum catheter introduced. After the water had all escaped, the catheter was removed and the plug replaced. In this way nearly all the pain and frequency of urination was avoided. Pain in the pelvis and legs and other symptoms of cancer continued until the patient's death.

CLINIC AT THE NEW YORK HOSPITAL.

DR. ARPAD G. GERSTER reported a case of deformity of the fibula, which was very much reduced by operation, and in which the fibula had been as thick as the tibia should be. His second case was that of a young girl in whom tumor of the brain was diagnosed, a gold plate being inserted after operation, and worn for two and three-quarters years. At the end of this period the symptoms returned, the skull was again opened, and when the plate was removed, a secondary growth, sarcoma, was found. The third case was that of a young man on whom castration was done, in addition to the extirpation of the entire cord and seminal glands. The patient recovered and was soon out of bed.

DR. WEIR presented several cases, one of which was a patient in whom the deformity of sunken nose had been admirably corrected. The second was a case of compound fracture of the skull, in which trephining was done and a silver plate inserted. The third and fourth were young men with tubercular testes on both sides, in each of whom an artificial testis was inserted. The fifth case was an old man who had suffered from prostatic trouble, which was somewhat relieved by operation. The sixth showed the good results of operative interference in a case of dislocation of the elbow; the seventh, a case of fracture of the external condyle, and the eighth, a boy who complained that one of his testicles had not descended, also showed improvement.

Dr. Weir read the notes of a case, reported by Dr. Hartley, of a woman with a sarcoma springing from the posterior wall of the stomach. The patient was operated on, and did very well.

DR. ABBE produced several patients: one of general peritonitis, in whom recovery was secured upon operation; another, of jugular thrombosis, upon whom operation had been done seven weeks before, followed by uninterrupted improvement; several cases of tumor of the brain, one of esophageal stricture, and one of tumor of the kidney, all of whom were much benefited.

DR. ARPAD G. GERSTER said he wished to show just one more case, in which a very extensive extirpation of the rectum was performed on November 18, 1884. The man had an artificial anus, and the case is interesting from the fact that the speaker had to perform plastic operations in order to open up the anus of each of the patient's first two children, although the anus of a third child was normal.

DR. HOMANS here stated that he had had a case very similar to that of Dr. Gerster's.

DR. WM. T. BULL produced a case in which gastro-enterostomy was done for the relief of typical symptoms of pyloric obstruction, four years and nine months ago, with good results. Another of his cases illustrated very beautifully what may be accomplished by skin grafting; and the speaker mentioned a third case, which

he showed only by photograph, in which skin grafting had also been successful.

DR. MURRAY showed a case of tumor of the tongue, and also a case of disarticulation of the hip-joint for carcinoma, both of which were much benefited by operation. He also showed a specimen from an aneurism from the Circle of Willis, which he had recently removed from a man thirty years of age. This he considered due to an injury received from a fall.

(To be continued.)

Recent Literature.

Aseptic Surgical Technique. With especial reference to Gynecological Operations, together with Notes on the Technique employed in Certain Supplementary Procedures. By HUNTER ROBB, M.D., Associate in Gynecology, Johns Hopkins University; Professor of Gynecology, Western Reserve University, Cleveland, O. Illustrated. Philadelphia: J. B. Lippincott Company. 1894.

This is a book which places before us some of the details of the improvements in aseptic work with a special reference to abdominal and gynecological surgery. A visit to the Johns Hopkins Hospital rarely fails to add to one's knowledge of aseptic surgery, and this work supplies just the details that a surgeon wants when he is looking up this line of work.

The object of the book is to connect laboratory bacteriology with practical surgery, and no one who reads the book can help being impressed with the attention to minute detail which makes one of the most important principles of perfect asepsis. It is well printed, illustrated and bound, and is a book which has been prepared with more than ordinary care and well fulfils its purpose.

A Treatise on Appendicitis. By GEORGE R. FOWLER, M.D., Examiner in Surgery, Medical Examining Board of the Regents of the University of the State of New York; Surgeon to St. Mary's Hospital and to the Methodist Episcopal Hospital; Consulting Surgeon to the Relief (E. D.) Hospital and to the Norwegian Hospital. Philadelphia: J. B. Lippincott Company. 1894.

This book of 181 pages is a "revised reprint of a series of articles which appeared in the *Annals of Surgery* under the title of 'Observations upon Appendicitis.'" The author has had exceptional opportunities for studying the disease, and the book is the result of a broad clinical experience combined with accurate research. The mooted points are ably put, and a great deal of care is taken to fairly present the subject.

The operative technique is fully described and leaves but little to be desired. It may well serve as a model of clearness and conciseness of description.

The work is a timely one; while it cannot serve as a guide to any one in the treatment of appendicitis, yet it presents the subject in an all-round manner. The records of illustrative cases add greatly to the value of the book and serve to emphasize the important points that the author believes should be brought out.

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MALARIA.

SINCE the publication of Lavarán in 1880, describing a parasite in the blood in cases of malaria, which he regarded as the cause of the disease, a great number of articles on the subject have appeared. The most comprehensive article which has been written on the subject is the recent monograph of Thayer and Hewitson in the "Johns Hopkins Hospital Reports," previously referred to in an editorial, July 4th. The authors have carefully studied 616 cases of malaria which were treated in the wards and in the medical out-patient department of the Johns Hopkins Hospital between June 14, 1889, and August 1, 1894.

In the first part of the paper there is a review of the enormous literature on malaria which has appeared since the recognition of its parasitic nature by Lavarán, together with some of the more important literature preceding this period. In all, 359 articles are referred to.

In the articles which have appeared since 1880, the original observations of Lavarán have been confirmed and many new facts discovered which have cleared up many of the uncertainties of this disease.

Up to a few years past malaria was one of the most obscure diseases, and as such it formed a convenient cloak to cover ignorance. With some practitioners it still remains a sort of medical cesspool into which cases of lack of occupation, neurasthenia, incipient phthisis and typhoid fever are indiscriminately thrown. It was supposed, unlike other diseases, to have no definite symptomatology or pathology.

By the term malaria we understand a definite infectious disease due to a definite cause. Unlike other infectious diseases, it appears under different forms, which are in many respects similar to one another. Each of these forms is produced by a definite parasite, and there may be mixed forms in which the parasites of one or more different forms of the disease may be present at the same time.

Malaria may be divided into three forms, tertian

fever, quartan fever and estivo-autumnal fever. In each of these a parasite is found which goes through its cycle of development within the red blood-corpuscles. In tertian and quartan fever the cycle can be determined with exactness and the paroxysms of fever coincide with a certain stage in the development of the organism. Tertian fever is produced by an organism which begins its development as an ameboid organism within a red corpuscle. It gradually increases in size, destroys its host, becomes pigmented and divides into a number of small forms which enter into other corpuscles and again pass through their cycle. The paroxysm of fever coincides with the segmentation and is probably due to toxic substances which are set free by the dividing parasite. The probability that such toxic substances are produced, is shown by certain anatomical changes in the organs, similar to those found in other infectious diseases, and which may be caused by chemical toxic substances obtained by filtration of cultures.

There may be two or more crops of the same organism present in the blood at the same time, each of which completes its development in forty-eight hours with a paroxysm of fever coinciding with segmentation. In this way a quotidian fever may be caused. It is the same condition as two crops of peas of different time of planting growing in the same soil. The quartan fever is produced by an organism similar in its general features, which completes its cycle of development in seventy-two hours. Here, again, there may be several crops of the same organism present in the blood at the same time. There may be two crops producing a double tertian or three crops producing a daily paroxysm. In the estivo-autumnal form the parasite passes through a cycle of development the exact length of which has not been determined; it probably varies from twenty-four hours or under to forty-eight hours or more. The stages of the development of this organism cannot be so easily determined for they do not ordinarily take place in the peripheral circulation, the main seat of the infection being in the spleen, bone marrow and other internal organs.

"Infection with this form of organism is associated with fevers varying greatly in their manifestations. There may be quotidian or tertian intermittent fever, or, more commonly, more or less continuous fever with irregular remissions. The individual paroxysms last on an average about twenty hours. The irregularities in temperature depend probably upon variations in the length of the cycle of development of the parasite, or upon infection with multiple groups of organisms." There may be mixed infections, the patient having at the same time the organisms of tertian and quartan or either of these forms with the estivo-autumnal.

In addition to the differences in the periods of development there are some morphological differences in the different forms. The organism is larger in the tertian than in the quartan and more indistinct and there

is also a difference in the number of segments into which it breaks up. It is probable that the organisms of each of these forms of malaria represent distinct species. The authors have never seen anything to make them believe that under any conditions these various forms may pass into one another, as a quartan organism becomes a tertian, etc. In each of the organisms in addition to the typical forms which develop within the red corpuscles, other forms which probably represent either degenerative or unusual forms of development are met with. In all, there may be found an organism with long, actively-moving flagellæ free in the blood.

It has been suggested that this may represent the form of the organism when leading a saprophytic existence. That it may be a degenerative condition of the organism is shown by the fact that this form is almost the only one which is attacked and destroyed by the leucocytes.

The estivo-autumnal fever is further separated from the others by the presence of a pigmented crescentic organism. This is found in a large number of cases. It has never been possible to follow exactly the various stages of development of these extra corpuscular forms of the parasites.

It is to be regretted that the authors have not been able to include malarial hematuria in their observations. It is very possible that this disease is due either to a still different species of the malarial organism or to an entirely different organism. It is very improbable that certain manifestations of a disease should be confined to certain localities, as seems to be the case with malarial hematuria. It is greatly to be hoped that the authors will complete their work by the investigation of this disease which the proximity of Baltimore to one of the habitats of the disease in Virginia should make possible.

It has also been clearly established that quinine is most efficacious when given just before or at the time of the paroxysm. The segmenting forms and the young brood are much more susceptible to its action than the older forms completely enclosed in corpuscles. When two broods of the tertian organism are in the blood, giving rise to a quotidian fever, it has been found possible by giving quinine at the time of a paroxysm to kill one brood leaving the other intact.

PARTIAL AMPUTATION OF THE FOOT.

At the meeting of the Philadelphia Academy of Surgery on May 6th, Dr. H. R. Wharton reported two cases of partial amputation of the foot. One was that of a railroad employé on whom a Syme's amputation had been performed three years ago. The man wore an artificial apparatus, had a good end-bearing stump, was actively employed as a switch-tender, and was able to run. The second case was a man in whom a simultaneous amputation of the leg, and partial amputation of the foot were done with

excellent result, the patient being able to walk five or six miles a day without trouble.

It will be remembered that in our editorial of November 29, 1894, on "Primary Amputations in Civil Life," the ground was taken that the present prevailing opinion that amputation at the so-called point of election was preferable to partial amputation of the foot was founded on wrong principles. An end-bearing stump has always been preferable where a patient could not afford an expensive artificial leg, and of late years the best makers of prothetic apparatus have found the end-bearing stump preferable for the purpose of fitting a serviceable artificial leg.

In commenting on his cases Dr. Wharton remarked that he had not seen a man come into the hospital with a crushed foot who would not prefer a partial amputation to an amputation at the point of election, and that he had seen several cases after Chopart's amputation where the results had been very good and the patients could run or walk without trouble.

We are glad to see that the opinions expressed in our editorial are being confirmed by so reliable an authority as Dr. Wharton, and are led to hope that the present craze for amputation at the point of election will be of short duration.

CONCERNING VIVISECTION.

THE statement made by Prof. William Townsend Porter in the *Boston Transcript* of last Saturday, in answer to the numerous letters which have recently appeared in that and other papers seeking to stir up a popular agitation against experimentation upon living animals, is a fair, just and impartial presentation of the subject. It is hoped that the temperate spirit, and consistent logic of this statement will prove an example to many of the writers for whom it is especially intended.

The justification of the results attained is so complete, and the cruelty so slight in comparison, as to leave no possible ground for intelligent opposition to the work as it is done in the Harvard Medical School and in the other physiological laboratories of the country. Instead of the horrible picture which exists in the imagination of the antivivisectionist, of a being who finds pleasure in torturing animals in order to ascertain how much pain they can be made to suffer, we see in the physiologist or therapeutician a man who minimizes in every way the suffering of the animals, who works for small material reward, works early and late and self-forgetfully, laying the broad foundations of practical medicine.

From a purely practical point of view the methods of study which have given us the antitoxins of diphtheria and tetanus, and made possible cerebral localization, are of inestimable value to mankind. So great has been the progress made on these lines in recent years, that we might fairly say that if the method of experimentation on animals were to stop, we would

lose the means of investigation which have in the past been of the highest value, and give promise of the greatest alleviation of human suffering in the future.

MEDICAL NOTES.

ROYAL COLLEGE OF SURGEONS. — The following five members of the Council have been elected: Mr. Willett, Mr. Treves, Mr. Butlin, Mr. Alfred Cooper, Dr. Ward Cousins.

MR. T. GRIGOR BRODIE, M.D., Lond., has been appointed lecturer on physiology at St. Thomas's Hospital, in the vacancy caused by the resignation of Professor Sherrington, F.R.S.

THE PITTSBURGH EYE AND EAR HOSPITAL. — The Eye and Ear Hospital of Pittsburgh, Pa., at No. 945 Penn Avenue, was opened to patients on July 1, 1895. A dispensary is connected with the hospital.

ILLNESS OF DR. RUFFER. — Dr. Ruffer, director of the British Institute of Preventive Medicine, has contracted a severe attack of diphtheria in the course of his investigations. He was at once treated by anti-toxin serum with satisfactory results.

A CHART OF THE SYMPATHETIC NERVOUS SYSTEM. — We have received a life-size chart of the sympathetic nervous system, made up from personal dissections by Dr. Byron Robinson, of Chicago, which have extended over a period of five years. The chart is doubtless the most accurate representation we yet have of the extremely intricate and, as yet, little understood sympathetic system.

THE INCREASE OF RABIES. — If the published returns are to be regarded as accurate, rabies is on the increase. In the first twenty-two weeks of 1892 there were only 11 cases reported, and in the corresponding period of the following year there were 37 animals attacked. In the first half of 1894 the number of cases was 80, while this year up to the end of last month no fewer than 373 cases have been reported. This last number is enormous, and some explanation should be forthcoming to show how the increase has occurred. Quite possibly a new method of classifying the cases has been adopted, and this may have led to the returns reaching the unprecedented total above mentioned. But whatever the explanation may be, it is of interest to note in this connection the minimum rate to which the deaths from hydrophobia have fallen.

AN ENGLISH MEDICAL WORK IN GREEK. — It seems that Dr. Galabin's work on "Diseases of Women" has been translated into Greek by Dr. Luke, of Athens. The translation of the English names has given rise to some rather curious results. *Ταλαβινος* and *Βαρνς* are easily recognized, but *Σπένσερ Ουελλς* is a trifle cryptographic, and one might well have a little hesitation with regard to *Ουίλσον Φώξ*. As for *Σύνναμ*, it requires a certain effort to recognize the English Hippocrates, whilst the personality of

Πλατένφερ must be a matter of guesswork. The name of Tait seems to have given a great deal of trouble to the translator; sometimes it is given as *Λωσον Τέιρ*, occasionally the Birmingham surgeon is designated more familiarly as *ὁ Τάιτ*. — *Medical Press and Circular*.

A CARTHAGINIAN TRUSS. — Poncet, of Cluny, in the *Progrès Médical* of June 1st, gives a description of a statuette found in Tunis representing a divinity of the Egyptian mythology, and dating from about 900 B. C. The medical interest of this statuette, which is believed to be of Carthaginian origin, consists in the fact that the statuette represents the god as wearing an unmistakable truss for double inguinal hernia, a belt with pads obliquely placed in the right position, and connected by an arch across the pubes. According to Poncet this carved Carthaginian truss represents a perfect apparatus for the restraint of inguinal hernia. The statuette also shows, according to Poncet, a double femoral hernia, a double scrotal omental hernia, and a very careful representation of the unfolding of the urethra which is seen in cases of voluminous scrotal herniæ. As to the reason for the representation of the god wearing a truss, Poncet thinks that the statuette may have been an offering to the god by a grateful worshipper who had been cured of his herniæ. A writer in *La Médecine Moderne* suggests a more probable explanation, founded on the modern use of casts of classical statues which are displayed in show windows wearing the apparatus of instrument makers. This explanation is that the statuette was used by a Phœnician surgical-appliance maker to advertise his wares. The bust of the young Augustus wearing lung protectors is so common a sight in the show windows of this city as to lend great probability to this conjecture.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, July 17, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 44, scarlet fever 23, measles 40, typhoid fever 17.

NO BOYLSTON PRIZE AWARDED. — The Boylston Medical Committee of the Harvard Medical School awarded no prize this year.

THE CHRISTIAN ENDEAVOR SOCIETIES IN BOSTON. — During last week the streets and public places of Boston were crowded with such a throng of visitors as hardly ever before. The army that tented on the Common by day and in the hotels and houses of the city by night was made up of a class of Christians who so consistently "endeavored" to respect the rights of others, and who took so serious and earnest an interest in the business of their meetings and in the historic and artistic side of the city they visited, that their visit will be long remembered by the citizens of Boston as a pleasant experience. There are not many organizations of such great size which could visit a city en

masse and leave so pleasant an impression of their visit. Their meetings also were marked by a calm and serious spirit, and not marred by the hysterical extremes of revivalism.

VETO OF THE APPROPRIATION FOR A BRANCH HOSPITAL.—Mayor Curtis, in cutting down the annual appropriation bill, has vetoed the appropriation of \$30,000 which was proposed for the establishment of a branch of the Boston City Hospital in East Boston. His reasons for this action are excellent, and are based upon the report on this subject made by the trustees of the Boston City Hospital two years ago, the opinions of nearly all the physicians of outlying districts who were consulted, and the opinions of the medical staff of the Boston City Hospital. The report of the trustees, which thoroughly covers the ground, states the objections to the establishment of branch hospitals in detail. In the main these objections are, first, that Boston, which has eighteen hospitals, is already well provided; second, that the total cost of building and maintaining such hospitals would be enormous; and, third, that their management from one centre being impracticable, the problem of administration would be extremely difficult. The mayor argues that if a branch hospital were established in one section of the city, it would be unfair to refuse the demands of other sections for the same accommodation, which, as has been stated above, would impose too great a burden upon the city. A full abstract of the report of the trustees may be found in an editorial article in the *JOURNAL* of January 5, 1893, under the heading of "Hospital Facilities for Large Cities."

THE STAMFORD MILKMAN ESCAPES TRIAL.—The suit against the milkman, who was arrested on the charge of manslaughter in selling the people of Stamford, Conn., milk from cans washed in polluted water and thus causing a severe epidemic of typhoid fever, has been dropped.

Miscellany.

THE MECCAN PILGRIMAGE.

THE Meccan pilgrims are now returning at a critical and momentous period. The *British Medical Journal* is informed by letter from an authoritative source "that up to June 19th seven ships with about six thousands pilgrims had arrived at Tor, and on two of them there were cases of cholera followed by death. At the time the despatch boat left Tor on June 19th only one of the cases had been confirmed by bacteriological examination. All the vessels arriving at Tor have it stated on their bills of health that there is a good deal of cholera at Mecca. Fifteen days' quarantine is imposed on all pilgrim ships arriving at Tor from Djeddah, and all passing the Canal will be sent through in quarantine. The Egyptian pilgrims, after passing their fifteen days in one encampment at Tor, will be required to undergo another period of three days' observation at that place in a new camp before they will be allowed to land at Suez."

It is most ardently to be hoped that the yearly pilgrimage to Mecca, sanctified only by custom and the supposed demands of religion, may soon become a thing of the past. Year after year the same ghastly rites are performed, and the carcasses of the slaughtered animals are left to decay on the spot where they were sacrificed. Nevertheless, owing to the strictly enforced sanitary legislation, there was comparatively little actual disease last year; and apparently, under the present strict quarantine regulations, there will also be but little this year. A more difficult task in prophylactic medicine could hardly be conceived than this; that the various health boards succeed so admirably is a striking proof of their efficacy.

FATAL CASE OF TRAUMATIC ANEURISM OF ABERRANT RIGHT SUBCLAVIAN ARTERY.

PYE SMITH reports in the *Quarterly Medical Journal* for April, 1895, the case of a man, aged thirty, who was admitted to the Sheffield Public Hospital, having fallen on his back from a height of twenty-eight feet.

When brought to the hospital he was in collapse, and appeared to be seriously injured. He had cough, and sharp cutting pain in the upper part of his chest and back. Deglutition was also painful. No fracture, wound or bruise were discovered, and there was no paralysis. On auscultation the respiratory sounds were almost entirely absent over the left chest. On the right side the sounds were exaggerated. There was slight bloody expectoration. The diagnosis was made of occlusion of the left primary bronchus, probably by blood, as no evidence was found of swallowing or inhalation of any solid substance. Pressure from a hematoma was also suggested.

For two or three days the man's condition improved, and more air was found to enter the left chest, as evidenced by increased respiratory sounds. Ten days after admission cough and dyspnea increased; and eighteen days after admission the dyspnea became very severe, and there was marked dysphagia. Very little air now entered the right chest. There was no pulse to be felt in the right, radial, temporal or carotid. An attempt to use the laryngoscope brought on an attack of dyspnea so severe that tracheotomy was performed, and in passing the finger downward into the trachea it was found to be compressed from behind. On restoring the lumen of the trachea by dilatation with long curved forceps, blood-clots were expectorated, and breathing became somewhat freer. A piece of large, thick india-rubber tubing was passed down into the trachea and tied in. Breathing now became moderately easy, but swallowing was still difficult. The patient sank, and died about twenty-four hours after this procedure, his death being preceded by the vomiting of about half a pint of blood on two occasions.

At the autopsy there was found a traumatic aneurism of the posterior mediastinum, which had ruptured into the esophagus. This aneurism was due to the rupture of an aberrant right subclavian artery. The right carotid artery was seen crossing the trachea obliquely a short distance below the tracheotomy wound, and flattened by pressure forwards of the trachea. This vessel was found to spring directly from the aorta, the innominate being absent, while the right subclavian artery was found to arise from the aortic

arch beyond the left subclavian, and crossing between the spine and the esophagus at the level of the third dorsal vertebra, at which point there was a traumatic aneurism, about two and one-half inches in diameter. The openings in the artery and the esophagus were evident.

Although this case is peculiar, and probably unique, the abnormality from which it arose is described by Quain as one of the commonest varieties in the origin of the great vessels from the aortic arch, arising embryologically from the obliteration of part of the right fourth branchial arch, and the persistence of the right aortic root.

The diagnosis was obscured by the fact that it was not until the eighteenth day after admission that the surgeon happened to find the right radial pulse was absent, as in his previous examinations he had happened to feel only the left pulse. After the death of the patient he was informed by the dresser that the right radial pulse had been absent since the patient's admission. The writer thinks that if this fact had been noticed, and followed up by a systematic examination of the other arteries — brachial, subclavian and carotid — something like a correct diagnosis might have been made.

A GOOD FIGHT AGAINST CHOLERA IN SOUTH AMERICA.

THE following editorial from the *New York Times*, gives just credit to the excellent and effective work done by the sanitary authorities in Brazil in stamping out the annual cholera epidemic this year, and at the same time so concise a review of the situation in regard to this disease in South American countries that we transcribe it in full.

South America has been unexpectedly fortunate this year in escaping a destructive epidemic of Asiatic cholera. The disease was present in Brazil and Argentina for about five months, but now appears to have been stamped out with a record, as officially reported, of less than 400 deaths. This is certainly remarkable, in view of the fact that the disease prevailed not only in the large cities of Buenos Ayres, Rio de Janeiro, Rosario, and Montevideo, but also in a considerable district along the course of the Parahyba River, in Brazil, some distance from the coast.

The official reports of our government show that there were 225 cases and 137 deaths in Buenos Ayres from December 1 to March 21; 195 deaths in Rio de Janeiro from December 1 to May 18; 23 cases and 1 death in Montevideo during March; 8 cases and 2 deaths in Rosario during the same month, and 120 cases and 38 deaths in several small Brazilian towns during February, March, and April. On May 28 the resident representative of the Marine-Hospital Bureau in Rio de Janeiro reported that there were no longer any cases at the infected points in the interior, that no cases had been reported in the city for some time, and that quarantine against Buenos Ayres and Montevideo had been raised. There is no room for doubt as to the real nature of the disease, for the cholera bacillus was obtained by bacteriological analysis in Rio at a hospital where there were more than 150 fatal cases.

It appears from the reports that the suppression of the incipient epidemic was due to the untiring and intelligent efforts of the sanitary authorities. These officers deserve much credit, for so effective an enforcement of sanitary laws was scarcely to be expected in South American cities, where the sanitarian has much to contend with. A few years ago cholera, introduced at Buenos Ayres from Italy, prevailed throughout the southern part of the continent and caused the deaths of some 30,000 persons.

METEOROLOGICAL RECORD.

For the week ending July 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...30	30.10	65	69	61	97	95	96	N.E.	S.W.	3	12	O.	O.	.05
M...1	29.92	72	78	66	57	80	68	N.W.	N.	11	5	O.	O.	.05
T...2	30.13	64	72	57	55	57	56	N.	S.W.	8	8	C.	C.	
W...3	30.16	68	77	58	49	53	51	N.	S.W.	5	11	C.	C.	
T...4	29.91	64	71	57	63	100	82	N.	N.E.	5	23	R.	R.	.31
F...5	30.03	68	78	59	87	81	84	E.	N.	8	10	O.	O.	.04
S...6	29.86	69	74	64	87	90	88	S.	S.	19	8	O.	O.	.30

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thundershowing; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 6, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York . . .	1,956,000	954	584	36.40	7.70	26.00	4.00	2.40	
Chicago . . .	1,900,000	—	—	—	—	—	—	—	
Philadelphia . . .	1,139,457	487	262	32.76	8.61	26.25	4.62	.63	
Brooklyn . . .	1,043,000	519	323	41.99	5.70	34.39	3.61	.76	
St. Louis . . .	540,800	—	—	—	—	—	—	—	
Boston . . .	501,107	153	34	9.75	12.35	2.60	3.25	.65	
Baltimore . . .	500,000	—	—	—	—	—	—	—	
Washington . . .	285,000	—	—	—	—	—	—	—	
Cincinnati . . .	325,000	118	55	15.30	11.05	10.20	1.30	1.30	
Cleveland . . .	325,000	95	58	14.70	5.10	13.26	—	—	
Pittsburg . . .	272,000	88	72	54.06	—	52.02	—	1.02	
Milwaukee . . .	265,000	—	—	—	—	—	—	—	
Nashville . . .	87,754	32	13	18.78	18.78	—	—	—	
Charleston . . .	65,165	45	27	20.00	4.44	13.33	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . . .	100,410	36	24	52.82	8.34	50.04	—	—	
Fall River . . .	92,233	—	—	—	—	—	—	—	
Lowell . . .	90,613	—	—	—	—	—	—	—	
Cambridge . . .	79,607	—	—	—	—	—	—	—	
Lynn . . .	65,123	24	3	8.52	16.64	—	—	—	
Springfield . . .	50,284	22	5	18.20	18.20	13.65	—	4.55	
Lawrence . . .	49,900	13	10	7.69	—	—	—	—	
New Bedford . . .	47,741	20	12	25.00	5.00	20.00	—	—	
Holyoke . . .	43,348	—	—	—	—	—	—	—	
Brookton . . .	33,939	3	3	66.66	—	—	—	—	
Salem . . .	33,155	12	6	8.33	—	8.33	—	—	
Haverhill . . .	32,925	14	4	21.42	35.70	7.14	—	—	
Malden . . .	30,209	7	0	14.28	14.28	—	—	—	
Chelsea . . .	29,806	4	2	—	—	—	—	—	
Fitchburg . . .	29,383	8	0	—	—	—	—	—	
Newton . . .	28,837	7	0	14.28	14.28	—	—	—	
Gloucester . . .	27,293	—	—	—	—	—	14.28	—	
Taunton . . .	26,954	9	2	—	11.11	—	—	—	
Waltham . . .	22,058	5	2	20.00	40.00	—	—	—	
Quincy . . .	19,642	1	0	—	—	—	—	—	
Pittsfield . . .	18,802	3	0	—	—	—	—	—	
Everett . . .	16,585	3	0	—	—	—	—	—	
Northampton . . .	16,331	4	1	25.00	—	—	—	—	
Newburyport . . .	14,073	7	1	—	—	—	—	—	
Amesbury . . .	10,920	3	0	—	—	—	—	—	

Deaths reported 2,801; under five years of age 1,541; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 913, consumption 223, acute lung diseases 173, diarrheal diseases 694, diphtheria and croup 93, measles 37, scarlet fever 23, typhoid fever 22, whooping-cough 21, cerebro-spinal meningitis 15, erysipelas 6, small-pox 2.

From typhoid fever Philadelphia 7, Brooklyn and Boston 3 each, Nashville 2, New York, Cleveland, Providence, New Bedford, Malden and Northampton 1 each. From whooping-cough New York 13, Brooklyn 6, Pittsburgh and Haverhill 1 each. From cerebro spinal meningitis New York 6, Charleston and Somerville 2 each, Boston, Lynn, Lawrence, Brockton and Taunton 1 each. From erysipelas New York 3, Brooklyn 2, Boston, Fall River, New Bedford, Malden and Northampton 1 each. From small-pox Philadelphia and Cincinnati 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending June 29th, the death-rate was 16.7. Deaths reported 3,394; acute diseases of the respiratory organs (London) 160, diarrhea 177, measles 140, whooping-cough 59, diphtheria 55, scarlet fever 32, fever 29, small-pox (London) 1.

The death-rates ranged from 9.6 in Brighton to 25.7 in Liverpool; Birmingham 16.2, Bradford 13.8, Croydon 13.2, Gateshead 22.8, Huddersfield 11.5, Hull 15.9, Leeds 15.3, Leicester 11.6, London 16.9, Manchester 19.0, Newcastle-on-Tyne 17.1, Nottingham 12.4, Sheffield 14.3, West Ham 15.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 6, 1895, TO JULY 12, 1895.

Leave of absence for one month, to take effect on or about the 23d instant., is granted LIEUT.-COL. JOHNSON V. D. MIDDLTON, deputy surgeon-general.

Leave of absence for two months, to take effect on or about August 1, 1895, is granted CAPTAIN WILLIAM W. GRAY, assistant surgeon.

CAPTAIN REUBEN L. ROBERTSON, assistant surgeon, resigned July 3, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 13, 1895.

R. P. CRANDALL, passed assistant surgeon, detached from the U. S. Receiving-ship "Vermont" and ordered to the New York Navy Yard.

GEO. M. C. PICKRELL, passed assistant surgeon, ordered to Washington Hospital.

H. T. PERCY, passed assistant surgeon, detached from Naval Hospital, Washington, and to the Navy Yard, Washington, D. C.

APPOINTMENTS.

DR. MALCOLM STORER has been appointed physician to the Department for Diseases of Women at the Boston Dispensary.

Drs. ALFRED A. WHEELER and C. MORTON SMITH have been appointed district physicians.

BOOKS AND PAMPHLETS RECEIVED.

The Relations of Infectious Processes to Mental Disease. By Charles K. Mills, M.D. Reprint. 1894.

Two Cases of Pseudo-Hypertrophic Paralysis in Brothers. By Archibald Church, M.D. Reprint. 1895.

Annual Reports of the Managers and Officers of the State Hospitals of New Jersey for the year ending October 31, 1894.

Report of Seven Cases of Double Castration for Relief of Enlarged Prostate Gland. By H. O. Walker, M.D., Detroit, Mich. Reprint. 1895.

Laboratory of the McLean Hospital, Somerville, Mass. By President G. Stanley Hall, Clark University, Worcester, Mass. Reprint. 1895.

Transactions of the American Association of Obstetricians and Gynecologists, Vol. VII, for the year 1894. Philadelphia: W. J. Dornan. 1895.

Twenty-eighth Annual Report of the Directors of the Massachusetts Infant Asylum. Presented to the Corporation at the annual meeting April 9, 1895.

On Whooping-Cough: Its Great Fatality and the Necessity for Isolation and Rest in its Treatment. By William W. Johnston, M.D., Washington, D. C. Reprint. 1895.

Nerve-Suturing (Neurorrhaphy): Degeneration and Regeneration following Section; Microscopical Appearances. By De Forest Willard, A.M., M.D., Ph.D. Reprint. 1894.

The Diagnosis of Pregnancy during the First Three Months. Remarks on the Treatment of Inevitable Abortion. Cæliotomy for Puerperal Septicæmia and Peritonitis. By Charles P. Noble, M.D. Reprints. 1894-95.

Calomel; A Study of its Physiologic Action and Therapy in Gastro Intestinal Disorders in One Hundred and Forty-four Cases; Is it a Diuretic *per se*? By W. Blair Stewart, A.M., M.D., Atlantic City, N. J. Reprint. 1895.

Syphilis and Alcoholism of the Brain, Spinal Cord, and Probably of the Nerves of the Legs, followed by Hysterical Contractures of the Flexors of the Knees and a Pronounced Variability of Certain Reflexes. By J. T. Eskridge, M.D., of Denver, Col. Reprint. 1895.

The Physicians' German Vademecum; a Manual for Medical Practitioners for use in the Treatment of German Patients. By Dr. Richard S. Rosenthal, Author of the Rosenthal Method of Practical Linguistics, the Meisterschaft System, etc. Vol. I. Gynecology and Obstetrics. Part II. General Practice. Chicago: The Rosenthal Publishing Co.

Weekly Abstract of Sanitary Reports issued by the Supervising Surgeon-General, M. H. S., under the National Quarantine Act of April 29, 1878, and the Act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service, Approved February 15, 1893. Vol. IX, Nos. 1 to 52. Washington: Government Printing Office. 1895.

The Care of the Baby; a Manual for Mothers and Nurses containing Practical Directions for the Management of Childhood in Health and Disease. By J. P. Crozier Griffith, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Professor of Clinical Medicine in the Philadelphia Polyclinic, etc. Philadelphia: W. B. Saunders. 1895.

La Methode Brown-Séquard. Traité d'Histotherapie, la Thérapeutique des Tissues, Compendium des Medications par les Extraits d'Organes Animaux. Par le Dr. M. Bra. Ouvrage Précedé de lettres et préfaces de MM. les Professeurs Constantin Paul, Mendel, Ewald, Bruns, Emminghaus et Byrom Bramwell. Accompagné de 72 gravures. Paris: J. Rothschild, éditeur. 1895.

On Some Symptoms which Simulate Disease of the Pelvic Organs in Women and the Treatment by Allo-Piosto-Myo-Kmetics (Massage) and by Auto-Piosto-Myo-Kmetics (Self-Movements of Muscles under Pressure). By A. Rabagliati, M.A., F.R.C.S. Ed., Honorary Gynecologist, Late Senior Honorary Surgeon, Bradford Infirmary. New York: William Wood & Co. 1895.

The Lumleian Lectures on Certain Points in the Ætiology of Disease, delivered before the Royal College of Physicians, 1892, to which is added the Harveian Oration, delivered before the College in 1893, with a Biographical Notice of Harvey and an Appendix of Statistical Tables. By P. H. Pye-Smith, M.D., F.R.S., Fellow of the College and Senior Physician to Guy's Hospital. London: J. & A. Churchill. 1895.

Remote Consequences of Injuries of Nerves and their Treatment, an Examination of the Present Conditions of Wounds received 1863-65, with additional illustrative cases. By John K. Mitchell, M.D., Physician to St. Agnes' Hospital; Assistant Physician to the Orthopedic Hospital and Infirmary for Nervous Diseases; Lecturer on Physical Diagnosis in the University of Pennsylvania. Philadelphia: Lea Brothers & Co. 1895.

A German English Medical Thesaurus or Treasure of Single and Compound Medical Words and Terms, with Dialogues, Idiomatic Phrases and Proverbs, etc., and German and English Indexes for Physicians and Medical Students. By Rev. Henry Losch, M.D., author of "Improved Method and Complete Manual for the Systematic and Practical Study of the German Language, etc. Philadelphia: Published by the Author. 1895.

The Diseases and Deformities of the Fetus; an Attempt Towards a System of Antenatal Pathology. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynecology and on Diseases of Infancy and Childhood, School of Medicine, Edinburgh. With plates. Vol. II. Congenital Diseases of the Subcutaneous Tissue and Skin. Edinburgh: Oliver & Boyd, Tweeddale Court. London: Simpkin, Marshall, Kent & Co. Limited. 1895.

A Book of Detachable Diet-Lists for Albuminuria, Anemia and Debility, Constipation, Diabetes, Diarrhea, Dyspepsia, Fevers, Gout or Uric-Acid Diathesis, Obesity, Tuberculosis and a Sick-Room Dietery. Compiled by Jerome B. Thomas, A.B., M.D., Visiting Physician to the Home for Friendless Women and Children and to the Newsboys' Home; Assistant Visiting Physician to the King's County Hospital; Assistant Bacteriologist, Brooklyn Health Department. Philadelphia: W. B. Saunders. 1895.

Text Book of Operative Surgery. By Dr. Theodor Kocher, Professor of Surgery and Director of the Surgical Clinic in the University of Bern. Translated with the special authority of the author from the second revised and enlarged German edition by Harold J. Stiles, M.B., F.R.C.S., Edin., Senior Demonstrator of Surgery and formerly Demonstrator of Anatomy in the University of Edinburgh; Assistant Surgeon, Royal Hospital for Sick Children. With 185 illustrations. London: Adam & Charles Black. 1895.

A Guide to the Aseptic Treatment of Wounds. By Dr. C. Schimmelbusch, Assistant in the Royal Surgical Clinic of the University of Berlin, preface by Prof. E. Von Bergmann, translated from the second revised German edition with express permission of the author, by Frank J. Thornbury, M.D., Lecturer on Bacteriology, University of Buffalo, N. Y.; Supervising Microscopist in the Bureau of Animal Industry, U. S. Department of Agriculture; Late Senior Resident Physician, Cincinnati Hospital, Cincinnati, Ohio, etc. With 43 illustrations. New York: G. P. Putnam's Sons. 1895.

Lecture.

THE NEW ENGLAND INVALID.¹

SHATTUCK LECTURE FOR 1895.

BY ROBERT T. EDES, M.D., JAMAICA PLAIN, MASS.

(Continued from No. 3, p. 57.)

THE relations of uterine disease and neurasthenia are interesting and important. No one now supposes that there is any necessary and specific relationship between such disease and hysteria, the most cogent argument being that men, although much less frequently, become typical subjects of the nervous affection. The logical connection between the two conditions in a particular case, both being present, is far from easy to establish, and when it becomes doubtful as to how far either of them may have become dependent upon imagination, habit, or a fixed idea, the task becomes still more difficult.

A considerable amount of irregularity of the uterine functions, or rather a great increase in the amount of pain and general disturbance with which they are accomplished, is a common result of what is clearly a nervous condition, as much so as the gastric, intestinal and cardiac symptoms. It is quite true of "nervousness," as has long been remarked of hysteria, that the more serious organic affections, like fibroid or cancer, have no special tendency to its production except, of course, so far as hemorrhage or long-continued pain may do so.

"Many of the nervous and even mental disorders, often assigned to 'reflex ovarian irritation' are the direct expression of cerebral disease or cerebral malnutrition, which also causes the vaso-motor paresis in the vascular territory of the ovaries."⁵

On the other hand, there are among our patients, even with the careful selection to which they are subjected before their admission, some in whom the much accelerated recovery after local pelvic treatment of the uterine symptoms shows that they are neither imaginary nor merely an accidental coincidence.

There is a belief, however, acknowledged and acted upon, that in some cases the effect of operative treatment is due to its decided psychical effect, in regard to which I shall have occasion to speak farther on. One may consult on this point with great advantage a paper by Dr. J. William White, on "The Supposed Curative Effect of Surgical Operations *per se*," *Annals of Surgery*, August and September, 1891.

When, however, the "slight local treatment" to which one of our patients attributed her partial improvement consists, as we know from other sources that it did in her case, of a removal of both ovaries, the matter is worthy of serious consideration.

Twenty-seven persons whose names are upon our books have had both ovaries removed for the relief of nervous symptoms. These organs were in some cases healthy or nearly so, and in others indurated and adherent. Of these, three or four recovered or nearly so, one or two of them having been not very far from the natural menopause.

Three or four others have improved after years of invalidism, so that it may well be doubted how far their recovery was accelerated.

One died of pulmonary tuberculosis and other diseases not connected in any way with the operation. One died of cocaine, one shot herself six months after "a highly successful operation."

Another case, herself a physician, in no way connected with the Adams Asylum, underwent the operation, partly, but I could not make out just how largely, at her own desire. She had had convulsive attacks, probably hysterical, and progressed steadily to hopeless insanity.

She had been an advocate of the operation, and had urged it upon a patient whom I had referred to her but who recovered without it, and at a later period called upon her in her own sickness. I do not know whether the merits of the operation were discussed at that interview, but the subject might have given rise to a very interesting conversation.

Our experience would not support the usual statements as to the almost absolute harmlessness of the operation. One of our patients, a strong and comparatively young woman who suffered extremely from dysmenorrhea and hysteria, was, at her own request and after a full explanation, submitted to the operation at a hospital where you would admit that as good surgery is done as can be done, and died in a week, with no trace of septic infection, but apparently solely of the nervous shock taking the form of stuporous melancholia.

The conclusions to be drawn from these cases are that the chances of improvement from the removal of healthy ovaries from a young woman affected with nervous symptoms are exceedingly small, and that the operation should be reserved for those desperate cases where nothing else offers a prospect of relief near or remote, and where death may fairly be considered preferable to a suffering life.

The chance of a favorable psychic effect may be fairly offset by the much greater probability of an unfavorable one, in the development of a new set of morbid ideas, the disappointment at failure, the feeling that she is not like other women, and the chance of death.

When ovaries are distinctly diseased or the tubes filled with pus, or hemorrhage from a fibroid is wasting the patient's strength, then the question is no longer neurological but surgical, and should be looked at solely from that standpoint.

It is worth noting at this place that 276 married women under sixty, in regard to whom this point was recorded, had 566 children; 62 were childless, 71 had one child each, 53 two, and there were only eight who had had more than six.

Theories of auto-intoxication are not easy to deal with clinically in the absence of extensive laboratory facilities, of which the chief and most essential would be a chemist such as there are but few of.

When the blood in quantity is not to be obtained, the ease with which either an excess or deficiency of a given substance in the urine can be interpreted to mean an excess in the blood or in the tissues, gives an elusive character to the research more entertaining than instructive. A good many examinations have been made in the cases now under discussion which have gone beyond the determination of the presence or absence of albumin, but have not been numerous or regular enough in most cases to enable the course of elimination to be watched for any length of time. There is not a great deal of interest to be found

¹ Delivered before the Massachusetts Medical Society, June 11, 1895.

⁵ Dr. Mary Putnam Jacobi: MS.

therein, except possibly the general conclusion that the vital metamorphoses, as indicated by urea, often uric acid, and the total amount of solids, are taking place but sluggishly.

The urine is apt to be small in quantity, and, although of high specific gravity, not sufficiently so to bring up the total amount of elimination to the normal standard; normal, that is, as regards a person on full diet. There is, however, no reason to look for any poisonous retention due to deficient action on the part of the kidneys.

The phosphates have been determined only in a few cases from the feeling that, however close the relation may appear on chemical grounds between their excretion and the combustion of nervous tissue, yet the amount of variation in the quantity derived from this source would be so entirely obscured in the much larger quantity derived from the tissues generally and from the food, as to be not worth considering, unless the latter, the food, can be brought to a constant value, a condition not easily carried out.

In view of recent theories of the relation of neurasthenia to so-called lithemia, and headache as a special symptom, a considerable number of quantitative determinations of uric acid have been made, which seem to me to lead to the unexpected conclusion, that although there may be, as Dr. Haig's observations seem to show, such a thing as a uric-acid headache, the neurasthenic headache is not of that character.

For reasons easily understood no search was made for organic substances like paraxanthine, requiring the evaporation of several litres of urine for their detection.

It is a rather singular fact, considering the wide diffusion of the lithemic doctrine, that "suppressed gout" is mentioned only once in our papers as among the probable causes of nervous prostration.

The number of cases among 65 in which the proportion of uric acid to urea was determined, in which it exceeded that laid down by Haig as the average, namely $\frac{1}{3}$, is very small altogether, and in most of these for only a single observation each. There is nothing in common to them which would enable one to connect this condition with any degree of probability, to any special symptom. The largest, $\frac{1}{2}$, was in a case of neurasthenia, where the total urine for twenty-four hours was very small, 400 cubic centimetres, and the urea corresponded, while the uric acid was apparently a little increased with reference to the usual daily output. The only case where an increased proportion corresponded to severe nervous symptoms, was one of very persistent headache, so severe and so constant that the idea of organic disease was entertained but never found other sufficient support. The fractions found at various times were $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$.

It is important to note that in this case, where there was no pronounced gastric disturbance, the weight constantly diminished.

In another case, in many respects similar, but where the weight increased without a corresponding improvement in the headache, the proportion of uric acid to urea was mostly between $\frac{1}{3}$ and $\frac{1}{4}$.

Other cases of increased proportion were of gall-stone; hysterical paraplegia and contracture, with great emaciation and gastric disturbance; chronic gastritis, improving and gaining weight; agoraphobia; debility; melancholia; severe dysmenorrhea and hy-

steria; convalescence (rapid) from hysterical vomiting; and idiopathic anemia.

In the cases where a number of observations were made upon the same patient it is just as difficult to trace any constant connection between excretion and fluctuation in symptoms. Since, however, an increased amount of uric acid in the urine may mean either that there is a large amount in store, or that it is being rapidly washed out, and, on the other hand, a diminished quantity may mean either that little is being formed or else that it is being held back in the tissues or again in the blood, it is very difficult to use these figures against any theory which might be brought forward.

As to the total daily output of uric acid it is equally difficult to connect increase or decrease with definite symptoms. In not a single instance did it reach one gramme per diem. The nearest to it (.870 mgr.) was from the case of gall-stone.

The case of severe headache with a large proportion, also had rather a large total amount in twenty-four hours.

An auto-intoxication theory might easily be built upon the extremely frequent and important connection between constipation and conditions of great depression.

It is important to correct this symptom, and a permanent improvement is very likely to accompany the abatement of nervous symptoms, yet the latter does not follow with that speed and certainty which we should have a right to look for if melancholia were merely a sort of narcotism from retained intestinal toxins. There is as yet no distinct chemical evidence of such an action.

The secretion of the skin is as likely to be increased as diminished, so far as quantity goes, and I am aware of no observation as to its qualitative condition.

In short, we may say that while it is very important for therapeutic purposes that all the secretions should go on properly, we cannot point to any one of them as more to blame than another as holding back excrementitious matter, nor to any one constituent as the specific poison.

The making of fat and blood are almost proverbially connected with the cure of nervous debility, since their development has been systematized by our distinguished countryman, Weir Mitchell, and his followers.

Blood examinations are not difficult nor time destroying to make, but are unfortunately wanting in accuracy, when dependent upon color comparisons as so many of them are. Many such have been made by myself, and afterwards the same specimen estimated by several of the nurses, who acquired a considerable experience. The discrepancies in the individual readings of the Fleischl hemometer were usually decided and the averages varied between different observers within quite wide limits, and, what is especially unfortunate, the differences were not constant and no personal equation could be established by which the reading of one observer could be reduced to that of another. I find in my own case that I almost invariably read a higher percentage than any of the nurses, but the difference was not constant. I did not, however, obtain absolutely high results. I think the establishment of a physiological standard by a large number of observations and also some sort of approximation to the limits of error in personal

equations, would be a very useful piece of work. In the hands of the same observer, however, for purposes of comparison the Fleischl hemometer is a very useful and convenient one.

For the globular richness the hemocytometer of Hayem and Gowers, especially in the form now usually employed of Thoma-Zeiss, is, if a sufficient number of observations be made, an extremely useful instrument for diagnosis, but as many of you know, a most wearisome and time-spoiling one. A standard for this is needed also.

I have a strong impression, based however on too small a number of observations to make it more than that, that the Thoma-Zeiss now in use would give a considerably higher average than a Gowers made in this country, which I employed some years ago.

An extremely useful instrument, not requiring so much delicacy of manipulation as the blood-counter or the color-tests, and giving, it seems to me, very trustworthy results, is the centrifugator or hematocrit as improved by Dr. Daland and Mr. Metzger of Philadelphia. This gives the actual proportion, by bulk, of red corpuscles in a large drop of blood and, with a little care, the white corpuscles, too, can be determined with a useful degree of accuracy. With this instrument and the Fleischl it seems to me that the condition of the blood can be followed with only a moderate expenditure of time, the numerical estimation and the differential examination of white corpuscles being needed chiefly for a single or repeated diagnostic examination.

When we speak of anemia, however, we have in mind two different conditions which are very apt to be confounded. By local anemia we generally refer to the bulk of fluid-blood brought or remaining in the part, but when we talk of anemia in general, it is a question, not of bulk, but of richness in corpuscles and color, forgetting that it is just as possible that the total amount of blood in the body may be deficient as that contained in some portions.

This total quantity it is evidently utterly impossible to measure; in fact it is so difficult to measure even after death that the physiologists have been unable to get at it with satisfactory accuracy except by quite elaborate procedures. We can only guess at it by the color of the skin and visible mucous membranes, the tension of the pulse, and the rapidity of flow from a puncture and so on, which are all obviously only rude methods of making several local estimates to be combined into a general one. I have certainly found what seemed an abnormal difficulty in obtaining from a puncture a satisfactory amount of blood for some examinations, on account of the sluggishness of the flow, in cases where the quality was not very deficient. There seems no reason why this total quantity might not vary considerably in different persons, as well for instance as adipose tissue; so that a person with a very good count as regards corpuscles and color might really be anemic, that is, not have enough to go round properly.

Speaking in a general way, I should consider a large part of our patients somewhat anemic as to quality, that is, they have a count a little below the normal and a color a little below that again, as is well known to be the rule in symptomatic anemia, and the reverse of the relations existing in pernicious anemia. The quantity, had we the means of measuring it, I feel quite confident, judging from the complexion, the

slow bleeding from punctures and the peculiar pulse and tracing, would be decidedly below the standard of health.

Hence many of them "pan out," so to speak, in the instrumental tests, better than they look and better in fact than they really are.

On the other hand, extreme anemia, excluding cases of organic disease other than nervous, is not common. When found in a patient sent in with a diagnosis of some functional nervous trouble I consider that it calls for special care in the search for some underlying condition.

A very good blood color, that is, one of 75 or 80 per cent. Fleischl, is not at all inconsistent with serious and persistent debility and many nervous symptoms. I speak of this as "good" because I am sure that it may often be found in persons in excellent health. I cannot get much above this in my own person, and I have heard the same remark made by a colleague of sufficiently healthy embonpoint and rather an unusual (for an American) floridity of complexion. The statement has also been made by others that the standard (100% = normal) of the Fleischl is set too high for the average American.

Thus a good blood-count is of favorable import as regards the condition of the general health and, of course, on that basis, of a favorable tendency as regards special nervous symptoms, but it is not at all conclusive as regards speedy recovery. One patient who had a color-test of 87 per cent. has been an invalid ever since and has applied to be re-admitted. Another with 87 per cent., was somewhat relieved by local uterine treatment but said she never expected to sleep well again. Several others with from 75 to 95, as determined here, have remained invalids for months after leaving, including one case of chronic insanity with delusions.

These cases are not brought forward as a basis for a rule, for the examination has not been made as a matter of routine. Most patients, where the general appearance coincided with the symptoms, were not examined at all in that way. One of the most striking cases was that of a woman whose appearance, emaciated, pale, worn and distressed, corresponded exactly with her complaints of pain in every part of her body, which we, as well as our predecessors and successors, found it equally impossible to account for or to relieve. We have heard that she has since been in an insane asylum. She had, however, two days after admission, color 75, corpuscles 4,650,000. Three weeks later color 66, and two months and a half later 76.

In fact, the relations of blood-richness, quality and local distribution may be best understood by a comparison to the water-supply of a large manufacturing and business city and an outlying suburban district. A moderate diminution will not be allowed to interfere with the working of the important interests of the great centre but will be shown chiefly in the dirtiness of streets and a want of color in the outlying lawns and gardens, while, on the other hand, no possible abundance, though it may make the wilderness to blossom like the rose, can restore business activity to machinery and apparatus which is not fitted to make use of it. If water-wheels are broken down and rusted from disuse in a long-continued drought they cannot be set going to advantage all at once by a fresher.

This comparison might be carried a step further by suggesting that the quality of blood, as well as of water, may vary in different parts of the same system.

It is strikingly shown, not only by well-known chemical results, but by the interesting observations of the younger Mitchell on the immediate increase of the red corpuscles after massage, showing that they must have been stirred up and put in general circulation from the deeper portion of the vessels just as a local freshet or energetic gang of loggers increases the logs in the river below. The time is too short to make a theory of new formation at all tenable.

It is more than probable that many of the nervous symptoms connected with disturbances of the circulation depend rather upon deficient blood tension, pressure and supply than upon its exact chemical composition. A person with blood of the richest quality may faint on very slight provocation if the heart's action is so depressed as to suddenly alter the cerebral pressure. On the other hand, the frog's reflexes act for hours after his blood has been thoroughly replaced by a solution of salt. A similar result is seen in the rapid restoration from intravenous salt injections in the cholera patient, whose blood is too thick instead of too thin, and in other kinds of collapse, where a hemorrhage has drained the vessels of their contents as a whole, without any proportional impoverishment of any special element. The condition of the circulation in a considerable number of neurasthenics may be described as a too small quantity of blood which is a little "off color" pumped feebly into resisting arteries.

The general nutrition, as indicated by gain or loss of weight, is usually looked upon as having special significance with reference to prognosis and treatment in functional nervous affections, and increase in flesh with increase of nerve force as almost convertible terms.

It is highly satisfactory to have so simple a standard. Fortunately it is often correct, and cannot in any event easily lead to any harmful error, but it is worth pointing out that there are important and not rare exceptions to the rule.

A considerable and nearly constant rise of weight, in a case which is decidedly under weight to begin with, is undoubtedly of favorable import. It proves, of course, that the digestive organs are doing their work with effect, even if it should happen to be with some difficulty and discomfort. If this be accompanied with decided and more or less parallel gain in the specially nervous symptoms, like insomnia, headache, backache and general strength, the prognosis is decidedly favorable, not only as to speedy but somewhat permanent recovery.

Where, however, the gain is slow and slight and the nervous symptoms do not improve for some time, it seems highly probable that the patient, even if ultimately materially better, will be very likely to fall back again when the surroundings become less favorable.

If the patient be already of sufficient body weight the desirability of increasing it is not great, and if a gain is made, or at least any extreme gain, it cannot be considered an advantage.

These remarks apply especially to well-marked neurasthenia and melancholia. Fat hysterics and demented are sufficiently well known.

A constant and decided loss of flesh is, of course, an exceedingly unfavorable condition, but I can recall at least one case where the patient made a fluctuating record of weight with the ultimate loss of a pound or two, having been below weight to begin with, where

the general improvement went on in a similar fluctuating way, but at the time of discharge was in every respect a considerable one. Generally the fluctuations which occur coincide pretty closely with the improvement, or the reverse, of the other symptoms. One case, however, being rather a stout woman of the flabby neurasthenic type, gained quite rapidly in weight for some months, and at the same time slowly as regards nervous symptoms. Then she fell off less rapidly but steadily in weight, but did not lose the gain made in other respects, and has continued to improve since. I do not, however, know the history of her weight after leaving the Asylum.

On the other hand, there have been quite a number of cases where the improvement has been not only real but very striking, with but little, if any, increase in weight, and this, too, when the original weight was below normal.

Of course, in cases in which the chief severity of the symptoms consists in digestive derangements the gain of weight is especially encouraging.

It is not only practically true but theoretically reasonable that the building up of all the tissues as indicated by body weight, although a most excellent, and in many cases essential, preparation for nervous repair, should not be all that is needful. The molecule of nervous protoplasm is undoubtedly a most complex one. It is the most delicate, most choice and precious of all living matter, and it is not to be built up by the same gross processes which turn starch and sugar into fat, or even gluten into blood-albumin.

Intellect, feeling, courage and will are not to be expressed in terms of potatoes or eggs or phosphates, even "vitalized," or alcohol or coffee.

The neuron is a growth, a structure, with its periods of increase and decay, and it is a view which leads to imperfect practical results to look upon it simply as a reservoir in which energy can be stored up at will by a mere outside pressure of nutritive material.

It is undoubtedly true that every nerve process has its equivalent in a chemical decomposition, but it is not possible to reverse the process and make chemical, electric or any other force into nerve action at will, any more than it is possible to make the whole of the mechanical energy of a pound of coal into light without the greater portion of it going inevitably to less subtle and less desirable forms of force. The most that can be done is to present an abundant supply of material from which the nerve cell must select and build up according to its own law of growth.

I have no doubt that in many cases where we see a parallel improvement in weight and in general recovery of nervous tone, that the general nutrition is favorably influenced by the restored function of the trophic nerves in stimulating secretion and growth, quite as much as because an excess of nutriment has been presented to the nervous centres.

People generally grow fat because they have ceased to worry quite as much as they grow cheerful because they have become corpulent. Cæsar says indeed:

"Let me have men about me that are fat,
Sleek-headed men and such as sleep o' nights;
Yond' Cassius hath a lean and hungry look:
He thinks too much: such men are dangerous."

But the Scripture has it (Deuteronomy xxxii, 15):

"But Jeshurun waxed fat and kicked: thou art waxen fat, thou art grown thick, thou art covered with fatness; then he forsook God which made him, and lightly esteemed the Rock of his salvation."

If we exclude the distinct hysterical element for which numberless theories have been framed, it is by no means easy to make one which shall cover all the cases in which nervous exhaustion seems to play the principal part, and the chief difficulty appears to lie in those not very rare cases where the assignable or assigned cause is entirely inadequate to the effect claimed, and yet where the result is approximately the same as when the exhaustion is the legitimate consequence of actual and excessive overwork and anxiety, or overwhelming shock.

We can understand why successive, perhaps unexpected deaths of near friends, perhaps after an exhausting period of nursing, should produce a complete temporary loss of mental vigor, and an absolute inability for action or decision, as well as many disturbances of the nutritive functions; but when a somewhat similar condition is supposed to remain for many years after the peaceful death of a parent at a good old age, except by assuming that immensely greater differences exist in nervous susceptibility of different persons than can be detected in regard to ordinary diseases, it is difficult to make the same anatomical explanation cover both cases.

We have now accurate anatomical descriptions by Hodge and his successors in the work, of the appearance of exhausted nerve cells under the microscope, showing that they undergo decided changes after rest and action identical with those to be seen in other cells, those of the stomach for instance, when in a state of functional activity or the reverse.

The condition of permanent exhaustion has not, to be sure, been directly observed in the same way, and it is doubtful if it ever will be, since the changes are of a too delicate kind to be preserved for hours after death, while, experimentally, it would be difficult to imagine a method of imitating the kind of constant irritation which brings about this condition in our own species.

Perhaps the victims of the abominable experiments of Mantegazza might have furnished material at a price infinitely beyond any possible advantage from such refined cruelty.

The nearest approach is perhaps to be found in the lesions of chronic insanity, which are, however, even now not clearly ascertained, except in general paralysis, where they are, as you know, of a more fixed, and probably of a more obvious, character. In the latter disease, we have, in a large proportion of cases at least, toxic and diathetic causes at work, in addition to the simple chronic congestion of over-excitement.

(To be continued.)

Original Articles.

PENETRATING WOUNDS OF THE ABDOMEN.¹

BY JAMES G. MUMFORD, M.D.

In these days no one man can have a large experience with penetrating wounds of the abdomen. The fact that every case of this kind creates a furor in the community and a stir of surgical interest is evidence enough of this. I doubt if any man in this audience has had a dozen such cases in his whole experience.

¹ Read before the Surgical Section of the Suffolk District Medical Society, May 1, 1895.

With the object of studying this subject, I have taken the experience of the Massachusetts General Hospital for twenty-four years, and attempted to thoroughly familiarize myself with the cases entered there within that period. They form the basis of this paper; but unfortunately, and to my surprise, I find that the total number is but thirty-eight.

The scope of this paper, therefore, is to take up the list of cases in considerable detail, to analyze them with some care, to compare the results reached with the results of other men, and to draw what conclusions such data seem to justify.

The police records of Boston may show a surprising increase in assaults and murders of recent years; I fancy they do so. Certainly the hospital records for the past decade indicate a very large increase in abdominal wounds due to crime.

Of penetrating wounds of the abdomen, from 1869 to 1873 there were none; in 1873 there was *one*; in 1874, *one*; in 1877, *one*; in 1878, *two*; in 1882, *one*; in 1883, *one*; in 1886, *three*; in 1887, *one*; in 1888, *three*; in 1889, *three*; in 1890, *one*; in 1891, *three*; in 1892, *five*; in 1893, *eight*; in 1894, *four*; a total of thirty-eight in twenty-four years; and of the twenty-four, nine years were entirely destitute of any such casualty.

Previous to 1870, which date I have chosen as a convenient point of departure, the cases of penetrating shot wounds of the abdomen were still rarer. In the hospital records, from their beginning in 1821 down to 1859, there are none such. From 1859 to 1870 there are seven cases with five deaths. One of the two recoveries was from an old war wound, which had terminated in convalescence with fecal fistula; in the other there was no evidence of penetration. If we count out these cases, as we are justified in doing, five cases remain, with a mortality of 100 per cent.

For the sake of our death-rate it is perhaps fortunate that the very large majority of cases since 1870 was in young, vigorous adults; five were women, thirty-three were men. At the Massachusetts General Hospital the death-rate from these injuries, especially from shot wounds, is high to-day; as high practically as it ever was.

The work of W. T. Bull, of New York, in 1886, as much as any one thing, gave the impetus to rational operative treatment in these cases; and since that time a large number of successful operations have been reported from other quarters. The best series of this kind that I have found, and for the purposes of comparison, far the most satisfactory, is that of A. B. Miles, of New Orleans; his paper was published in the *Annals of Surgery*, 1893. He remarks that abdominal sections are wise, as successful results are on the increase, and that the inaction method is rapidly becoming obsolete. This statement is in a sense true, but is somewhat misleading, I believe.

P. Ralph Egan, U. S. A., contributed a very valuable paper on a case of gunshot injury to the ascending colon, last year in the *Boston Medical and Surgical Journal*. His article is lucid and conservative, and he insists upon the fact, long recognized but too often overlooked, that the character and seat of visceral perforations are most important factors in prognosis.

Miles had thirteen operative cases with eight deaths. This is a remarkable showing; but in spite of so brilliant a success he appears to apologize for having such a high death-rate.

A study of his cases shows that in all of the eight fatal ones there was extensive laceration of the small intestine, with fecal extravasation. Why did the remaining five recover? Four of these fortunate ones were vigorous young men, operated upon within one or two hours of the accident, and found to have *no fecal extravasation*, the bowels being empty. They may possibly have recovered without operation. That they did recover after a careful enterorrhaphy is not surprising. The fifth case of recovery is the only one, as reported in this list, which is of any unusual interest. He was a young man in good condition. Profuse hemorrhage, and ten large jejunal wounds with extensive extravasation were found. This man was washed out and stitched. He recovered.

I might go into an extended discussion of the causes why eight of Miles's cases died and the first four above mentioned recovered. Suffice it to say, that after a considerable study of similar cases I find that those which die are mostly similar to those in his mortality list, and that those which recover usually present conditions such as did most of his successful cases — a peritoneum uncontaminated by feces.

I shall consider both stab wounds and shot wounds in this paper, because I fail to see any essential distinction between them when the viscera are perforated. The greater rarity of stab wounds perforating the viscera accounts, of course, for their lower mortality.

This consideration regards treatment only. On the other hand, because there is a vast distinction between shot and stab wounds, as regards their actual mortality, I shall discuss each class separately.

With both classes of wounds I am convinced that exploratory operation is almost imperative in all cases.

Stab wounds very rarely perforate the viscera.

In my list there are nineteen stab cases in which the abdominal cavity was opened. They were all operated upon. This is in itself an interesting comment on the boldness of surgeons in such cases. Where a knife in the assassin's hand has already opened the peritoneal cavity the surgeon seems ready to follow with his scalpel. I refer more especially to fifteen or twenty years ago, when gunshot wounds of the abdominal cavity were seldom explored.

Three of these nineteen stab cases died, a mortality of 15.7 per cent. All three were unusually serious cases.

In the first the external iliac artery was opened, and the man died of hemorrhage.

In the second case the spleen was lacerated. According to the Civil War statistics this injury is attended with a mortality of 93.1 per cent. In this case of ours, however, it seems probable that the man might have recovered had it not been for an unfortunate complication at the time of the accident. He was stabbed in a street row. A neighboring doctor was summoned who examined him as he lay upon the ground, thrust his finger through the epigastric wound and explored the viscera. With what object it is hard to conceive. At the hospital the hemorrhage was easily controlled — none but the splenic lesion existed — but the man died of acute peritonitis on the ninth day.

The third fatal case of stab wound occurred in the autumn of last year. The omentum and stomach presented large ragged lacerations, with free hemorrhage and extravasation of the stomach's contents. The man

died of peritonitis on the third day. I shall take occasion later to speak of the mortality in wounds of the stomach.

All of the remaining stab cases, sixteen in number, recovered; and of these sixteen, fifteen escaped penetration of the alimentary track. That, in a word, is their history; and they may be dismissed with a very few words. The wounds were in all parts of the abdomen, inflicted with all kinds of cutting instruments; rusty nails, splinters of wood, razors and stilettos. The omentum was frequently lacerated, the viscera sometimes protruded, and there were several cases of considerable hemorrhage, but in no case, when the gut remained sound were there any symptoms to cause alarm.

All of these cases were operated upon, and since 1885, thoroughly explored. The omentum was frequently resected when it was found to protrude; but whether returned or resected, the patient always recovered. All this but goes to emphasize again the safety with which the abdominal cavity may be opened for exploration; and such statistics may be used as a corollary to the old problem, Shall the abdomen always be opened after gunshot injuries?

Of these stab wounds which did not prove fatal one interesting and unique case remains to be mentioned:

In the service of C. B. Porter, some two years ago, a lad of fifteen was brought to the hospital, with a three or four inch lacerated penetrating wound in the left inguinal region. Three feet of the small intestine lay outside on the abdominal wall, and liquid feces oozed from a small rent in the gut. Two hours previously the boy had fallen upon a hay-fork, one of the prongs of which had not only transfixed the bowel, but had brought it outside the peritoneal cavity. The very interesting point in the case is that, although there was extravasation of feces, the general peritoneal cavity remained unpoluted; the abdominal wall being the only sufferer. The bowel and torn mesentery were thoroughly cleansed, repaired and returned to the abdominal cavity. The parietal wound was sewed up without drainage and the boy recovered perfectly in three weeks.

Of these nineteen stab-wound cases but one occurred prior to 1886, that being the fatal one in which the external iliac artery was wounded.

With that we may dismiss the stab cases for the present.

The subject of far more vital interest is that of gunshot wounds. I have not been able to draw a careful distinction between injuries at long and short range or from different calibre bullets. Those points are not always noted in the records, and I cannot see that they are factors materially affecting the treatment.

The number of gunshot wounds and of stab wounds is the same for the last twenty-four years, namely, nineteen of each variety.

Twelve of the gunshot victims died, a mortality of 63.15 per cent.; seven recovered. Of these twelve fatal cases, the five prior to 1888 were not operated upon. The seven since 1885 were all operated upon. In all of these twelve cases the viscera were perforated; the deaths being due to extravasation from the stomach and intestines, to injury of the kidneys, or to a wounded aorta.

In one instance an enormous ragged hole in the stomach, with extravasation, caused death. In all of the seven cases in which the small intestine was

opened, death followed. In two cases a wounded kidney was the cause of death; in one case a wound of the aorta; and in another a wounded spleen.

Many of these cases had other and obvious complications, but the immediate causes of death were those given above.

Be it noted that, as with stab wounds, so with gunshots: in every case in which there was extravasation into the general peritoneal cavity, whether or not an operation was done, the patient died.

Including stabs and gunshots, of six wounds of the stomach, four had extravasation and died. Of eight wounds of the small intestine, seven had extravasation and died. Of three wounds of the colon, all died with extravasation. Of two wounds of the spleen, both died. Of four wounds of the liver, two died. The aorta was wounded once, and the external iliac once; both cases died. The kidney was wounded twice; both cases died. But in twelve cases the abdominal cavity was opened *without* injury to the viscera (by stab wounds eight, by shots four), and every one of these cases recovered rapidly and completely.

Of the seven cases that recovered after gunshot wounds, five had no perforation and two had perforation of the stomach only.

The reason for this lowered mortality in cases of gunshot wounds of the stomach is not far to seek.

That the mortality is distinctly lower than with wounds of the small intestine has long been well recognized. In the Civil War records the mortality for stomach wounds is put as low as 75.9 per cent.; while that for the intestines is put at 89.4 per cent. (a misleading figure, because wounds of the small intestine are more fatal than wounds of the colon).

Now the mucous membrane of the stomach is very movable, as the submucous tissue is very loose. The folds of mucous membrane meet at different angles and so form a plexiform appearance. The external longitudinal muscular layer is much thicker than the inner circular layer. The general structure is much thicker and looser towards the cardiac end, and the whole organ has from one-third to one-half again the thickness of the small intestine. Hence it will be seen that when a small hole is punched through the stomach the mucous membrane acts like a valve, the muscles promptly contract and it becomes almost impossible for extravasation to take place.

The small intestine is thinner than the stomach; its various coats are more closely associated, and the muscular longitudinal layer progressively diminishes in thickness towards the ileo-cecal valve.

In the large intestine the muscular coat becomes progressively thicker towards the rectum, where it eventually becomes the vigorous internal sphincter. The mucous membrane is more loosely attached, is thinner and less glandular than in the small intestine. Moreover, the colon is in part extra-peritoneal; and, normally, the contents, being less liquid than in the small intestine, do less easily escape when the bowel is punctured.

These are anatomical reasons, in themselves quite sufficient to account for the relatively lower death-rate after wounds of the stomach and large intestine.

I doubt if the chemical and bacteriological factors enter very largely into this problem. Extravasations from the colon and ileum may be of a more infectious nature than from the jejunum and stomach, as has been asserted; but the study of a very large number

of cases convinces me that nearly all extravasations are fatal. Stomach wounds with extravasation are fatal; without extravasation they are not. The same is true of wounds of the small intestine; but extravasation follows most small intestine wounds; it does not follow most stomach wounds.

The hemorrhage from penetrating wounds is frequently very considerable, especially from the mesentery and liver; but there were very few cases in which any hemorrhage was the obvious and immediate cause of death. Of nineteen cases with free hemorrhage into the peritoneal cavity, eleven died, but nine of these cases were complicated by serious wounds of the viscera. In two only could death be directly attributed to hemorrhage. The reason for this present low death-rate from hemorrhage lies in the fact that in most cases the bleeding is early checked by operation.

Wounds of the liver and spleen are not usually followed by fatal hemorrhage, but from wounds of the kidney the mortality has been high of recent years. The Civil War statistics put it as low as 66.2 per cent.; but it seems as though this must be inaccurate to-day.

Wounds of the kidney have been thought to call for nephrectomy. In view of this sentiment, a recently reported case by Tiffany, of Baltimore, is interesting. It was that of a man shot through the left lumbar region. The kidney and spleen were perforated, but the bowel was intact. Tiffany opened the abdomen in front, put a stitch through the bleeding spleen, tamponed the kidney and cleared out from the abdominal cavity a considerable amount of free blood. The patient made a perfect recovery without a permanent urinary fistula.

After the accidents the lapse of time at which most of these cases were seen did not vary much. Treatment began, as a rule, in from one to three hours. The longest time which elapsed was seventy hours; up to which time the patient refused operation, which was urged. In this case perforations were discovered by forcing air through the gut, submerged in water. A general peritonitis existed, however, and the man died.

Most of the fatal cases were brought in in a state of shock or collapse, and died in a few hours. According to the records but two fatal cases were not in collapse on their entrance.

The great majority of these cases of collapse were not due to hemorrhage, but to extravasation. What is the nature of the shock in these cases and why are they so invariably fatal? As has been stated before, not a single case of extravasation survived, whether or not operated upon. The constitutional disturbance is nearly always immediate and profound; but I believe the causes are too obvious to permit the use of the term shock. The action of the poured out chyle and feces seems very similar to what takes place after the old-fashioned catheter chill. As with it, the process seems to be an acute infection. The absorptive powers of the peritoneum are much greater than those of the urinary track, and the complete systemic toxemia is immediate and profound. Usually this takes place from very slight soiling of the peritoneum, and calls for the promptest surgical relief. These are cases in which any delay is most dangerous. It would seem that the normally protected peritoneum only is capable of absorbing the septic material; for in that case of the boy wounded by a hay-fork the extravasated feces

came in contact only with the cold and exposed peritoneum outside the abdominal cavity. In that case no peritonitis ensued and this patient recovered. A wound of the gut without extravasation is not dangerous. An extravasation without general peritoneal soiling is equally harmless.

In support of these propositions various pathological surgical conditions are in evidence. We know how trifling a matter it is to open the bowel for artificial anus, and how the encapsulated abscess of an appendicitis ceases to be dangerous when drained.

To carry the comparison farther, as others have done, we know the frightful and familiar symptoms which almost immediately develop after perforation of the appendix free in the abdominal cavity; and the high mortality following that event. Exact statistics of the mortality in that condition are difficult to obtain from the complicated nature of the case; but reliable operators place it very near 100 per cent.

This series of cases, with the results obtained therefrom, seems to bear out the modern teaching, that in all cases of doubt we should operate. If there is hemorrhage or extravasation, they must be checked; if not, no harm will have been done.

A few exceptions may, of course, always be found to prove any such rule. For instance, last May a man entered the hospital twelve hours after the accident, having been shot high in the epigastrium. He was distended, tender; vomited; was dull on percussion in the flanks. He was not operated on. After twenty-four hours he began to improve, and eventually recovered. Here was doubtless a case of perforation of the stomach, with hemorrhage, which was not excessive. I think there could have been no extravasation. It was just one of those cases in which one need not wonder at the recovery.

Another case of unusual importance last December was that of a man who was shot through the epigastrium. He was in excellent condition on entering the hospital. He had vomited blood before his entrance. One hour after the accident abdominal section was done. Free blood was found in the abdominal cavity. The mucous membrane of the stomach was seen protruding through a hole on the anterior surface of that organ. The posterior wall was also wounded. There were two holes in the jejunum, four in the ileum and two in the mesentery—ten in all. These were repaired and the abdomen flushed and closed with drainage. For four days the man did well apparently; but by the sixth day marked general sepsis had developed, and he died on the eighth day. At the autopsy no previously unobserved visceral injuries were discovered. Of all the cases which survived operation to die of sepsis, this man lived the longest.

Most writers on this subject give the old classical symptoms by which these lesions are to be determined; but for us to-day these symptoms are almost valueless, because they refer commonly to several days after the accident, when peritonitis and other complications have fully developed. In our experience we do not care for these evidences of advanced disease. We see our cases early and must act at once. We do not care to distinguish between lacerated, contused, incised or punctured wounds. The fact of perforation is enough. Nor do we differentiate between lesions of the duodenum, jejunum, ileum and colon. The books also tell of feces and worms seen at the external opening, of emphysema, of bloody vomiting and bloody stools, of

secondary shock and fecal fistulæ. Most of these things are late phenomena. We wish to act before they have a chance to develop.

The differential diagnosis between wounds perforating or not perforating the intestines remains as difficult as ever, prior to operation. The symptoms of collapse and shock do not necessarily indicate perforation. Vomiting means nothing. It is seldom bloody, even when the stomach is penetrated. Pains may be localized or general, or not present. Pain at the umbilicus is by no means so common as some writers say. It is rare, and is as illusive as the so-called McBurney point in appendicitis. The use of gas insufflations is quite commonly pronounced dangerous. In many cases extravasation has been caused when none previously existed. The temperature and pulse, too, are of little value. The temperature is usually normal or subnormal. With fatal perforation the pulse may be slow and full. A rapid and feeble pulse may exist without serious internal damage. Hematuria is uncommon, as injuries to the kidneys, ureters and bladder are rare. Bloody dejections are still rarer. They did not occur in one of these thirty-eight cases. Of course, fecal extravasation through the parietal wound would settle the diagnosis; but that did not occur in this list of cases.

We must return, then, to our rule: When in doubt, operate. And, as has been abundantly proven, in no case has this procedure diminished the patient's chances of recovery.

There is not much that one can add in regard to recent improved technique. The general rule must be resection when necessary, with the end-to-end suture—the value of Murphy's button is still *sub judice*—and stitching up small punctured wounds.

When there is great distention with gas or feces I believe that free incision of the bowel with evacuation, as urged especially in a recent paper by S. J. Mixer, might prove of great benefit. It has done so in cases of acute peritonitis.

The prognosis in penetrating wounds must depend on conditions already described in detail; extravasation being the one important factor, with death the almost inevitable result.

The following table shows the high mortality when extravasation exists, as well as the relative mortality in gunshot and stab wounds:

GUNSHOTS (19).			
		Died.	Recov'd.
Operation		6	3
No operation		6	4
		12	7
Extravasation, { operation, 5 }			
{ no operation, 4 }		9	0
STABS (19).			
		Died.	Recov'd.
Operation		3	16
No operation		0	0
		3	16
Extravasation, { operation; extravasation }			
{ was altogether extra-ab-			
{ dominal. }		0	1

To sum up this paper in brief:

Gunshot wounds show a much higher mortality than stab wounds; but those stab wounds which penetrate the viscera show a mortality equally high.

Wounds of the small intestine are usually fatal. Wounds of the stomach may be survived.

Explore all doubtful cases. This is the course of least danger.

[illegible]

Barring hemorrhage, early death after the accident is not from shock but sepsis; because,

Finally, this is seen only when the fatal extravasation takes place.

THREE CASES OF LAPAROTOMY FOR PENETRATING WOUNDS OF THE ABDOMEN,

WITH A REPORT OF 56 CASES OF PERFORATING ABDOMINAL WOUNDS OTHER THAN GUNSHOT WOUNDS.¹

BY CHARLES L. SCUDDER, M.D.

[The 56 cases have been tabulated from literature since the tables of Morton and Markoe, including the past five years; and I wish to thank Dr. H. A. Lothrop for the collecting of material on which this tabulation is based.]

CASE I. A woman, twenty-five years old, entered the Massachusetts General Hospital two hours after having been stabbed in the abdomen. Her general condition was excellent, but for considerable shock. Examination found a wound one and one-half inches long, four and one-half inches below the umbilicus and three and one-half inches from the anterior superior spine of the left ileum. Six inches of omentum were protruding from the wound. The omentum was tied off with a double silk ligature, and the part external to the peritoneum was removed. The stump of the omentum was returned to the abdominal cavity, having been previously cleansed with boiled water.

A careful examination of the neighboring coils of intestine found no injury. A sponge carried well into either loin returned dry. No irrigation was used. The wound was closed with interrupted sutures of silkworm gut. The woman made an uninterrupted recovery.

About six weeks after the operation, and after apparent recovery, having been discharged from the hospital, she returned to the hospital presenting a tender mass in the left side of the abdomen; walking slightly bent over to the left side and with a temperature of 102° F. Rest in bed and the application of poultices resulted in a fall of the temperature to normal and the subsidence of the pain. The mass diminished in size, but remained present when the patient was again discharged, since which time she has not been seen.

This case is interesting in that it occasionally happens that after ligature of a portion of the omentum and its removal, one finds inflammatory disturbances in connection with the omentum stump. Dr. Bull,² of New York, has reported cases in which he has had similar experiences following partial excision of the omentum in cases of hernia, and has emphasized the importance of a recognition of this condition.

CASE II. A man, twenty-two years old, entered the Massachusetts General Hospital shortly after having been stabbed in the left hypochondrium, three fingers' breadth from the umbilicus. The wound, as indicated by the probe, passed obliquely through the abdominal wall. The man was in good condition, and presented no marked constitutional disturbance. The wound was carefully explored and enlarged. The epigastric artery was found cut and bleeding, and the opening into the peritoneum was one inch in length. No blood was found in the abdominal cavity. The left belly of the rectus abdominis was nearly divided.

The epigastric artery was ligated. No irrigation was used, and the abdominal wound was closed with silkworm-gut sutures. The man made a good recovery.

CASE III. A woman, twenty-eight years old, entered the Massachusetts General Hospital three-quarters of an hour after having been stabbed by a stiletto, four fingers' breadth from the ensiform cartilage, from the umbilicus and the left costal cartilages. The wound was half an inch in length. There was considerable shock and evidences of intra-abdominal hemorrhage. The wound was carefully explored and enlarged. The omentum was found intact. The bowel was found intact. The abdomen contained considerable blood, so that it was difficult to determine the source of the hemorrhage. The abdomen was irrigated with warm, sterile water until the return water came nearly clear. It was then found that the left lobe of the liver had been wounded. This was the source of the hemorrhage, which now had ceased. The liver wound was cleansed and sutured. The abdominal wound was closed with interrupted silkworm sutures. The woman made an uninterrupted recovery.

In Morton's group of 79 cases, the liver was wounded nine times; and of these nine cases in which the liver was wounded, four died. There are three methods of treatment of wounds of the liver in vogue, each directed to checking hemorrhage: The use of the actual cautery, the use of sutures, the use of a tampon.

Of the 56 cases of perforating wounds of the abdomen here tabulated, 9 cases died and 47 cases recovered, making a mortality of 16 per cent. Morton reports 79 cases with 31 deaths, a mortality of 39 per cent. Markoe reports 54 cases with 8 deaths; a mortality of 14.8 per cent. Such mortality-rates are of very little importance or interest unless the individual cases are carefully studied.

The causes of death in the cases tabulated were as follows:

A wound of the colon, not detected; death from peritonitis.

Wounds of the small intestine, not detected; death from peritonitis.

Peritonitis due to infection from a hernia of two feet of bowel through the perforated abdominal wall.

Wound of the liver, the kidney and the chest wall; peritonitis.

Two cases of wound of the spleen, death from hemorrhage.

Gangrenous hernia through the abdominal wall; peritonitis.

Stab in a pregnant woman; hernia of the bowel, great shock, abortion, peritonitis.

Secondary infection from an abscess forming in the track of a pitchfork handle which entered the scrotum, followed the abdominal wall and entered the peritoneum in the hypochondrium.

The table shows a second case of empalement on the handle of a pitchfork, which entered the scrotum, passed up the abdominal wall and entered the general abdominal cavity. Recovery resulted in this case because of the early interference by thorough cleansing of the entire wound, which was found to be septic.

From a study of the cases here tabulated, the following would seem to be reasonable conclusions:

Given an abdominal wound, proof of penetration through the peritoneum should be sought. This is

¹ Read before the Surgical Section of the Suffolk District Medical Society, May 1, 1895.

² Annals of Surgery, vol. xvii.

best accomplished by enlargement and careful investigation of the original wound.

Penetration having been found, immediate enlargement of the wound should be made for careful exploration of the abdominal contents.

Irrigation with warm salt solution should be employed if there is any soiling of the peritoneum, and if there is much blood present.

The use of the probe to determine penetration is often misleading and may give a false sense of security.

The absence of shock does not prove the presence of grave intra-peritoneal lesions.

A small parietal wound is not incompatible with grave intra-peritoneal injuries, as is evidenced by Case 47.

The possibility of intra-peritoneal strangulation through the wounded omentum must be kept in mind. Dennis, Morton and Markoe each report a case of intra-peritoneal strangulation associated with the conditions resulting from a stab.

The objects of a laparotomy following intra-peritoneal stab wounds of the abdomen are, to discover (if present) and check intra-abdominal hemorrhage, to close perforations of viscera, to prevent peritonitis and sepsis.

Clinical Department.

PYELO-NEPHRITIS; NEPHRECTOMY; RECOVERY.¹

BY S. VALE GOLDTHWAITE, M.D., BOSTON.

SOME of the special points of interest in the following case pertain to the widely differing opinions of several most able and experienced men relative to diagnosis, as the history of the patient will demonstrate, thus exemplifying how easily the best among us are sometimes misled.

I think, also, the history of the case would seem to suggest a greater dependence and reliance on surgical measures—more promptly applied—than on medical, dietetic, hygienic or any other mode of treatment.

Mrs. R., age thirty-eight. Four children. On Labor Day, September, 1892, felt sudden pains in left side, extending across the back; great soreness, tenderness and stiffness over the latero-dorsal region; muscles contracted; body curved inward laterally; could not lie down. Was very sick, and confined to bed two months. Pain more or less constant, and demanding morphine. During this time the patient lost much in flesh, but regained her usual weight during the following summer while in the country.

Her attending physician—a very able practitioner—diagnosed inflammation of the bowels, with typhoid fever. Patient continued in a fair degree of health, with occasional recurrence of pain in the side and back for one year.

In March, 1894, began to notice a gray sediment in the urine—most probably pus, according to later developments. Was much alarmed and troubled over this symptom—though in no pain or otherwise disturbed health—and consulted another most excellent physician, who diagnosed cystitis due to a cold. He

treated her accordingly for one month. His diagnosis was wholly favorable.

Not improving, the patient then saw another doctor—the third—who treated her for congestion of the kidney, and prognosed a cure in a few weeks.

In June she visited a very eminent surgeon, who attributed her symptoms to some suppurative disease of the pelvic organs, and advised an operation for their removal.

I saw the patient on the 3d of August, 1894. The symptoms had by this time become so typical of pyelitis with renal calculus, that I had no difficulty in forming a diagnosis to that effect.

Naturally, after so many different opinions from wholly competent medical men, the patient was now in a sad state of nervous distress—I may say distrust—and it was with difficulty that she was persuaded to again undertake treatment or advice.

It is especially noteworthy, that through all the later period of her sickness, the patient's chief complaint referred to the altered condition of her water; she did *not* complain of pain or any other physical discomfort.

Her urine contained about one-sixth, by volume, of pus; which was constant, though varying slightly in degree.

A very slight fulness was discovered—though ill-defined and painless—on the left side.

No improvement following treatment, and feeling that there were indications for a more strictly surgical consideration of the case, I asked Dr. Maurice H. Richardson to see the patient in consultation. He very promptly recognized the exact nature of the trouble, but advised the continuance of medical treatment for a short time, pending a microscopical examination of the urine, although expressing a fear that surgical measures would be demanded later.

The urine was submitted to a thoroughly able expert, who reported a diagnosis in favor of cystitis rather than pyelitis.

Patient failed slowly in flesh and strength up to January 15, 1895, when the pus suddenly ceased to appear in the urine. At once the patient began to improve in every possible manner, eating and sleeping well and in the best and happiest spirits during four weeks.

Being called again soon after, I found beginning evidence of general sepsis—alternating chills and fever, a thready and rapid pulse, with a general, vague restlessness, mental and physical.

Dr. Richardson again kindly saw the patient, and had no hesitation in advising immediate removal of the kidney. Subsequently the attending physician of another branch of the family was called, who promptly concurred in every particular with the surgical advice already given.

Operation was done on February 27, 1895, under the kindly and most valued supervision of Dr. Maurice H. Richardson. Chloroform anesthesia, most skilfully administered by F. P. Batchelder; assistant, Dr. F. A. King. Also present, Dr. Brewster, Dr. Bond, Dr. Miles and Dr. Hill. Incision from lower border of rib to iliac crest, corresponding very nearly to the so-called Langenbeck, that being found to extend over the most prominent aspect of the tumor.

No difficulty was experienced in quickly reaching and exposing the kidney, which was found much enlarged: Length, six inches; width, five inches;

¹ Read before the Surgical Section of the Suffolk District Medical Society, May 1, 1895.

thickness, four inches; weight, one and one-half pounds.

The separation of the kidney from its capsule was difficult and tedious, owing to strong and dense adhesions; and it was rendered the more so in consequence of the unavoidable rupture of the thin-walled mass, with copious escape of large quantities of pus, which deluged every organ in the abdomen and pelvis. Ureter and renal vessels easily reached and ligated. Comparatively slight hemorrhage. Wound cavity filled with large mass of iodoform gauze. Incision partially closed with silkworm gut.

On passing the catheter at the close of the operation the bladder was found to contain one pint of pus. I should think a pint escaped from the kidney also during the operation. In the pelvis of the kidney was found a stone one and one-fourth inches long, two-thirds of an inch wide and one-half an inch thick. The temporary arrest of the pus in the urine had been evidently due to the blocking of the outlet of the renal pelvis by this calculus.

The patient promptly recovered, with no distressing symptoms whatever—a fact which I attribute, mainly, to a most thorough and careful flooding and sousing of the abdominal and pelvic viscera with nearly twelve gallons of sterile salt solution.

In conclusion, I would offer as my humble opinion the advisability of greater care in diagnosis, earlier resort to surgery, and—other conditions favoring—the complete removal of the diseased kidney in preference to incision and drainage. Also, I should commend the lateral abdominal route rather than the lumbar, my first two nephrectomies having been done by this method successfully and without difficulty.

I submit the specimen for your inspection, together with a normal kidney for comparison as to size and shape.

A CASE OF STAB WOUND OF THE ABDOMEN, WITH WOUND OF THE INTESTINE; PROTRUSION OF THE INTESTINE THROUGH THE WOUND; OPERATION; RECOVERY.¹

BY GEORGE H. MONKS, M.D.

AT about three o'clock in the morning of the 13th of last February, I was called to the City Hospital to attend the case of a man, aged twenty-five, who had been stabbed in the abdomen with a pocket-knife. On reaching the hospital soon after this I found the patient lying upon the accident table, with a wound, about two inches long, in the right iliac region. Through this wound protruded small intestines and a bit of omentum, making a mass of about the size of an infant's head. There was a wound in the intestine from which was exuding from time to time small amounts of liquid feces. This wound was about half an inch long, and was situated on that part of the intestine which is opposite to the mesenteric attachment. Its direction was diagonal to the axis of the gut. The exposed intestines were much injected, and were glued together by exudation. There had been a moderate hemorrhage only.

The man's general condition was fairly satisfactory, considering the nature of the injury. He was very pale and restless. The pulse was about 100, and moderately strong. I was told that he had been

stabbed by another man about three hours before I saw him; and that the bowels had protruded soon after the injury, and had remained in that position.

After the patient was etherized, the bowels were carefully cleansed with warm sterile water, and the intestinal wound sewed up with interrupted Lembert sutures of fine silk. The abdominal wound was then enlarged upwards and the gut and omentum gently pulled down and examined. After the whole mass had been again irrigated, it was returned to the abdominal cavity. The abdominal wound, which was then seen to be somewhat jagged, was trimmed and stitched up with three layers of silk sutures, and a firm bandage was applied.

The temperature on the evening of the first day after the operation was 100°; after this it sank to normal, where it stayed until the evening of the fourth day, when it rose to 101°. After this it rapidly came down to normal, where it remained. The pulse just after the operation was 124, and on the next evening 136. Its frequency then gradually lessened, and it remained within normal limits during the further progress of the case.

The bowels moved of themselves on the second day, after which there was a daily movement nearly every day, an enema being occasionally called for.

For the first three days the man was fed almost entirely by the rectum, and nourishment by the mouth was begun on the fourth day.

The wound was dressed for the first time on the ninth day. Firm union had taken place, except in one spot where a small slough had formed near one of the stitches.

About five weeks after the operation the man sat up, and about two weeks later he was discharged from the hospital, with a shallow sinus, at the point where the sloughing had occurred. For this he is now being treated at the out-patient department.

The protrusion of the wounded intestine was in this case undoubtedly a fortunate circumstance, as the liquid feces which escaped from the wound in the gut did not enter the abdominal cavity. It was likewise fortunate for the same reason that no attempt was made on the part of those who saw the case at first to reduce the mass before the intestinal wound had been closed and the peritoneal surface of the bowel thoroughly cleansed.

The case seems especially interesting in view of the fact that adhesive peritonitis had already taken place around the extruded bowels to a sufficient extent to cause their agglutination, while they were still outside of the abdominal cavity.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

C. L. SCUDDER, M.D., SECRETARY.

REGULAR Meeting, Wednesday, May 1, 1895, DR. M. H. RICHARDSON in the chair.

PENETRATING WOUNDS OF THE ABDOMEN.¹

DR. JAMES G. MUMFORD read a paper with the above title.

¹ Case reported at the Surgical Section of the Suffolk District Medical Society, May 1, 1895.

¹ See page 81 of the Journal.

DR. G. H. MONKS showed and reported

A CASE OF STAB WOUND OF THE ABDOMEN; WOUND OF THE INTESTINE; PROLAPSE OF THE BOWEL THROUGH THE ABDOMINAL WOUND; OPERATION; RECOVERY.²

DR. M. H. RICHARDSON reported

A CASE OF GUNSHOT WOUND OF THE KIDNEY.

DR. C. L. SCUDDER and DR. H. A. LOTHROP gave

A RÉSUMÉ OF CASES OF PENETRATING WOUNDS OTHER THAN GUNSHOT WOUNDS, UP TO DATE.³

DR. A. T. CABOT said that he had had five cases in which operation had been done for penetrating gunshot wounds of the abdomen. In two of these he was present as consultant, and in three he had operated himself. Both of the cases he saw in consultation died, and of his own three cases two died and one recovered.

The first fatal case was that of a young Italian; shot a number of hours before he was seen, and operated upon at once after his arrival at the hospital. Nine or ten holes in the intestine were closed, and the abdomen was cleansed as thoroughly as possible of blood and fecal matter. The patient died at the end of about forty-eight hours, of a septic peritonitis that started from little particles of fecal matter deep among the coils of intestine, which had escaped removal.

The other fatal case was that of a boy operated upon about a month ago. He was shot just below and to the right of the umbilicus, by a 22-calibre bullet from a small rifle at close quarters. Hematuria had been noticed before operation; and from this fact, taken together with the position of the point of entrance, it was thought that the bladder was injured. The symptoms were those of hemorrhage and shock, and the operation was done upon his entrance to the hospital, five or six hours after the shooting. Two openings in the bladder and eight in the intestine were closed. The boy rallied somewhat under stimulants, but died of shock at the end of about eighteen hours.

In both of these cases partial resections of intestine were done upon coils so riddled with holes as to make this seem the quicker way of disposing of them. The resection was done by an end-to-end suture.

The case of recovery was that of a young man shot with a 22-calibre revolver at close quarters just after a heavy supper. He vomited largely, and no blood could be detected in the ejecta; but the stomach was found perforated by the bullet, which had made so small a hole that no extravasation of contents had taken place through it. The opening was sutured and the recovery uneventful. In one other case in which the stomach was wounded after a full meal, Dr. Cabot found a slight staining of blood in some of the later vomitus.

Besides these cases of gunshot wounds, he said that he had had three penetrating stab wounds, none of which perforated any of the viscera, but all of which got well after an exploration and cleaning out the blood-clots.

He said that he had no reason to change the opinion expressed by him in a paper before this Section four or five years ago in regard to the great impor-

tance of always opening the abdomen in the case of penetrating wounds. If the intestines are not injured, he did not think that enlargement of the opening through the abdominal wall added at all to the danger, while, of course, if injury to the intestines has occurred, the opening and repair of that injury adds greatly to the chances of recovery.

At the time of his previous paper, Senn's method of discovering whether a perforation existed or not by the use of hydrogen gas, was in vogue, and he then gave his reasons for not liking that method as a surgical procedure. Since then he has seen no reason for changing this opinion, though he has used one part of the manœuvre with advantage, namely, when the abdominal wall has been widely opened, after sewing up all of the wounds of the intestines, a little gas in the coils of intestines which can be pressed forward from coil to coil, assists in making a complete search for any possible opening which has been overlooked.

In conclusion, he said that these cases, when they die after complete closure of all the openings, usually die of septic peritonitis starting from the infection of the peritoneum by the bowel contents which have escaped into it. It seems to him, therefore, very important that the thorough irrigation of the peritoneal cavity with a warm salt solution should be practised, in order to thoroughly remove such foreign matter, by a method which will be searching and yet will involve as little irritation to the peritoneum as possible.

DR. J. W. ELLIOT: I have not had time to look up all the cases I have had. I can remember five cases I have had of penetrating wound.

In one case I operated for Dr. Cabot when he had a lame hand. In that case we sewed up six or eight holes in the small intestine, and as the patient was getting rather shaky and no more holes apparent, I stopped the operation; at the autopsy I found I had missed two holes in the large intestine, and that there was a big hemorrhage post-peritoneal. The patient evidently died from septic peritonitis from the holes that were not sewed up.

Another case I operated on about three days after the shooting, and the peritoneum was already gangrenous and septic. That patient died at once.

In the third case, the bullet had torn the liver badly, had opened the small intestine in three or four places, and had injured either the aorta or a branch very near the aorta. The hemorrhage was terrific, but was finally stopped, and the liver laceration was packed with gauze. That patient died.

Another case, gunshot wound of the stomach, recovered promptly; but the interesting part about that was that, although I found a hole in the front of the stomach, I never could find a hole in the back of it. The hole was sewed up and the boy recovered.

The last case I had last summer. This was a man shot in the right side just below the ribs, just to the right of the median line. The bullet cut off the epigastric near where it anastomoses with the internal mammary; it grazed the liver, made a groove in it and went above the right kidney. The abdomen was full of blood, and I thought at least the aorta was torn, but on making the opening larger and larger, looking for the source of hemorrhage, I found it all came from the artery in the abdominal wall, the epigastric. In searching for the wound I had opened the abdomen from the ensiform cartilage to the sym-

² See page 87 of the Journal.

³ See 86 page of the Journal.

physis pubis, and no laceration of the intestine was found. The hole just above the right kidney I packed with gauze and left the end out. The rest of the abdomen I sewed up. The man recovered promptly. He had hematuria a day or two, but that disappeared. I sent a telegram to him to-day to come here, but his wife informed me that he died of phthisis a short time ago. The stomach injury and that are the only penetrating wounds that recovered in my experience.

So far as the general treatment goes, Dr. Cabot thinks that washing out is important. I am very much afraid of washing out where there has been any extravasation, afraid of diluting it and carrying it into corners where you cannot get at it. I have pretty much made up my mind to wipe out and leave strands of gauze in doubtful cases.

DR. H. W. CUSHING: I have no personal experience to warrant me in speaking. I wish to express my gratification at hearing these very interesting papers. There have been one or two cases communicated to me of a kind which I do not think has come under discussion to-night. One was a case in which a physician was sent for to a girl who had shot herself accidentally with a pistol. He found hematuria, opened the abdomen, and removed the kidney. The ball had gone through the kidney. She made a good recovery. The other was in Galveston, where a man was stabbed in such a way as to injure the bladder. He had been drinking beer; the bladder was pretty high up. Laparotomy was performed, and the bladder was sewed in such a way as to leave a drainage-tube in it, but to shut it off from the abdominal cavity. The abdominal cavity was well washed out; he recovered.

In regard to the question of flushing out the abdomen when it is presumably infected by septic material, it is a very difficult question, and I have had some experience in that line. I have about made up my mind, as the last speaker intimated, that if there has been really septic material in the abdomen either from injury of the intestine or a collection of pus which happens to be virulent; that the washing out does not save the patient. The principal advantage of washing out which I use very largely, is to remove matter (little clots, contents of cysts, tubes, and other things) which is going to decompose if left in there; but when really virulent material has got into the abdominal cavity, it has frequently failed to give me the satisfaction that I had hoped for from it.

DR. LOTHROP: Statistics show that after abdominal stabs, herniæ of the omentum are very common, and the conditions often demand partial removal of protruding omentum. It seems to me Dr. Scudder's first case brings up a point of extreme interest, namely, the occurrence of inflammatory processes in the omental stump, coming, as a rule, late after the operation. About two years ago, Dr. Bull first called attention, in a report of cases, to the occurrence of this inflammatory process coming on after the abdominal wound had healed and the patient was apparently going to have an uneventful recovery. These cases, something like six or seven I think, showed no trouble whatever before the latter part of the fourth or sixth week up to the sixth month, the abdominal wound being perfectly closed, one case having no trouble whatever until six months had elapsed. Some of them recovered perfectly by simple expectant treatment with local ap-

plications; others went on to suppuration. From one of these abscess cavities there was a pint of pus evacuated, and in that pus cavity was found the ligature which had been applied previously to the omental stump.

As regards the symptoms of these cases, they varied according to the degree of inflammation, and to the time at which they appeared after the primary operation. Most of the pain and tenderness was in the umbilical region, and in many cases there were tumors to be felt. The causes of these symptoms were due to sepsis; he was inclined to think that the tying of large masses of omentum in one ligature, or a large mass in two ligatures in the form of a chain, and leaving considerable omentum distal to the point of ligature, the result is that the consequent necrobiotic process interferes with nature's taking care of a few germs which may have been left there, and there results a slow, chronic suppuration that may go away of itself or result in abscess formation, calling for surgical interference. He lays down as a rule that in amputating portions of the omentum the chain ligature should be used, including a large number of links, that the omentum distal to the ligature should be left as near the ligature as is consistent with safety, and that individual arteries should be tied separately so as to prevent hemorrhage, which is occasionally a serious complication.

In reply to an objection by Dr. Cushing, DR. CABOT said that he did not believe that it was proper to think of irrigation of the peritoneal cavity in cases where local septic processes already exist, but that in these cases when seen early and when the septic process had not started, and the problem is to remove a great amount of clotted blood with a certain amount of fecal matter mixed with it in as thorough and unirritating a way as possible, he knew of no better way than by irrigation with a bland solution. He did not think it necessary to remove aseptic blood in this thorough manner, but did think that blood mixed with fecal matter should be so removed.

DR. HOGNER: I have had three cases of penetrating abdominal wounds in my practice.

One case was that of a boy twelve years old, who was shot by a revolver of small calibre, the bullet wounding the liver. The bullet penetrated the skin a little below the ensiform cartilage. The wound of exit was not discovered. I saw the case three weeks after the accident. There was an abscess as large as a peanut, and some local peritonitis. The abscess was opened, and the canal sounded so deep that there was no doubt that the bullet had wounded the liver. The treatment was to give free exit to the pus. The patient recovered with the bullet in the body.

The second case occurred in a man twenty-five years old, the subject of a hernia inguinalis for which he usually wore a truss. One day he omitted this, and was shot by a small revolver, the bullet penetrating the prolapsed intestine and going down into the trousers. The patient recovered *post herniotomiam et resectionem*, etc.

The third case was in a boy eight years old, who was gliding on Swedish snow-shoes (*skidor*) which were eight to ten feet in length and three to five inches in width. In gliding the boy broke one, the point of which penetrated the abdomen in the linea alba. I saw the boy three days later, found a wound an inch long filled up by some of the omentum. The omentum was sutured antiseptically. The external part of it

was cut away. In three weeks the boy was again gliding on a new pair of *skidor*.

DR. M. H. RICHARDSON: I agree with what has been said as to exploring in cases apparently hopeless. The case Dr. Mumford has shown is very discouraging; but if hopeless without operation we cannot say they are absolutely hopeless with, because the results show a certain number of them get well even if the lesions are very serious indeed. Cases that will get well without operation will get well with operation, and the exploration will enable us to repair the damage that is done. Of course, with extensive multiple wounds, especially of the small intestine, with extravasation of liquid feces, the result must be necessarily very unfavorable. I believe that the condition is very similar to the perforation of an appendix at the base near the colon — the most serious form of appendicitis. I think that the additional statistics we are getting every day in this class of penetrating wounds of the abdomen is helping us very materially in deciding what to do. There are many cases we operate upon where there is no chance whatever. If we can eliminate such hopelessly unfavorable cases, I think it is a wise plan to do so; and yet every now and then a case recovers that seems to me perfectly hopeless. I would cite Dr. Elliot's most brilliant case of resection for thrombosis of the mesenteric vessels. I remarked at the time that that was a case that would never get well; yet, no matter how severe the case may be, you may have a recovery. It seems to me the most important matter for diagnosis is the question of local signs, as in other acute abdominal conditions — distention, rigidity — no matter what the pulse and temperature may be, no matter whether there is vomiting or not.

I should like to confirm Dr. Cabot's experience with stab wounds. I have had one or two of them.

About irrigation; that is interesting to me. I thought we all agreed about that. I have always thought in appendicitis in which the general peritoneal cavity is invaded by the breaking down of adhesions, that we spread to other parts of the abdominal cavity the germ colonies.

With reference to kidneys, that in itself, it seems to me, is a subject of very great importance. I wish we could have had more experience on that subject. Dr. Elliot's case which I cited was very much like my own. He did not interfere, and the man recovered. I do not know that he knows exactly what the lesion of the kidney was. It seems to me from the diagram that I showed that nothing could have been done to save that kidney. I think the man would have died just the same.

DR. S. V. GOLDTHWAITE reported and exhibited

A CASE OF PYELO-NEPHRITIS; OPERATION; RECOVERY.⁴

DR. RICHARDSON: This case has interested me very much. The diagnosis at the time I saw it seemed clear. I dare say if I had seen the patient in the very beginning I might have had hesitation about it. The operation was a very brilliant one. I was surprised, however, that the woman did not have general infection. I think the matter of irrigation is very easily settled in this case, because the wound was so large that you could use irrigation with perfectly free exit of the water; the objection to irrigation in my experience being that the water goes into the ab-

dominal cavity and does not come out easily, and you find at the end you have scattered in all parts of the abdomen this infected water. This opening was so large, and every organ in the abdomen was infected so that you could not make it worse, and I think that in this case the use of the sterile salt solution was one of the most valuable things done. I believe in that lateral route for nephrectomies. I happened to see one of Dr. Goldthwaite's first nephrectomies in the course of my practice. That was done by the anterior route for movable kidney.

DR. CUSHING: In what I said about irrigation I do not wish to be understood that I do not like it and use it, only that in cases where the pus is really virulent it has disappointed me sometimes. I think it is, as Dr. Goldthwaite says, the only way to do; but once in a while we will find, no matter how thoroughly we have irrigated, the patient does not get well. I am inclined to think the difference lies a good deal in the pus; in many collections where the pus has been dammed up some time, the bacteria in it die in their own poison, or else it is that the person who is carrying that collection of matter has become so saturated with it that he is vaccinated, or whatever the condition may be called, so that it no longer has that fatal effect that it will have in a fresh case. Of course, irrigation is the way and the only way to get out collections of every kind. I only meant to say that it disappoints us sometimes in cases of fresh pus which is virulent.

PATHOLOGICAL SPECIMENS.

DR. RICHARDSON: I have here a tube removed from a young woman to-day. For six weeks she had had intermittent pain. The diagnosis of impacted gall-stones and general peritonitis was made. I never suspected the true cause of the symptoms. This is the right Fallopian tube, and here a tumor situated at the right sacro-iliac synchondrosis. Here is a rupture of the tube. What the origin of the rupture is I don't know. The point in the case seems to me to be in the diagnosis. I never was more amazed in my life than to see the bulging dark peritoneum and a copious discharge of blood from this abdomen. The girl was unmarried; and presumably the common cause and pain, hemorrhage and rupture was not present. Another interesting thing connected with the case is that the diagnosis of acute obstruction was correct. The small intestine was caught in that growth; if it is an ectopic gestation, the small intestine was so caught and bound down by the growing placenta after the first rupture six weeks ago that there was a sharp bend in the intestine, and beyond the bend the intestine was like a tape-worm. Above it was distended to the size of a Bologna sausage. The coils which distended this young woman's abdomen were not probably more than a yard long, and everything else in the abdominal cavity was collapsed. In this case I did not wash out because there was no evidence of sepsis, and I do not believe in washing out except in a very general infection — the chief danger in washing out being converting a local into a general infection in localized abscesses.

DR. ELLIOT: I should like to hear some more discussion on washing out. This case reminds me of a case of extra-uterine pregnancy which occurred last year, where the abdomen was full of blood and the patient very much collapsed. I did not wash out. I

⁴ See page 86 of the Journal.

tied the tube, took it out, sewed up the abdomen, and the patient recovered very promptly without washing out. So I am not sure that even after extra-uterine pregnancy it is necessary to wash out. You say you do not wash out because it is not septic; and if it is not septic, I don't see any advantage in washing out. I must say that, although I have washed out a great deal, my general tendency is getting to be to wash out less and less. In a case like Dr. Goldthwaite's, where the intestine is bathed with pus, it was natural and necessary to wash it off; but washing the abdominal cavity, as the President remarked, is quite a different question. There undoubtedly are times when washing does a great deal of good, and also I think that it does harm.

DR. CABOT: I think if this discussion about washing out blood is directed against my remark about washing out blood mixed with feces, it is no question at all. I remember the case in which I saw a patient with gunshot wound of the liver. It was clear he had a good deal of blood in the lower part of the abdomen. He got perfectly well without trouble; the intestine was not perforated; he simply had a wound of the liver which bled down into the lower part of the abdomen. I don't see any necessity for washing out when aseptic blood exists, but when blood mixed with feces exists, I prefer to wash it out.

DR. RICHARDSON: I did not mean to suggest for a moment that I favored washing out in pure hemorrhage. I have never done it. I have operated twenty-one or twenty-two times after free hemorrhage, and I have not done it. I should not have washed out unless the coil of intestine had perforated, as I have seen it once before in acute obstruction, with kink in the small intestine and perforation in separating the kink. In that case I did not wash out, and I should not unless the intestines were outside of the abdominal cavity. In the long incision the intestines are outside of the cavity. I do not see that there is any difference in our theory or practice in this regard. In the collapsed intestine full of simple fecal matter, you don't get much extravasation; and I don't believe Dr. Cabot or anybody else would wash out the whole abdominal cavity unless there was a general extravasation of water mixed with feces or blood mixed with feces, a condition which you cannot make any worse by washing out. On the other hand, I think this is the practice of all the surgeons operating on appendicitis — if you have a gangrenous appendix surrounded with perhaps an abscess collection as large as an orange, you drain, wash out your abscess cavity; but if the opening is not more than two or three inches long, I don't believe one would put in irrigation fluid under pressure, for the reason that you spread into uninfected regions the infecting fluid. The fatal case in my experience of extra-uterine pregnancy with rupture, was precisely like the case to-day — enormous hemorrhage, cavity filled with blood, dark in color, liquid; the operation was done in such haste that the preparations were not as perfect as they should have been, and I think blood-serum is the best of culture media to get infected. The woman died of general peritonitis. I am sure washing out would have been of no use there.

EPIDEMICS OF TYPHOID FEVER have lately been traced in Calcutta and Bombay to the use of water-cress which grew in soil polluted by sewerage.

AMERICAN SURGICAL ASSOCIATION.

NEW YORK, MAY 28, 29 AND 30, 1895.

(Continued from No. 3, p. 70.)

CLINIC AT THE ROOSEVELT HOSPITAL.

DR. CHARLES MCBURNEY heartily welcomed the members of the Association, saying that he had never expected to see such a distinguished assemblage in that hospital.

DR. LANGE presented two cases of suppurative affection of the middle ear. The next case was that of a man with tubercular disease of kidneys, bladder and prostate, in whom it was found necessary to extirpate the kidney. Another was a woman with disease of the ureter, after the removal of which she gained 40 pounds. He also offered a case in which two tumors of the broad ligament had been removed, since which the patient had gained 130 pounds. The last case was a patient with tuberculosis. She had been to many hospitals, and the diagnosis of carcinoma had been made by reason of the numerous small masses scattered around all over the surface of the breast. The whole bottom of the breast was removed, the operation being a great success.

DR. FOWLER showed a case of dissection of the extensor tendon of the middle finger of the left hand, which had been torn loose from its aponeurotic structures while playing a violin. After operation the patient was able to return to his vocation as a professional violinist. The second case was one of rupture of the tendo-Achillis, which was sutured five months after the accident, as a result of which the patient was able to walk without a perceptible limp. The third case was a man seventy-one years of age, who had ruptured the patella attachment of the quadriceps extensor of one leg, and six months later met with a similar accident in the other. The speaker sutured the muscle, the functional result being excellent and union perfect. The next case was a man who had suffered thirteen years with facial neuralgia, upon whom a successful operation was done for its relief. There was also exhibited a little girl who had suffered from a deformity of the auricular appendages, which was remedied by transplantation from one side to another.

DR. RUSHMORE was the next speaker. The first case was one in which the deformity of the head drawn down to one side was remedied, and the next was one in which complete dislocation of the right knee had occurred. Upon admission the latter patient complained of severe pains in the hip, and on opening the joint the dislocation was reduced. Shortly after, however, there was a displacement, and a second operation was necessary. At present he has a perfectly useful limb and has all the motions of the hip-joint, there being but one and a half inches of shortening.

DR. CHARLES MCBURNEY produced the case of a gentleman who had been thrown from his horse while hunting, the horse falling on him. The bladder was forced far out of position, and a large incision was necessary in order to locate it. It was found that an extensive fracture of the pelvis had also occurred, and the entire pelvis was filled with urine and extravasated blood. At the present time every one of the fractures have united, and the bladder has resumed all its functions, it being possible to pass a No. 29 without any trouble.

The next patient, Dr. Lambden, of New York,

illustrated the results of operation for malignant disease of the left tonsil. The tonsil and all the adjacent tissue was removed, including a piece of the soft palate. The patient has remained entirely well since the operation.

The third case was a young lady who had been operated on for a spindle-cell sarcoma at the lower end of the radius, and in whom a part of the radius was removed.

The next case was that of a boy who had suffered from the effects of a 32-calibre ball having entered the thigh behind the femur. Ten days after the accident a pulsating tumor was noticed in the popliteal space, which was dissected out, and primary union took place, since which time he has had complete flexion.

The fifth patient had received an injury similar to that of the previous case, that is, rupture of the quadriceps extensor, and about eight months afterward he ruptured the extensor on the other side. The same operation was done in both cases, with primary union and complete restoration of functions.

The next patient had been operated on in December, 1893, for ostitis of the lower jaw, the case being interesting by reason of the spiral spring which had been inserted to prevent deformity.

The next case illustrated the result of operation for recurring appendicitis. The speaker stated that he had operated on thirty cases of this disease, no patient having as yet died. One of the principal points is the small opening that is made in the operation, a large opening being considered unnecessary.

The last case presented was very similar to the preceding. The scar in this patient was extremely small.

THURSDAY.

DR. J. S. WIGHT, of Brooklyn, N. Y., read a paper entitled

TREATMENT OF CANCER OF THE BREAST.

Dr. Wight presented seventeen cases of cancer of the breast, in nearly all of which the results from operation were very favorable, and the patients continued immune and in good health after periods ranging from one to six years.

Tumors of the breast may be divided into three kinds: (1) those which may be cured by operation; (2) those in which an operation may give temporary relief and comfort; (3) those in which an operation is impossible and inadvisable. The cardinal precept is, the earlier an operation, other things being equal, the more certain will be the prospect of a cure. The minimum of time should be taken, and the tumor, as well as its infected environment, must be removed. In the case of an incipient tumor of the breast, the entire breast must be removed. Disaster follows the neglect of this rule.

From fifteen to forty-five minutes is taken for the operation. A continuous incision is made around the tumor, including if possible all the infected tissue. Then the growth is rapidly excised, the hands of assistants following the knife to repress and control hemorrhage. Pressure-forceps are freely used on all the larger bleeding vessels. If any adjacent or sub-jacent portions of infected tissue remain, they are quickly cut out. In all cases the submammary fascia is removed, and the sheath of the great pectoral muscle is dissected off in front. A sterilized towel is pressed upon the wounded surface to control the oozing. The

contents of the axilla are excised. The incision extends from the angle of the breast wound, so as not to expose the growth in the axilla. A pair of long-jawed pressure-forceps is pushed along the surface of the axillary growth, so as to grasp the non-infected tissue. With a knife or a pair of scissors, carried along the jaws of the forceps, the tumor is quickly cut away, leaving the forceps in place to prevent hemorrhage. This process is repeated, using as many long-jawed forceps as required, until the entire growth is cut out. The pressure-forceps are now removed from the breast wound, which is again disinfected. As a rule no ligatures are needed, the sutures, made of silk, acting as such, when applied as follows: Long curved needles are passed through the flaps, and under the entire base of the wound, and are then tied so as to bring the entire surface of the wound together. These are called deep sutures.

The treatment has consisted, for the most part, in the persistent use of bromide of arsenic. In some cases this remedy has been given for two or three years, with occasional intermissions. The dose has been one-fortieth of a grain to one-tenth of a grain, beginning with a smaller dose and increasing it. In some instances the solution of the bromide of gold and arsenic, in doses of from five to fifteen drops after meals, has been employed. These remedies are given on the theory that they are antagonistic to the infection of the disease under consideration. The carbonate of lime has been given to some extent, as an adjuvant to the other remedies, but it is of inferior value compared with arsenic and gold.

DR. ARPAD G. GERSTER, of New York, then read a paper entitled

THE MODERN OPERATIVE TREATMENT OF RECTAL CANCER,

dividing the subject into (1) the modern methods of attack employed in extirpation and the details of the after-treatment; (2) the preservation of, or substitutes for, the sphincteric function; and (3) remote sequelæ of these newer methods.

When we examine the imperfect, and therefore bloody and dangerous procedures devised by Dieffenbach, Lisfranc and Velpeau, together with the high rate of mortality accompanying the radical operations of these authors, our wonder is that any surgeon should have had the temerity to attempt the removal of an extensive rectal neoplasm. The late noteworthy revolution in the methods of surgical therapy of the rectum was based upon an accidental observation made by Volkmann in 1883, who, in removing a periosteal sarcoma of the sacrum, accidentally opened the sacral canal. The patient did not suffer any serious damage from this dreaded accident, and promptly recovered. This observation encouraged Kraske, then assistant to Volkmann, to study the question; and, as a fruit of these studies, appeared his remarkable publication in 1885, advocating the excision of the left half of the lower portion of the sacrum up to the third sacral foramen, thus enabling the surgeon to approach the gut from behind and attack a large number of tumors from above. The relative position of colotomy was changed in two ways. The number of colotomies, done as a purely palliative step, steadily diminished, being limited to hopeless cases; but this operation is also used where a satisfactory cleaving of the large gut is rendered impossible or even difficult by what-

ever cause, and more so preceding resection than amputation, for obvious reasons. More and more stress is laid upon a thorough evacuation and cleansing of the gut as a preliminary aseptic measure, with or without colotomy.

Kraske's procedure, done through a median longitudinal incision was modified by Heinecke, who made a T-shaped external incision, dividing the sacrum and coccyx along the lines of the external incision, thus producing two lateral triangular osteo-integumental flaps, which were to be replaced and sutured after the rectal operation was finished. This, in turn, was modified by Kocher, with a view of enabling the surgeon to divide the sacrum above the third sacral foramen without injury to the third and fourth anterior sacral nerves. Levy recommended an incision of the shape of an inverted capital U, the arc of the letter corresponding to the transverse section through the sacrum. Hegar employed a V-shaped osteo-integumental flap.

It is curious that the vagina, offering such a ready and accessible roadway to the rectum, had so long escaped the attention and ingenuity of enterprising rectal surgeons. This was suggested at about the same time by Rehn and by Campenot, a Frenchman. This method is applicable both for resection and amputation of the rectum.

Dr. Gerster also quoted a case of Dr. Frank Hartley, in which he used Mounsell's (of Melbourne) operation with success.

To preserve the sphincteric apparatus wherever possible, and not to interfere with its nervous supply by respecting the integrity of the upper three pairs of sacral motor nerves has become a generally accepted principle of modern surgery. A number of more or less successful attempts have been made to provide a substitute for lost sphincteric action. Willems, Rydygier and Witzel almost simultaneously proposed similar methods, consisting of an ingenious utilization of part of the gluteus muscle for the occlusion of the amputated and otherwise patulous rectal stump. Witzel reported six successful cases. Gerster advocated a radically different procedure, consisting in simple torsion around its own axis of the extremity of the rectal stump, followed by fixation of the twisted gut to the skin by suture. An elastic resistance to the pressure of the fecal column is thus generated, sufficient to retain solid and liquid matter until the resistance be overcome by voluntary intra-abdominal pressure. This method, being the simplest, certainly deserves the preference and extensive trial.

As to the remote sequelæ other than incontinence, prolapse of the rectum is one of these. Morestin mentions two well-observed instances of procidentia uteri directly produced by Kraske's operation. Sacral fistulæ are the bane of modern rectal surgery.

DR. L. McLANE TIFFANY said he would only discuss Dr. Gerrish's paper. He did not think Dr. Gerrish had laid sufficient emphasis upon the lymphatics. He recommended that the floor of the mouth be opened in operating on cases of cancer of the tongue. As to the amount of tissue to be taken away, of course this differed very largely with various operators, but in operating upon the breast he considered it right to take everything in the neighborhood. He said that he had had two deaths in 164 cases, one of which was due to sepsis and the other took place during etherization. He stated that local recurrence meant

recurrence in the neighborhood of the scar, and a second local recurrence is the most suddenly fatal. He knew of cases that had lived ten or fifteen years with a cancer of the breast.

DR. MCGRAW agreed with Dr. Tiffany, and said that he had come to the conclusion that the proper way to operate upon these cases was through the floor of the mouth. He expressed great surprise at the record shown by Dr. Wight in his paper. In his opinion, in cancer of the breast the axillary glands should be extirpated in all cases, however young.

DR. CHRISTIAN FENGER called attention to the kind of canula he employed in these cases. He said that he considered it important that when the floor of the mouth and the tongue are taken away, something in the way of a substitute should be given the patient. His method of doing this consists of turning up from the neck a flap which is sewed to the tongue, or, when that had been removed, to the mucous membrane.

DR. W. H. CARMALT, of New Haven, suggested that a great deal of the danger in these operations might possibly be avoided if a channel could be made through the trachea through which the patients could breathe.

DR. J. COLLINS WARREN showed a specimen which he had removed from a rib in an operation, which he considered to be a complete one. He thought that the operation for cancer of the tongue, should include resection of the jaw and the removal of at least half if not the whole of the tongue. He had obtained the histories of about 40 or 50 of his cases of cancer of the breast, upon which he had operated subsequent to 1880. So far as he knew, only two deaths have occurred in about 80 cases, one of which was due to erysipelas and the other to kidney failure. There were about 8 recoveries out of 29 cases, a proportion of 27 per cent. In operating on the breast, he always begins his dissection in the axilla, and makes an incision up to the clavicle, with another one at right angles to it.

DR. ARPAD G. GERSTER expressed his gratification at the comments made upon his methods of operating.

THE PRESENT STATUS OF ANESTHESIA.

Under this heading DR. G. W. GAY, of Boston, read a paper entitled

CIRCUMSTANCES UNDER WHICH CHLOROFORM IS PREFERABLE TO ETHER AS AN ANESTHETIC.

Under the same general heading, DR. ROBERT F. WEIR, of New York, read an article, the title of which was

INFLUENCE OF ETHER UPON THE KIDNEYS.

DR. T. F. PREWITT, of St. Louis, in discussing the papers, said that in certain cases of respiratory trouble chloroform was preferable to ether, but in various conditions of local trouble he thought ether was better. He considered chloroform safer in diseases of the kidney and the heart.

DR. H. R. WHARTON, of Philadelphia, agreed with Dr. Prewitt as to using chloroform. He said that he usually employed chloroform in performing tracheotomy, but at the present time he was not using any anesthetic during this operation. He considered cocaine very valuable. He called the attention of the members to the great risk of administering ether to very young children, as he had seen death follow in a very few hours in a child less than six months old.

He never uses anesthetics now in cases under six years of age, except when absolutely necessary, when he prefers chloroform.

Dr. J. D. RUSHMORE, of Brooklyn, stated that he had one case of death consequent upon the use of ether in a child. He considers chloroform preferable in cases in which there is trouble with respiration, as spasms, for instance. In many cases in young children it is advisable to avoid anything that will interfere with the heart's action.

In our student days it was taught that ether should be given in as concentrated form as possible, and this is but one instance of the very erroneous teaching of that time. The method Dr. Rushmore uses at present is to permit the patient to get plenty of air while being etherized; and he contended that ether should be administered with clock-work regularity, and should be given drop by drop, instead of a large quantity at once.

Dr. ROBERT ABBE, of New York, said he did not agree with those gentlemen who hinted that giving ether required less skill than giving chloroform. He protested strongly against using old ether, which he claimed was frequently done, and said that he had found a hypodermic injection of morphia a very good thing to give previous to the administration of the ether.

He thought that exposure of the body while being operated upon, and again while being transferred to and from the operating-room, was a very prolific source of pulmonary trouble. With respect to the anesthetic best suited for children, the speaker considered ether preferable, having abandoned the use of chloroform on children since he had one death which he thought due to this anesthetic. He said that he had relieved a stab wound of the stomach under cocaine; also, that he had done a suprapubic cystotomy under its influence, in which death would certainly have ensued had ether been used.

Dr. F. E. LANGE, of New York, stated that both chloroform and ether had their indications and their contraindications, but that as long as no absolutely safe anesthetic existed, he considered ether good enough. He had lost patients under both chloroform and ether. He said that the question of an anesthetic was the only one which gave him anxiety in surgical operations, and stated that he had had two deaths under chloroform. He quoted the case of a celebrated American surgeon, who, while in a European country, attempted to establish the advantages of ether, the patient dying under his hands. Dr. Lange also mentioned the case of a man who was a drunkard and very excitable, upon whom he had operated for kidney affection, death resulting within a few minutes. He contended that chloroform was not the anesthetic to be used where there was a weak heart, but that in some cases ether was preferable.

The discussion on the

RESTORATION OF JOINT FUNCTION AFTER FRACTURE,

which was to have been participated in by Drs. W. H. CARMALT, of New Haven; L. A. SAYRE, of New York; N. P. DANDRIDGE, of Cincinnati; J. B. ROBERTS, of Philadelphia; E. H. BRADFORD, of Boston, and JOHN ASHURST, JR., of Philadelphia, was read by title.

Dr. JOHN B. DEEVER, of Philadelphia, then presented a paper upon

THE INFLUENCE OF ETHER NARCOSIS UPON THE GENITO-URINARY TRACT.

Israel examined the urine of 100 subjects having normal kidneys, before and after administering chloroform. In one-third of all cases there were deleterious effects on the kidneys, lasting two or three days, with traces of albumin, cylinders, leucocytes, kidney epithelium and epithelium of the ureters and bladder. The effect of etherization on general tissue metamorphosis, apart from any effect upon the kidneys, was shown by the effect upon the specific gravity of the urine. In 50 cases it was markedly increased, while in 13 only it was decreased.

The conclusion is, that ether has a very considerable irritating effect on the kidneys. The necessity of examining the urine of every patient to be anesthetized is to be emphasized.

The following papers were then read by title:

GUNSHOT WOUNDS OF THE HEART,

by CLAUDIUS H. MASTIN, M.D., of Mobile.

PERSONAL EXPERIENCES WITH MAD DOGS,

by Dr. BASIL NORRIS.

THE RADICAL CURE OF HERNIA BY A NEW PROCEDURE,

by Dr. JOHN H. PACKARD, of Philadelphia.

LIGATURE OF THE SPERMATIC CORD IN THE TREATMENT OF HYPERTROPHY OF THE PROSTATE,

by Dr. J. EWING MEARS, of Philadelphia.

Dr. HENRY W. WHARTON, of Philadelphia, then read a paper entitled

DISLOCATION OF THE ULNAR NERVE AT THE ELBOW: A REPORT OF FOURTEEN CASES.

The first case was Dr. Wharton's own, to which he appended 13 others reported by various observers. Dislocation of the ulnar nerve at the elbow is a comparatively rare affection occurring independently of fractures or dislocations of the bones of the elbow, and may result from direct violence, or from muscular effort or violent flexion of the arm at the elbow, causing laceration of the fascia which holds the nerve in its groove at the back of the inner condyle of the humerus. Zuckerkandl, in an examination of two cases of dislocation of the ulnar nerve in dead subjects, noted that the internal condyle of the humerus in each of these cases was small and the groove for the nerve shallow, and the fascia binding down the nerve very poorly developed; an unusual forward position of the internal lateral ligament was also noted.

The most satisfactory method of securing the nerve seems to be that practised by Mr. MacCormick, who exposed the ulnar nerve, and having made a bed for the nerve by dividing the fibrous structures behind the inner condyle of the humerus, fixed it in its usual position by two kangaroo-tendon loops passed through the inner margin of the triceps tendon and somewhat loosely around the nerve, several sutures being used to unite the divided margin of the fascial expansion of the triceps tendon superficial and the nerve. In all cases where the nerve was exposed and sutured in its normal position, the result was satisfactory. In no recorded case has neuritis developed as a result of operative treatment.

(To be continued.)

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CHOLERA IN ENGLAND IN 1893.¹

THE recent report presented by the Local Government Board of England upon the limited outbreaks of cholera which occurred in England in 1893, contains very much that is instructive upon the subject, and will be welcomed by American health authorities as showing efficient means of dealing with the disease when it once appears in any community.

It shows clearly how liable any inland district is to invasion by cholera, however great the precautions taken at ports of entry may be. Fortunately, it also shows how little such outbreaks are to be feared, if proper steps are taken for isolating the disease in the districts attacked, and for the protection of the public and private water-supplies.

The report also corroborates the suspicions which have lately been entertained as to the spread of disease by shell-fish, which have been fed upon sewage. Dr. Thorne, the chief medical officer, does not express a very decided opinion on this point; but very strong reasons are presented for suspecting that cholera was spread in 1893 by this means. A very large part of the cases which occurred in that year can be traced to Grimsby, a town on the East Coast of England to which cholera had been imported from the Continent. In the six months from May to October, 1893, nearly a quarter of a million excursionists were booked to this place notwithstanding the well-known fact that cholera prevailed there, and in many instances the disease was proven to have been thus conveyed back to the interior towns. Fortunately, the infection did not gain access to the public water-supplies.

It is stated in the report that "the antecedent history of the sick in several instances involved either the consumption or the reception at their homes of oysters or other shell-fish which had been procured from the seacoast towns of Cleethorpes or Grimsby." Hence a

medical inspector was instructed to report upon the trade in shell-fish as conducted in those places. He found that "not only were the oyster-beds at Cleethorpes almost necessarily bathed at each tide with the effluent from the Grimsby and Cleethorpes sewers, but that oysters were so stored inside the Grimsby docks as once again to expose them to contamination with sewage. Mussels and cockles are still more exposed than oysters." Cholera had lingered at each of these places long enough to render their sewage a very likely medium for the spread of infection. Dr. Thorne states that he cannot avoid the conviction that "shell-fish from these two towns must in some cases remain under suspicion as having contributed to the diffusion of the disease."

One of the most "terrible warnings" to be found in this report is that of Ashbourne in Derbyshire, a place whose "sanitary traditions are eminently unsatisfactory." One particular well in the yard of the "Coach and Horses Inn," had incited criticism as being sunk close to a urinal attached to the public-house, whence there was soakage "through the unpaved and unprotected yard above the shallow well." The Local Sanitary Board saw no danger in this state of things, and considered that "their town was as well supplied with water as the majority of other towns in the country." They were subjected, however, to a rude awakening in September, 1893, when, on the sixth of that month, a very severe and fatal outbreak of cholera began in the back-yard of this inn, and "in seven days, out of a total of 39 inhabitants living there, there were no less than 15 cases of cholera with nine deaths." This outbreak would undoubtedly have become much larger, if the well had not promptly been filled in with quick-lime. The inn was one of the cheaper sort where lodgings were to be had for fourpence to sixpence a night. Its lodgers were largely nomadic people, one of whom had probably brought the infection with him. The case is instructive as showing the rapidity with which cholera can be conveyed by means of an infected water-supply, and with which it can be stamped out when the infected supply is discontinued.

The report contains the statements of fifteen medical inspectors upon the infected districts. One of them presents an account of a fatal case of cholera which occurred in the person of a woman whose duty it was to clean a portion of the rooms at the House of Commons in London, together with the mode of disinfecting these apartments.

The volume is fully illustrated with maps of the infected district, photographs and bacteriological cuts illustrating Dr. Klein's investigations upon reputed cholera material submitted to him for investigation.

The two photographs of the back-yard of the "Coach and Horses Inn" are especially instructive as illustrating the presence of peculiarly unsanitary conditions.

The report is especially interesting in its bearing upon the spread of disease by means of shell-fish and

¹ Reports and Papers on Cholera in England in 1893, with an Introduction by the Medical Officer of the Local Government Board. Presented to both Houses of Parliament by Command of Her Majesty, London, 1894.

calls to mind the recent epidemics of typhoid fever at New Haven and Amherst, said to have been caused by partaking of raw oysters from Long Island Sound to which sewage had access. The methods of infection in cholera and typhoid fever are identical, the principal difference consisting in the greater rapidity of the spread and the consequent greater multiplication of cases in a short time in the case of cholera as compared with typhoid fever.

A TRAINING-SCHOOL FOR NURSE ATTENDANTS.

WE publish in another column the announcement that a training-school for nurse attendants is being established at the City of Boston Almshouse and Hospital on Long Island for the purpose of training attendants for cases of chronic illness; attendants whose services can be obtained for a moderate price.

When one considers the number of cases of chronic illness in the community, among people of means insufficient to command the expensive services of a trained nurse, cases which do not need perhaps skilled nursing, but merely constant care and attendance requiring only a moderate amount of training, the need of a supply of such attendants becomes manifest. These chronic cases do not need the highest grade of skilled nursing, and often could not afford to pay for it if they did, and yet cannot be entrusted to entirely untrained attendants with either safety or comfort to themselves or their families.

The training-school which is to be established ought to fulfil a distinct and important mission in furnishing attendants for chronic illness in patients of moderate means.

MEDICAL NOTES.

PROPORTION OF MEDICAL STUDENTS.—It is stated that the proportion of medical students to the general population in Italy is 61 to 100,000; in Germany, 63 to 100,000; and in France, 57 to 100,000.

THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE.—According to the *New York Tribune*, the library now includes about 112,000 bound volumes and about 150,000 pamphlets.

PROPOSED MEMORIAL TO PROFESSOR HUXLEY.—It has been decided to establish in connection with the Charing-Cross Hospital Medical School a permanent memorial to one of its most distinguished students, the late Professor Huxley, and a committee has been formed for this purpose. The memorial will probably take the form of an annual lecture and a science scholarship and medal.

ETIOLOGY OF ACTINOMYCOSIS.—Poncet, of Lyons, has recently reported at the French Academy of Medicine a case of actinomycosis which was probably acquired in a peculiar manner. During the walks in the country the patient was in the habit of chewing the stems of grass and straw, and it is thought that he contracted the disease in this manner. Another

interesting point about the case was the manner in which it yielded to treatment by large doses of potassium iodide, in which respect it acted exactly like a tertiary syphilitic lesion.

HOSPITALS FOR TUBERCULOSIS.—At the recent meeting of the American Climatological Association the following preamble and resolution were unanimously adopted:

Whereas, Since tuberculosis has been demonstrated to be a communicable disease, it has become doubly desirable that hospitals for the reception of the poor afflicted with the disease should be established,

Resolved, That the American Climatological Association recommend the establishment of such hospitals in every State, not only for the relief of the great suffering attending this disease among the poor, but also as a protection of the community against its spread.

YELLOW FEVER FINDS MANY VICTIMS IN CUBA.—The reports recently received by the Marine-Hospital Service from Cuba show an alarming increase in the number of deaths from yellow fever. From June 30th to July 6th there were twenty-five deaths reported from Santiago de Cuba; and for the week from July 4th to July 11th twenty cases and eight deaths at Havana. For the week from June 28th to July 4th, there were nine deaths reported from Vera Cruz, Mexico.

SELF-POISONING BY CHLOROFORM.—Two deaths have recently been reported in England from the inhalation of chloroform for the relief of pain, the victims in both cases having administered the remedy to themselves. One was that of a layman who inhaled chloroform to relieve the pain from a poisoned wound of the finger, and the other of a medical man who took the same means of relieving an attack of sciatic neuralgia.

LOGIC IN A CORONER'S JURY.—At a recent inquest in London it was suggested that the deceased had lost her life in consequence of having taken eight pills at a dose. This hypothesis was, however, at once disposed of by the statement of a juror that he knew a man who was in the habit of taking twenty at a time, and the further testimony of another juror that he himself usually took ten for a dose.—*Medical Press and Circular*.

NEPHROPEXY BY TENDON.—At the May meeting of the Société Nationale de Médecin de Lyon, M. Poulet presented the case of a woman upon whom he had successfully performed the operation of nephropexy by means of a tendon of the longissimus dorsi muscle, the upper end of which was detached from its muscular belly, and passed so as to make a loop, through the posterior part of the capsule of the kidney, supporting the organ and holding it in place. This ingenious method is probably the first one devised for fixation of an abdominal organ by what may be called a living suture, as one end of the tendon is not freed from its attachment. The operation was first successfully performed upon a dog, and later on the human subject.

MEDICAL ENGLISH IN INDIA.—An English paper publishes the following letter addressed by an Indian

native soldier to his commanding officer: "*Honored sir*,—Having been amputated from my family for some years, and as I have complaints of the abdomen, coupled with great conflagrations of the internals, and prostration of all desire for work, with also the disgorging of my dinner, I hope your Highness will excuse my attending at orderly room for nine or ten days more, and in duty bound shall ever pray for the salubrity of your temper and the enlargement of your family."

BOSTON AND NEW ENGLAND.

A TRAINING-SCHOOL FOR NURSE ATTENDANTS.—There is being established at the almshouse and hospital of the City of Boston on Long Island a training-school for "nurse attendants." The object of the authorities in charge of the hospital is to furnish to physicians and the public a class of skilled attendants, trained especially to nurse the chronically sick and infirm, for which training this hospital has exceptional facilities. After graduation attendants will command from seven to ten dollars a week. Particulars as to course of study, length of term, etc., can be obtained from the superintendent, C. H. Cogswell, M.D.

CAUSE OF MARLBORO'S TYPHOID FEVER EPIDEMIC.—It is stated that the Marlboro', Mass., Board of Health will issue maps with its annual report, showing that the great majority of the cases of typhoid fever, occurring in that town some months ago, were located along the route of a skimmed-milk delivery concern. This is in support of the theory of Professor Sedgwick of the Institute of Technology, that the epidemic was caused by the use of the skimmed milk.

NEW YORK.

QUARANTINE AGAINST CUBAN VESSELS.—With a view to the exclusion of yellow fever, Health Officer Doty has put in force a rule requiring that all vessels arriving from Cuba be held in quarantine until five days from the time of leaving port has elapsed, although passengers with certificates of acclimatization may land at once.

MANAGEMENT OF THE INSANE OF NEW YORK CITY.—The State Commission in Lunacy has sent to Mayor Strong a letter severely criticising the management of the insane of the City of New York and urging the prompt improvement of the buildings of the present asylums and the erection of increased accommodations. An important suggestion is made to the effect that funds to provide for the relief of the over-crowding of the insane may be obtained immediately through the interposition of the Board of Health, as recently in the case of the Street-Cleaning Department, where, in consequence of the Board's certifying that certain work was required by considerations of public health, the requisite amount of money was at once secured.

AN OPERATION FOR APPENDICITIS IN A CHILD OF THREE YEARS.—Dr. Fredreich Kammerer, of

New York, assisted by Dr. J. O. F. Hill, of West Brighton, recently operated for appendicitis on a child three years old at the Hotel Brighton, Coney Island. For thirty-six hours the patient appeared to be rapidly recovering, but finally succumbed to peritonitis. It is believed that this is one of the youngest children upon whom the operation has ever been performed.

DEATH OF DR. GEO. H. SMITH.—Dr. George H. Smith, of New York, died at the home of his nephew, Dr. F. W. Smith, at Syracuse, July 15th, of Bright's disease, aged sixty-seven years. Dr. Smith was graduated from the Medical Department of the University of the City of New York in 1857, and served with distinction as an army surgeon during the late war. He was Professor of Surgery in the Long Island Medical College for a number of years, and was a prominent member of the Medical Society of the State of New York.

MORTALITY FROM DIARRHEAL DISEASES.—Although the weather during the first half of July was unusually cool for the season, there was a considerable increase in the city's mortality, due to the prevalence of diarrheal diseases in infants and young children. During the week ending July 13th, 1,058 deaths were reported. In the week ending July 20th, notwithstanding the somewhat warmer weather, the mortality was somewhat smaller, the number of deaths being 1,012. Of these, 265 were caused by diarrheal diseases. There were 89 deaths from phthisis and 55 from pneumonia. Among the zymotic diseases, 27 deaths were caused by diphtheria, 17 by measles and 3 by scarlet fever.

Miscellany.

POPULAR THERAPEUTICS AT THE BEGINNING OF THE EIGHTEENTH CENTURY.

In the year 1831, writes Dr. Dugald Mitchell in the *Glasgow Medical Journal*, there was published in Edinburgh the third edition of a popular medical work entitled "The Poor Man's Physician, or the Receipts of the Famous John Moncrief of Tippermalloch." Sir John, who died in 1810, seems to have had at his disposal an abundance of remedies for the "cure" of most diseases, especially of those diseases which are obscure and obstinate of treatment. Animal excretions, such as bile, urine, ordure of various animals, putrefied serpents, menstrual fluid, dried placenta, brains of animals, blood of goats, bats, bulls, etc., are among the remedies recommended.

Dr. Mitchell writes that these recommendations were but a lingering legacy from the ancient physicians, and that Brown-Séquard's suggestion for the invigoration of the aged would not have struck Pliny as at all out of the way. The modern use of animal extracts, thyroid, pancreatic, nerve, brain, etc., seems rather a recrudescence of the *materia medica* of old, though served up in a more enticing form.

"At the beginning of the last century, and for one purpose or other, human milk, cows' milk, mares' milk,

sheep's milk, goats' milk, dogs' milk, sows' milk — all were used, and under the most diverse circumstances. The value of milk in phthisis was thus quaintly extolled: 'Milk doth hit all intentions for cure. It cleanseth with its serous part; it conglutineth with its coagulating part; and nourisheth and refresheth with its unctuous part.'

"Milk from a *black* or *red* cow was specially recommended in diarrhea, and it was somewhat elaborately fitted for its purpose by being boiled nine times, a little spring-water being added after each boiling.

"Precious stones were sovereign remedies in innumerable diseases. A jasper, hung about the neck or applied to the liver, was resorted to in spitting of blood. An emerald, held in the mouth, was employed in dysentery, and a 'green jasper,' we are told, 'or a piece of ivory bone about the pit of the stomach stayeth vomiting.' A sapphire, held before a boil, was credited with arresting it, and a sapphire, or jacinth, or jasper, or diamond worn or carried, was considered effectual in restoring a lost appetite. To combat the plague even a larger variety might be resorted to — a carbuncle, ruby, agate, garnet, jacinth, or sapphire."

The application of heat was practised for the relief of conditions for which it is now employed, but the treatment must have been often difficult to carry out. In convulsions it is recommended to "put the part affected into an ox or sheep's belly, or other great creature's belly newly killed, and let it remain there until warm." Surely a difficult procedure to apply in a case of general convulsions! For headache it was recommended to apply sheep's lungs hot. For colic a live duck's belly is to be applied.

Among the remedies for hemorrhage we find the forerunner of tannic and gallic acids in the use of the distilled water of oak-tree leaves in hemoptysis, and of water in which the inner rind of an oak sapling had been macerated, in hemorrhage from the bowels. The writer finds a suggestion of the use of the ligature in the recommendation to "rub and bind the extreme parts" in the treatment of certain hemorrhages.

A method for coagulating the blood in epistaxis was the introduction into the nostrils of the hairs of a hare mixed with white of egg or vinegar. In menorrhagia, astringent injections, such as the juice of strawberries and their leaves, or plantain, was employed, this application being reinforced by pessaries of the leaves of purslain, plantain or knot grass rolled in a piece of fine linen and put up into the womb.

"In the same condition, and in order to produce derivative or revulsive effects, it was advised to 'fasten a very large cupping glass to the patient's dugs, but take it quickly off again.' Uterine prolapse was treated by reduction, followed by injections of the decoction of galls, or, in bad cases, by the use of pessaries 'made of cork, smeared over with wax, or made of wax alone, round or long.' A method of reduction spoken of was, to say the least of it, decidedly primitive. It was to 'affright the patient with a red hot iron in your hands, threatening to burn the part.'

"The last remedy in iliac passion, if it arose from circumvolution of the intestines which is either from wind or a hernia, is to apply a smith's bellows to the anus, and blow in the belly."

Among the recommendations for eye diseases it may be noted that "a drop of the patient's urine powerfully drieth up tears."

Alopecia was treated by rubbing the head over with

onions, or using the burnt ashes of goats' hoofs rubbed up with pitch.

In ulceration of the nostrils, snuffing up smoke from wax candles was said to "powerfully dry up the ulcers," certainly, as Dr. Mitchell remarks, a primitive carbonaceous application.

Whatever may be said of these primitive methods of treatment, they certainly show that if, as we are told, the physician who recommended them had a large practice, the patients of that day were very submissive in carrying out of heroic measures. A modern physician who recommended rubbing the scalp with onions, or worse, with pitch, would run a very fair chance of losing his patient, especially if the baldness were not quite complete, so that there was a little hair left for the pitch to stick to!

Correspondence.

THE CASTRATION OF CRIMINALS.

HAMILTON, O., July 20, 1895.

MR. EDITOR:— I have been much interested in Dr. Arthur K. Stone's paper on "Prostitution," which appeared in your issue of July 11th. There is one proposition, namely, the castration of criminals, to which I cannot subscribe.

On several occasions I have combated in print the growing belief that ovariectomy and castration were proper methods of dealing with the habitual criminal and sexual pervert. Of course, those thus treated could never beget children, but if a judge demanded such a barbarous mutilation, and if a jailor or physician inflicted it, would not the morality of the community undergo a great shock? Would not those accustomed to perform such atrocities — or even those accustomed to hear of them — would not their moral faculties be blunted?

One of the worst sequels of war is that moral anesthesia which affects society for so long a time afterwards. So pronounced is this symptom that it may be observed among all so-called Christian nations. Indeed, to find the highest development of Christian virtues we must turn to those tribes or communities where war is unknown.

It would seem that brutal and severe punishments would produce the same results on our moral sense as wars; and Pike in his "History of Crimes in England" has well shown the degrading effects of torture and mutilation on all who witness them.

Just as mercy is twice blessed, so is cruelty twice cursed; it injures both the victim and all who know of his suffering. The reports of penal institutions and asylums prove that severe punishment makes the culprit vicious, that it degrades him, that is merely appeals to his sense of fear, and that it has the least reformatory tendency.

From Socrates to Henry George there has been waged a long, weary battle for individual rights. There is in the latest philosophy this tenet, that all men have equal rights to develop themselves as they see fit, provided they regard the like rights of others. What right have we then to deprive the rapist or harlot of opportunities to develop their normal faculties? It might be answered that we could have a legal right; but let us not put faith in the fiat of legislatures, especially since Carrol D. Wright tells us that it is estimated that one-sixth of the laws on the books to-day are "opposed to well-established social and economic principles."

While the castrationists recognize the part bad parentage and bad environment play in producing criminals, they fail to see that the proposed remedy would surely conduce to bad morals. They have made some strange interpretations of historical facts, which may account for their stranger logic.

So much for criticism; now for treatment. I concur

fully with Dr. Stone in his suggestions to arouse public opinion, to check the girl traffic, to educate the youth, and to raise the age of consent. All these propositions I believe in, because in no way would they interfere with the rights of the individual. If it is the proper function of the State to protect its members from the aggressions of others (and I believe it is), then it is right for us to protect girls from those who would injure them. To create public opinion and to volunteer information to boys and girls interferes with no one's rights, but to make eunuchs and sterile women certainly does. Furthermore, I believe that it is only by persuasion that we can make men better. Let there be no coercion unless one is derelict in one's duty to his fellows. And if force or punishment are deemed necessary, how much more humane to confine the criminal until he gives promise of reform, than to destroy that powerful, useful faculty, the sexual instinct.

Boston is one of those cities, I believe, in which there are special patrolmen whose duty is to keep people (especially novices in crime) out of prison. The number who take their first step in a criminal career after a sojourn in a station-house or jail is surprisingly great. It is a sad commentary on our courts of justice when they become so dangerous that people need police protection from them. If, as before mentioned, it is the duty of the State to protect its units from the aggressions of others, then we ought to have the benefits of free justice. We should have courts in which disputes could be settled free of charge.

Let us have more societies whose object is to help men to help themselves, such, for example, as The Associated Charities.

Were Dr. Stone to find a man out of employment to-day in Boston, I venture to say that he could not find him a job without the consent of some other man. About the only thing for an unemployed person to do is to go to the water's edge and fish. Notwithstanding the abundance of unused land, he has no access to it except by the consent of those who monopolize it for speculative purposes. What wonder is it then that men cut off from land, condemned to poverty and a certain sort of slavery, should become vicious and degraded! Until philanthropists see clearly that it is impossible to develop one's self without access to nature, they will probably continue as they have in the past, trying to improve men by prohibition, tariffs, capital punishment and mutilations. Yours very sincerely,

MARK MILLIKEN, M.D.

IS THE HANDLING OF ARTIFICIAL FERTILIZERS INJURIOUS TO HEALTH?

96 EAST AVENUE, ROCHESTER, N. Y.,
July 16, 1895.

MR. EDITOR:—In a suburb of this city there is a storehouse belonging to the "Bradley Fertilizer Company," with headquarters, I believe, in Boston. It is a general agency, and as such, a much larger quantity of the fertilizer is handled here than in other communities outside of Boston.

Its advantageous situation enables the company to ship their product in bulk by canal, store it in large bins, and reship by rail in sacks, as is their custom, to the cities and towns included in this agency as a distributing point.

The building is located near the centre of the village (Brighton), and contiguous to a very fashionable thoroughfare leading out of the City of Rochester.

Complaints have been made, largely on account of the so-called injurious effect upon the health of the community.

The local board of health is desirous of information, whether physicians in other communities have found in their experience, that the odor or dust from fertilizers is or is not a direct or contributing cause of sickness?

Anything from your readers bearing upon this subject will be most gratifying, and will be thankfully received.

Very respectfully,

HENRY H. COVELL, M.D.

METEOROLOGICAL RECORD.

For the week ending July 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.	Relative humidity.	Direction of wind.	Velocity of wind.	Weather.	Rainfall in inches.
	Daily mean.	Daily mean. Max. and Minimum.	8.00 A. M. 8.00 P. M.		8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	
S.. 7	29.82	74 83 65	86 91	W.	S.W.	6 5	O. O.
M.. 8	29.82	76 85 68	76 87	S.W.	S.W.	12 8	H. F.
T.. 9	29.77	74 78 70	89 88	S.	S.W.	9 4	O. O.
W.. 10	30.02	68 75 60	59 58	N.W.	N.W.	17 11	C. C.
T.. 11	30.16	62 68 56	56 65	N.	S.W.	6 6	F. F.
F.. 12	30.13	68 78 57	78 71	W.	S.W.	5 15	C. C.
S.. 13	29.99	64 72 57	78 83	S.W.	S.W.	10 14	C. O.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., thunders-
ting; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 13, 1895

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	1,956,000	1053	656	50.50	8.60	32.00	2.70	2.90	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	583	317	32.47	7.82	26.86	3.74	3.41	
Brooklyn	1,043,000	592	370	19.21	6.08	15.20	3.36	3.8	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	177	72	21.66	14.82	8.55	6.84	1.14	
Baltimore	500,000	—	—	—	—	—	—	—	
Washington	285,000	146	78	33.12	8.28	29.67	—	—	
Cincinnati	325,000	—	—	—	—	—	—	—	
Cleveland	325,000	104	57	22.08	8.64	19.20	—	—	
Pittsburg	272,000	—	—	—	—	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	54	19	25.90	14.80	16.66	—	—	
Charleston	65,165	49	18	16.24	8.16	10.20	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	18	6	27.77	16.66	16.66	—	—	
Fall River	92,233	51	32	10.46	3.92	47.04	—	—	
Lowell	90,613	—	—	—	—	—	—	—	
Cambridge	79,007	—	—	—	—	—	—	—	
Lynn	65,123	15	3	13.33	6.66	—	6.66	—	
Springfield	50,284	19	12	52.60	5.26	36.82	—	10.52	
Lawrence	49,900	29	—	62.50	3.45	39.45	—	—	
New Bedford	47,741	11	7	36.36	18.18	27.27	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	33,929	7	2	28.56	14.28	14.28	—	—	
Salem	33,155	8	5	25.00	12.50	12.50	—	12.50	
Haverhill	32,925	4	0	50.00	50.00	25.00	—	—	
Malden	30,209	6	1	50.00	33.33	16.66	—	—	
Chelsea	29,806	12	2	16.66	8.33	—	8.33	—	
Fitchburg	29,383	3	1	33.33	—	33.33	—	—	
Newton	28,837	6	1	—	33.33	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	14	3	—	28.56	—	—	—	
Waltham	22,058	—	—	—	—	—	—	—	
Quincy	19,642	5	4	—	20.00	—	—	—	
Pittsfield	18,802	3	0	33.33	66.66	—	—	—	
Everett	16,585	3	0	—	—	—	—	—	
Northampton	16,331	—	—	—	—	—	—	—	
Newburyport	14,073	—	—	—	—	—	—	—	
Amesbury	10,920	1	0	—	—	—	—	—	

Deaths reported 2,984; under five years of age 1,707; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 958, consumption 265, acute lung diseases 140, diarrheal diseases 742, diphtheria and croup 87, measles 39, whooping-cough 30, typhoid fever 19, scarlet fever 18, cerebro-spinal meningitis 12, puerperal fever 5, erysipelas 4, malarial fever 2.

From whooping-cough New York 17, Brooklyn 4, Philadelphia 3, Boston 2, Providence, New Bedford, Brockton and Haverhill 1 each. From typhoid fever Philadelphia 3, New York, Brooklyn, Boston and Charleston 3 each, Washington, Cleveland and Pittsfield 1 each. From scarlet fever New York 4, Boston 3, Brooklyn, Nashville, Fall River and Malden 2 each, Philadelphia, Washington and Chelsea 1 each. From cerebro spinal meningitis New York 5, Washington 3, Cleveland, Lynn, Lawrence, Chelsea and Amesbury 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending July 6th, the death-rate was 17.5. Deaths reported 3,564; acute diseases of the respiratory organs (London) 160, diarrhea 337, measles 131, diphtheria 71, whooping-cough 62, scarlet fever 31, fever 25, small-pox (Oldham, 4, London 3, Liverpool 1) 8.

The death-rates ranged from 24.4 in Liverpool to 9.1 in Croydon; Birmingham 16.2, Bradford 17.9, Gateshead 13.6, Hull 18.3, Leeds 19.6, Leicester 15.9, London 18.0, Manchester 18.7, Newcastle-on-Tyne 20.1, Nottingham 10.6, Plymouth 14.6, Portsmouth 12.2, Sheffield 17.0, Sunderland 17.0, Wolverhampton 19.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 13, 1895, TO JULY 19, 1895.

Leave of absence for two months, to take effect on or about July 13, 1895, is granted COLONEL CHARLES T. ALEXANDER, assistant surgeon-general.

CAPTAIN WILLIAM H. CORBUSIER, assistant surgeon, will, in addition to his present duties, take charge of the Medical Supply Depot in New York City, during the absence on leave of COLONEL ALEXANDER.

CAPTAIN ADRIAN S. POLHEMUS, assistant surgeon, granted leave of absence for two months, to take effect after his return to his proper station, Fort Douglas, Utah, or at such time thereafter as his services can be spared by his post commander.

CAPTAIN JULIAN M. CABELL, assistant surgeon, granted leave of absence for four months, on surgeon's certificate of disability.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JULY 15, 1895.

BAILHACHE, P. H., surgeon. To assume command of Camp Low Quarantine. July 5, 1895.

HUTTON, W. H. H., surgeon. To report at Bureau for temporary duty. July 12, 1895.

WHEELER, W. A., surgeon. Relieved from command of Camp Low Quarantine. July 5, 1895.

BANKS, C. E., passed assistant surgeon. To proceed to Detroit, Mich., on special temporary duty. July 5, 1895.

GOODWIN, H. T., passed assistant surgeon. Granted leave of absence for thirty days. July 12, 1895.

VAUGHAN, G. T., passed assistant surgeon. Granted leave of absence for seven days. July 6, 1895.

STONER, J. B., passed assistant surgeon. To proceed to Detroit, Mich., for temporary duty. July 12, 1895.

EAGER, J. M., passed assistant surgeon. To proceed to Southport, N. C., and assume command of quarantine station. July 6, 1895.

STEWART, W. J. S., assistant surgeon. Granted leave of absence for nine days. July 5, 1895.

WICKES, H. W., assistant surgeon. Granted leave of absence for twenty-three days. July 5, 1895.

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Report of the Commissioner of Education for the year 1891-92. Vols. I and II. Washington: Printed by the Government. 1894.

The Johns Hopkins Hospital Reports. Vol. IV, Nos. 7-8. Report in Gynecology, III. Baltimore: The Johns Hopkins Press. 1895.

Ninth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Printed by the State. 1894.

Wills Eye Hospital Reports, Vol. I, No. 1. Editorial Committee, Charles A. Oliver, M.D., Conrad Bemis, M.D. Philadelphia, 1895.

The Year-Book of Treatment for 1895; a Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co. 1895.

Annual Report of the Department of Health, City of Chicago, for the year ending December 31, 1894. Arthur R. Reynolds, M.D., Commissioner of Health.

Proceedings of the American Medico-Psychological Association at the Fiftieth Annual Meeting held in Philadelphia, May 15-18, 1894. Utica: Published by the Association. 1895.

Transactions of the New York State Medical Association for the year 1894. Vol. XI. Edited for the Association by E. D. Ferguson, M.D., of Rensselaer County. New York City: Published by the Association. 1895.

Trattato di Patologia e Terapia Chirurgica Generale e Speciale. Opera illustrata da circa 500 figure originali intercalate nel testo e da tavole litografate. Vol. I. Printata 2a (pag. 209 a 400). Live 5. Roma: Societa Editore Dante Alighieri. 1895.

Atlas of Clinical Medicine. By Byrom Bramwell, M.D., F.R.C.P., Edin., F.R.S., Edin., Assistant Physician to the Edinburgh Royal Infirmary, etc. Vol. III, Part 2. Edinburgh: Printed by J. & A. Constable at the University Press. 1895.

Index of Medicine; a Manual for the Use of Senior Students and others. By Seymour Taylor, M.D., Member of the Royal College of Physicians; Senior Assistant Physician to the West London Hospital. Philadelphia: Lea Brothers & Co. 1894.

A Treatise on the Nervous Diseases of Children, for Physicians and Students. By B. Sachs, M.D., Professor of Mental and Nervous Diseases in the New York Polyclinic; Consulting Neurologist to the Mt. Sinai Hospital, etc. New York: William Wood & Co. 1895.

Affections Chirurgicales des Membres, Statistique et Observations. Par le docteur Polaillon, Chirurgien de Hôtel-Dieu, Professeur agrégé à la Faculté de Médecine de Paris, Membre de l'Académie de Médecine. Un volume in 8° de 810 pages. Paris: Librairie O. Doris. 1895.

The Treatment of Wounds, Ulcers and Abscesses. By W. Watson Cheyne, M.B., Ed., F.R.S., F.R.C.S., Professor of Surgery in King's College; Surgeon to King's College Hospital and Paddington Green Children's Hospital, London. Philadelphia: Lea Brothers & Co. 1895.

A Manual of the Modern Theory and Technique of Surgical Asepsis. By Carl Beck, M.D., Visiting Surgeon to St. Mark's Hospital and to the German Poliklinik of New York City, etc. With 65 illustrations in the text and 12 full-page plates. Philadelphia: W. B. Saunders. 1895.

Suprapubic Cystotomy for Calculus of the Bladder; Trendelenburg's Transverse Incision; Transverse Division of the Recti and Pyramidalis Muscles; Incision of the Bladder without Inflation of the Rectum or Injection of the Bladder. By A. H. Meisenbach, M.D. Reprint. 1895.

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A Text-Book of Physiology. By M. Foster, M.A., M.D., LL.D., F.R.S., Professor of Physiology in the University of Cambridge and Fellow of Trinity College, Cambridge. Revised and abridged from the author's Text-Book of Physiology in five volumes. New York & London: Macmillan & Co. 1895.

Burdett's Hospital and Charities Annual, 1895. By Henry C. Burdett, author of "Hospitals and Asylums of the World"; "Hospitals and the State"; "Pay Hospitals of the World"; "Cottage Hospitals," etc. London: The Scientific Press. New York: C. Scribner & Sons. Boston & Chicago: D. C. Heath & Co.

Multiple Deviations of Both Legs in a Rhachitic Child; Osteotomy of Five Bones Performed in one Séance; Recovery. The Treatment of Gonorrheal Infections in the Female by Permanganate of Potassium. Benign Tumors of the Breast. By Charles Green Cumston, B.M.S., M.D., Boston, Mass. Reprints. 1894-95.

Skiascopy and its Practical Applications to the Study of Refraction. By Edward Jackson, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine; Surgeon to Wills Eye Hospital, etc. With twenty-six illustrations. Philadelphia; The Edwards & Docker Co. 1895.

Demon Possession and Allied Themes, being an Inductive Study of the Phenomena of our own Times. By Rev. John L. Nevius, D.D., for forty years a Missionary to the Chinese, with an introduction by Rev. F. F. Ellinwood, D.D., Secretary of the Board of Foreign Missions of the Presbyterian Church. With an index. Chicago: Revell & Co. 1895.

System of Surgery. Edited by Frederic S. Dennis, M.D., Professor of Principles and Practice of Surgery, Bellevue Hospital Medical College; Visiting Surgeon to the Bellevue and St. Vincent's Hospitals, etc.; President of the American Surgical Association, etc.; assisted by John S. Billings, M.D., LL.D., Edin. and Harv.; D.C.L., Oxon.; Deputy Surgeon-General, U. S. A. Vol. II. Minor Plastic and Military Surgery; Diseases of the Bones, Orthopedic Surgery; Aneurysm; Surgery of the Arteries, Veins and Lymphatics; Diseases and Injuries of the Head; Surgery of the Spine; Surgery of the Nerves. Profusely illustrated. Philadelphia: Lea Brothers & Co. 1895.

Lecture.

THE NEW ENGLAND INVALID.¹

SHATTUCK LECTURE FOR 1895.

BY ROBERT T. EDES, M.D., JAMAICA PLAIN, MASS.

(Concluded from No. 4, page 81.)

As I have already suggested, it is doubtful if the lower races, and even certain classes in civilized society, have the structure which fits them for the undesirable privilege of "nervous prostration." It has sometimes seemed as if that objectionable, but indispensable, phrase were used with a slight savor of pride, as if like gout, a liability thereto testified to a sort of mental superiority, or even a more advanced social standing.

Probably more than one generation may be required for its full development.

Heredity cannot easily be traced statistically, for the reason of the indefiniteness of the terms in which we describe and distinguish the nervous susceptibility, and also the controlling influence of personal feeling and theory in the testimony of relatives; but no one can deny its great importance, even if it is impossible to put it in figures. The difference in susceptibility, congenital or acquired in the early years of life, is the only way in which we can reach anything like an explanation of the great differences in the magnitude and effectiveness of the exciting cause of nervous break-down. It seems necessary to assume a much greater variation than exists in regard to most bodily qualifications. No man is twice as tall and very few half as tall as the average, but it seems as if we should be obliged to express nervous endurance in terms of tens and hundreds, if we could measure it in figures at all, in order to cover the possibilities of the strain under which it is likely to give way.

Whether this difference depends upon complication and delicacy of nervous arrangement, or whether it is simply a matter of the mass of protoplasm or of nuclein, or whether, which is much the more probable, it resides in a recuperative power which is not expressible anatomically, is a question impossible to answer. Practically, nervous resistance is undoubtedly somewhat increased by the best general nutrition and very distinctly impaired by the reverse, but the extent to which it can be built up in advance by general nutrition is probably not very great.

Deficient and impaired nutrition of long duration may render permanent a stunted or misdirected nervous growth that might under more favorable circumstances have become normal.

Intellectual occupations, that is, those involving a cerebral activity above the average, will undoubtedly contribute the larger number of nervous invalids (always, however, leaving out the hysterical), but it is not of so much consequence what the kind of labor is or how high a grade of intellect is involved, provided there is no undue susceptibility and also that the conditions under which it is done are not unfavorable. This implies, of course, that the labor should be fitted to the capacity of the individual.

The institutions for the higher education of men or women show no undue proportion of nervous break-down, and it is just as easy to find typical ex-

amples among teachers and scholars in the public schools of lower grade, where the purely mental strain is probably no greater, or at any rate the intellectual results are no more valuable, but yet the conditions are of a distinctly worse kind, in the multiplicity of the exactions, the utter want of adaptation to individual capacity, and probably, worst of all, the unhealthy stimulus under which it is done. A patient whom I knew fifteen or more years ago, before she came to the Adams Asylum, used to date her final break-down to a school essay on the Geneva conference, none of the original participators in which, whose opinions were presumably quite as carefully and laboriously formed, seem to have shared the same fate.

It is probably unnecessary for me to remind you of what public-school teachers are supposed to know, but the following list was obtained from a girl of twenty-four who was teaching up to a day or two before her entrance:—Geography, arithmetic, reading, writing, drawing, music, composition, a little grammar, orthography, gymnastics, zoölogy, botany, a little geology and mineralogy, physiology, which very interestingly was made to include hygiene (mental?) and the use of intoxicating liquors. Latin, French and German I understood to have been just introduced into the course, perhaps by the way of diversion after hours. Whether she went to a party or two during the week I did not learn, or a Bible-class Sundays, but I find in my notes "four supervisors' meetings per week," which it is easy to imagine were not occasions of unalloyed happiness.

The influence which converts healthy fatigue into a pathological condition, too often permanent, is the stress and worry under which work is done, and in this way occupations which involve no harmful amount of intellectual labor come to have disastrous results. This is why teachers and students furnish so large a proportion of our patients, and why those that have "no occupation" surpass them. "No occupation" is likely to mean a dozen different ones, for none of which has the person any special aptitude. It is not the work done, but the driving.

They study, not to know something, but to pass an examination on it; not because they are interested in it but because some one else has studied it and it is a good thing to do, and they do not wish to be left behind; not because the girl cares anything about Greek, but because Greek has been taken as a sort of standard for so-called scholarship in boys, and she wishes to glorify her sex and show the world that girls can do anything that boys can.

Such cases, however, are the less serious as being more frequently and more easily avoidable. In by far the greater number which we see, the element which changes physiology to pathology is not so easily got rid of. Household and business cares never relaxing, anxious work with no holidays, often two kinds of work, the worry of the school-room exchanged only for the worry of an invalid's sick room, or for the preparation for new examinations to retain the old places or to secure the necessary promotion.

Bodily fatigue, if taken not in the form of exhilarating out-door exercise but involved in the daily occupation itself, like continuous standing or working a machine, is a potent adjuvant.

All sorts of combinations can be imagined, but the one essential condition is worry and drive. To the

¹ Delivered before the Massachusetts Medical Society, June 11, 1895.

fortunate individuals who do not allow things to worry them; who let their creditors walk the floor, instead of doing it themselves, when the note is coming due; whose business is done when they shut up their books for the night; who shed all their own and their neighbors' troubles as the duck sheds water, brain work is as healthy as any; but those people are rare. The New-England woman who is undertaking, with perhaps insufficient equipment, a career just a little beyond her real mental strength, which she must follow for her daily bread, or driven there by a social ambition, which is no unimportant factor in such cases, or even by the proverbial "conscience," is in a dangerous position. If you will pardon the phrase, which I have no doubt is already in your minds, when she has "bit off more than she can chew," her danger of nervous dyspepsia, both in the literal and figurative sense, is very great.

Such cases are not difficult to understand or to deal with in their earlier stages, but they may, by their persistence and neglect at that time, by obstinate fighting against the weariness which is nature's call for a halt, get into a less manageable form.

We do not know of an anatomical condition of the nervous centres akin to distorted bones and ligaments, but the comparison is not a forced one when we find mental and moral distortion growing out of such cases and restorable with difficulty if at all, just as an inflamed joint becomes ankylosed or a stoop or twist or callus becomes fixed and irremediable. The neuron is a growth, a structure, and not a mere reservoir, and it is possible that those delicate networks which induce the action of other and yet other cells, so delicate that until a very few years ago no one had even suspected their existence, may be just as confirmed in their abnormal connections as if they were bones.

It is not impossible that we may one day see the growing sclerosis of the intellectual centres as we do that of the spinal cord, or recognize under the microscope that ideas have been so long centred upon self and suffering that it is as impossible for them to take any other course as it is for the electric fluid to go through a bad conductor to do useful work after it has established a short circuit in another direction.

Attention constantly turned in upon its own painful surroundings impedes healthy mental action as an ingrowing toe-nail impedes healthy locomotion.

We have then, as the simplest form of invalidism, the chronic neurasthenic, not perhaps melancholy or unhappy, but sensitive, self-observant if not selfish (and how indignantly would she repel this insinuation), hypochondriac and useless.

A very curious and important variety of this class is one which seems to have etiologically no connection therewith, but, which, when it progresses, shows so many common features that we cannot help acknowledging a close relationship between them. This is the invalid with nothing to do, and who requires a household to help her do it. She has had no hardships, she has studied moderately at school, and perhaps has had a fall or an acute sickness, but she does not convalesce beyond a certain point, and is, or thinks she is, as helpless as the other. She is apt to think that all she wants is "rest," when she has never done anything that ought to tire her, and has done nothing but rest for years.

If we apply to the nervous end of the motor apparatus certain well-known principles which are famil-

iar enough in the pathology of muscle, the paradox diminishes. Muscular atrophy from overwork is recognized, and often persists when the overuse is discontinued. The "writer's cramp" is a not altogether dissimilar condition. On the other hand, we have the atrophy from disuse, as in the limb kept too long in splints.

The same sort of judgment that is needed to know when the passive and active motion of an injured limb should be begun must decide when nervous rest should give way to exercise of the will.

It is when a fixed idea has grown and flourished upon the soil of neurasthenia that we get the most thorough going and confirmed invalidism. This fixed idea may be of gradual growth from long habit, or a more rapid one from shock, forming the centre around which revolves the whole thought and being of the patient. On the other hand, according to the language now employed in the analysis of hysterical and hypnotic phenomena, it may reside in the subliminal consciousness, controlling thought and emotion without rising into the level of the patient's ordinary knowledge, and to be best discovered and combated by means of hypnotism.

Here we find the hysterical neuroses, the anesthesias, the paralyses and contractures, the obstinate vomitings, the neuralgias and aphonias of the severer and more chronic types.

We meet here even actual organic changes in the form of muscular wasting, stiffening of joints and muscles, not yielding permanently to passive motion or temporarily to anesthetics. Perhaps even sclerosis may be developed.

Whatever may be the anatomical and clinical changes in nervous structure resulting from long disease or the dominion of the fixed idea, there is little doubt, clinically speaking, that some influence may, after a time, render the lesion as permanent as if it were of the most pronounced and organic character. As tersely expressed by a witty friend, "nervous protoplasm is endowed with a long memory."

At what period this takes place and after how long a time, we can only approximately judge in cases where some part affected is accessible to vision and manipulation, as in the case of contracted limbs, or by the electrical reactions and the conditions of the reflexes.

It is perhaps a somewhat rash assumption to infer that psychic lesions and those of the limbs under their influence run parallel to each other, but actual trial is the only trustworthy test in either case, and it is, of course, much easier to apply to the latter condition. Where skilful and assiduous massage and passive motion fail for months to produce any return of flexibility to joints or strength to muscles, it is highly probable that the psychic condition will be found equally obdurate. In one case, where the massage of stiffened and resisting limbs was successful, and after a time the patient became able to walk, it seemed to me that the obstacle in the nerve centres was quite as great as in the limbs, and certainly much longer lasting.

The point, expressed in anatomical language, is to know how far in the first place the paths of conduction from motor centre to muscle are intact, how far there is simply enfeeblement of the centre, and lastly how far an apparent enfeeblement is counterfeited by inhibitory impulses from other cerebral centres, and in particular such as are controlled by the subliminal

consciousness or a fixed idea. In other words, how far the motionless limb is actually paralyzed, how far the patient cannot will to move it, and how far she thinks she cannot move it.

The influence of shock, not in the surgical sense, nor meaning concussion of the nervous centres, is of great importance. Not a few of our patients refer their ultimate break-down, usually not as the whole cause but the determining one, to a mental shock, frequently, for instance, the sudden death of a friend. It seems capable of taking the place of much chronic cause of depression, and, where the conditions are such as to receive and emphasize its full effect, to be as permanent in its action as the slower forms.

The question of real and visible lesion in the so-called "traumatic neurosis" and the relation of mental shock to physical concussion in such cases has been much discussed. If, as shown by Hodge and others, constant slight irritation produces organic and visible changes in the nerve cell to which it is transmitted, it is reasonable to suppose that an extreme but short series of irritations may do something similar without the intervention of any gross lesion whatever. Railroad cases are almost certain to be complicated in this respect, for it is almost impossible to exclude the influence of both mental and bodily shock.

The clinical manifestations of a purely psychic shock are, however, manifested as clearly and sharply as can well be imagined in a case reported by Dr. Jelly in the *Boston Medical and Surgical Journal*.

A man, previously healthy and temperate, fell, without losing his consciousness, on the track in front of a rapidly approaching train. He was practically uninjured and managed to roll quickly off on one side, so that the express train passed close to him without touching. This man lost his speech for many days, and for months manifested the most extreme form of nervous prostration and hysteria, with special dread, as is not to be wondered at, of anything connected with the sight or sound of railroads.

A somewhat similar case is reported by Derode, *Arch. de Neurol.*, March, 1895. A girl was barely rescued from death by a train, but without injury. Loss of consciousness, hysteria and melancholia. Experts called it traumatic neurosis, hysteriform, probably incurable. But there was no trauma except psychic.

We find in the history of our 1,000 cases, shock mentioned 60 times, and accident no less than 109. In a large proportion of the latter a fall is specified, and not unfrequently a fall upon the back.

It is true that it was not always claimed that the fall was the only, or even the chief cause of the nervous condition, but it frequently occupied a very prominent position in the patient's mind. Only a very few of these accidents seem to have been severe, and in fewer still was there any question of damages, so that the element of "expectant pecuniosity," as it has been pithily called, was not in them at all. But for all this the fall was undoubtedly a factor in the psychic condition of the patient, and although the hope of damages may, in appropriate cases, undoubtedly be a hindrance to recovery, it has had very little importance with us.

A victim of the "Bussey bridge" disaster, who, as in so many cases, was able to walk some distance immediately afterward and lost strength only after some hours, came to us the second time long after damages

had been finally settled, and yet in a condition of partial paraplegia which was supposed to be, and from the rapid improvement evidently was, of a purely functional character.

In all probability nine-tenths of these falls would have been utterly without significance in persons of normal psychic stability, while, occurring in those having the hysterical diathesis, congenital or acquired, a nervous over-impressionability, they form a very important factor in making the chronic invalid of the quiet but pronounced type.

Melancholia should hardly be included in our scheme of chronic invalidism, not, of course, because a melancholic is not an invalid and a very serious one at that, but because it is something more and also something less; more as regards the immediate severity of the symptoms, which often brings it distinctly into the class of insanity and less in regard to its average chronicity. I cannot agree with my learned and philosophical predecessor and friend, Dr. Edward Cowles, in considering melancholia merely a further development of neurasthenia, although there are certainly very close connections between the former and the acuter form of the latter; and although it must be acknowledged that neurasthenia may put on the melancholic type.

Melancholia seems more like a self-limited disease with a beginning, a middle, and an end; although, of course, like other self-limited diseases, it may in unfavorable cases run into a chronic condition.

Neurasthenia has a beginning and a middle distinctly enough, but a vague and uncertain ending. I believe the statement to be a sound one that the prognosis of neurasthenia is unfavorable, not in proportion to the apparent severity of the symptoms, but in proportion to the time during which they have been present.

Melancholia appears to fit much more easily into an auto intoxication theory, possibly of intestinal origin, than the milder, more chronic, but more obstinate hysteroneurasthenia, with its more purely psychic origin.

One of the remarkable points about some of the most typical melancholias, which makes a highly important distinction from neurasthenia, is their absolute causelessness, so far as can with the utmost care be discerned, in the environment. It is seen in those who have not a visible care in the world and from whom no inquiry can elicit a trace of secret sorrow. In the acuter forms of neurasthenia the apparent cause is usually simple and more nearly adequate, in proportion, that is, to the resisting power of the particular nervous system in question.

Some years ago I saw a man who had just been taking a trip abroad for a profound and causeless depression for which he found no relief. He assisted in detailing the circumstances of his life. Of excellent habits, irreproachable reputation, freedom from pecuniary trouble, with a steady occupation involving no overwhelming responsibility, and in which his employers allowed him to take his own course, some literary employment which gave him much or little to do as he liked, he pointed out to me the blessing he enjoyed of an excellent and exemplary family to whom he was devotedly attached, a pleasant residence and other material sources of happiness with which he was surrounded. Yet in three days after this conversation he knelt down in front of an express train.

The typical neurasthenic invalid does not kill herself.

If it were possible to devise a scheme for promptly and infallibly restoring the chronic nervous invalid to working power or even to the point where she would no longer be a burden, the benefit to the community would be somewhat like that which comes from diminishing the cases of phthisis or typhoid in adding to the effecting working force of the world and diminishing the amount of non-effective labor. The invalid is likely to belong to a class, to be of the time of life and possess the mental capacity to make her working ability of great importance to her friends and the community. Her restoration to usefulness makes life easier for herself and a circle around her. I am not of those who can see in a multitude of beautiful examples and teachers of patience a sufficient recompense for the suffering and waste of life and opportunities. Involuntary teachers of patience are useful up to a certain point and I think they will never fail; but that profession is overcrowded with those who can never do anything else and calls for no amateurs. The deficiency is not in teachers but in scholars. What is of quite as much importance is that some of the most distinguished professors of this branch of instruction do not do it well. Patience under afflictions which can be removed is no virtue, and the "sweet sufferer" does not elevate the moral tone of the neighborhood so much as might be supposed, especially when it begins to doubt the genuineness of the specimen exhibited as an object-lesson.

It may be supposed from much that has been said that fattening and blood-making are not always sufficient for a cure, a fact already familiar. We have seen the invalid who is fat and florid, and, on the other hand, the thin and apparently anemic doing useful and trying work without breaking down. If the circulation can carry a limited amount of healthy blood from the digestive organs to a healthy brain it will do the work, even if the mass be small and it does not brighten the cheeks or stop on the way to deposit adipose tissue. It is another case of the 'nimble sixpence better than the slow shilling'.

Still it is undoubtedly better to have the soundest, most substantial and secure foundation to build upon. Business can be done upon a small capital, but it is more secure from accidents upon an ample one. We are not to neglect or look with indifference upon the building up, so far as possible, of the general nutrition. In fact we can look for little success when there is an absolute failure, and not merely an apparent partial one, in this respect. Except the improvement of essential symptoms which we are seeking to remedy, there is no other one test of success which is so trustworthy as a gain in weight; and it may precede the others. Only one need not be utterly discouraged if the gain is not a very striking one.

The general nutrition is one of the handles to raise the patient from her condition of invalidism, and it is the easiest to get hold of. Unfortunately one handle is apt not to be enough.

Corresponding to the feeding should be suitable attention to the excretory organs, and for this purpose one soon has to become familiar with the whole range of laxatives, no matter how advanced his theoretical views as to the treatment of constipation by diet, electricity and massage. An occasional old-fashioned mercurial is not to be despised. Nitrogenous elimina-

tion is to be promoted by the use of water, sometimes slightly alkaline, though this is not usually of great consequence.

To think of rest as a new discovery for the cure of fatigue would be equally ingenious with inventing a food cure for hunger, but, for all the apparent simplicity, mistakes are possible in the application of both remedies.

If we consider again the physiology of fatigue and repair, as shown in the nerve cell, which we may regard as the differential of that highly complicated function, cerebral activity, we find that it is a matter of a few hours, so that in the birds, for instance, which were examined by Hodge, it was embraced within the limits of day and night. Although we know very well that human cerebral activity may continue much longer under special excitement, there has never been the least reason to doubt this diurnal period is the least exhausting, as it has always been the usual and natural one.

Even a shorter period has its advantages, especially in the way of prevention. The American business man's hurried lunch might well be developed into the usual dignified siesta of hot countries.

We cannot be too firmly convinced that the nerve cell is a living growth and not a mere reservoir. The figure of speech often made use of in describing the origin of neurasthenia, that is, as a bank account constantly drawn upon without corresponding deposits, is an extremely erroneous one in the respect of implying that, no matter how low the amount may go, it can be set right again at once by a single sufficient sum. This is certainly not true of nervous exhaustion in the more chronic forms.

The neuron has two functions or modes of action; one is to originate and transmit stimuli either to a muscle or to another neuron, and the second to maintain its own capacity for the conversion of energy. The first of these is necessarily carried on at the expense of energy, with definite chemical changes, but the second is a more subtle inherent property dependent on heredity, education, and many other influences, the diminution of which is purely pathological.

Too great a prolongation of the period of fatigue, too many and too unremitting repetitions of the slight irritation, a shock too great for the normal reaction, produce not only a drain of energy but more or less impairment of the capacity for reproduction, or an actual change in the habit of growth, so that it is no longer capable of being made whole, either by a full supply of nutritive material or simply a prolonged rest, equal to the period of fatigue. If we wished again to resort to the business simile we might compare the nervous system not to a bank account, but to a manufacturing establishment where the demand for its products and for dividends has been so great that nothing has been spent to replace the worn-out machinery, and it has finally come to a forced standstill. Then, not only money but time and labor must be spent to get it into working order again.

We know that healthy function is not restored by rest alone. We do not expect to bring back motion to the paralyzed limb by putting it in a starched bandage; and activity is to be restored to the disused neuron by gentle and increasing exercise, just as it always is to the disabled muscle. The point at which this is to be begun is the point where the judgment of the physician is needed. Perhaps in the future some of the

tests of the psychological laboratory may give us a more definite standpoint.

How common it is for a patient of this class to tell us how she has been set back by what she considers premature attempts to get up and do something, and, on the other hand, how often does the suspicion arise that what is supposed to be profound exhaustion comes extremely near to indolence, fear, habit, and want of confidence. One is often obliged to defer somewhat to the views of the patient and her friends and proceed with more timidity than his own fears would dictate. Delay and caution may be called for, not because there is real danger, but because it is necessary to establish a relation of confidence with the patient, and avoid the suspicion of rashness.

The question of sleep covers a good deal of the same ground as that of rest, but not the whole. It is not unusual to meet with patients who get a very fair proportion of sleep in the twenty-four hours and are yet incapable of mental effort during the remainder. In others it seems that the return of sleep is much more a consequence and sign of returning nervous vigor than simply a means of establishing it. Without it we can hardly hope for a sound recovery, but it does not follow that because the normal daily expenditure of nerve force can be completely made up by the nightly rest, or even that of two or three days, that the accumulated deficiency of a year can be made up by a corresponding number of extra hours. The nerve cells have not only expended their energy as fast as produced but have lost the capacity for storage.

What has just been said applies chiefly to the plain and simple forms of nervous exhaustion. The case is different when the fixed idea, conscious or unconscious, is added: when the machine has not only its driving force diminished but when some foreign body blocks the wheels.

Feeding and rest cannot always, perhaps I might almost say can never alone, dislodge this. It is probable that general nervous depression favors the domination of the fixed idea just as under-feeding does infection by acute febrile disease, and undoubtedly a restoration of general health and strength is of as great advantage in the one case as in the other. Sometimes it is the only thing which can make a complete cure possible, but a nervous warp or twist may be as obstinate as one involving bone and ligament. We see this in the most striking way in inherited mental traits which are as permanent and distinct as features, color, size, or disease tendencies. Insanity breeds as true as phthisis and more so. Acquired tendencies, are, indeed, often much less permanent, but the fixed idea is not the same thing as a whim of the imagination.

The psychic element in invalidism is to be controlled by psychic means.

We find among those who have been with us and who have been discharged without complete or permanent relief, no inconsiderable number who refer their recovery, or what they consider as such, to some one of the many forms of empirical treatment, now so much in vogue under names familiar to you all, which have, like other fads before them, been erected by their cultivators into a kind of religion. I do not suppose that our inquiries have resulted in anything like a complete account of these cases. We have known of some who have not reported themselves, a few have stated that they tried so and so with no good

result, and it would not be human nature if the favorable cases were not more readily reported than the unfavorable ones. Such things have happened in more scientific circles. Making all allowances, however, I think it is well to look the fact squarely in the face that some persons do receive great benefit from some of these forms of treatment who have failed to do so at the hands of regular and skilful practitioners. These cases should be studied and not contemptuously waved aside. *Fas est ab hoste doceri.*

Presumably most of us believe that the days of miracles are over, and that these cases do not furnish any exceptions to the ordinary laws of mental physiology.

But we have not to look to these sects alone for cures of this character. They have been happening under all sorts of names and schemes. Besides those openly claimed as wonder cures it requires no great stretch of the imagination to suppose that many such attributed to this or that drug, spring, bath, or physician, have been of this character. They swarm, more or less well interrupted, in medical literature.

There are those, even among our neurological brethren, who hold that many of the good results of electrical treatment, especially by the static current, are largely due to their psychic influence.

Notorious practitioners have removed fictitious tumors and opened abscesses for which they had themselves to provide the pus, charging extortionate fees in order to keep up the "moral" effect. Medical and religious history abounds with the records of cures made by appeals to the faith and imagination in all sorts of ways, and it is generally well recognized that they are wrought largely in the class of cases we are now discussing.

It is not, however, a very dignified position for a physician to occupy when he makes such explanations for the first time for the purpose of belittling some cure of the kind which has been reported to him. They are probably perfectly correct, but, when brought forward at such a time, they lay him open to the very obvious retort: "Well, if you knew all about it why did not you get the same result?" or, "Why did you wait for somebody else to make a cure before you made a diagnosis?" Such questions as these we should ask ourselves with calm judgment rather than wait to have them asked of us sarcastically at a time when the true answer cannot be looked upon otherwise than as a mere excuse for failure.

The answer is twofold. First and foremost, physicians are constantly doing the same thing consciously or unconsciously. They always have done it since there were physicians, and always will, no matter what the changes of pathological and therapeutic theories. The physician is not likely, like some politicians, to ostentatiously parade "personal magnetism" as a portion of his outfit, but he may have it, and it is undoubtedly true that, other things being equal, he who possesses the complete confidence of his patient will have the best results, without reference to the subordinate consideration that the patient will follow his directions most carefully.

This fact is sufficiently well recognized, but, for the very reason that it is every day and commonplace, it is frequently lost sight of. If an invalid recovers under the care of her trusted family physician her friends are satisfied indeed, but not astonished. It is not heralded through the sewing circles, the social

calls and the confidential chat as a wonderful event. It was the doctor's business to cure her and he did. Good doctor, but no miracle about it. If, however, the case does not go so favorably; if he fails to impress her imagination, being nothing but a plain, common-sense practitioner, with no halo of specialism, no romance, no slight uncanny flavor about him, and she then goes to a miracle-monger and recovers, the case is very different.

Let me briefly mention three illustrative cases: One of the earliest patients of the Adams Asylum, in answer to our inquiries, attributes her cure, which has been a permanent one, to "mental healing," but further describes the process as having been convinced by the physician of the asylum that the organic disease of the stomach, which she was sure existed, was not real.

A second convinced herself that the promises of the Bible as to cure by faith were made to her, just as well directly, as through the hands of any other person. She had faith and was made whole. Her own account of the case was published and she has been a useful woman for many years.

The third suffered, with a perfectly serene countenance, excruciating pain. I find that she was discharged "relieved," but she went to another institution where a person, at that time well known, prayed, laid his hands upon her, and she got up and walked. The case obtained considerable newspaper notoriety at the time and the patient became an apostle. She, however, now thinks that a year's rest at the asylum would do her much good.

The physician possesses the advantage over the charlatan of a knowledge of pathology and diagnosis. The charlatan possesses the advantage over the physician of ignorance of exactly the same things. The air of confidence is a very subtle one and the perceptions of the patient acute. She is apt to know well whether the physician is telling her what he fully and firmly believes himself, or whether he is making some mental reserve, and his influence is controlling or the reverse accordingly. How can he assure a patient that her vomiting is purely nervous when the faint suspicion lurks in his mind that his encouragement may be interrupted by a hemorrhage or perforation, or tell her that her headache, though painful, is not dangerous, when the next hour may reveal to him a double optic neuritis? The curist knows or cares nothing about these possibilities, and the corresponding confidence in his voice and bearing are tempered by no hesitation or reserve. He may also steal from his rival, and get a working diagnosis ready made.

The patient who has gone from one physician to another and another seeking relief from symptoms which get no better and no worse, for which no organic cause can be found, may be shrewdly suspected to belong to this class; or at least the charlatan can do no worse than his learned and distinguished predecessors, even if he fail; while, if he give assurances stronger than their knowledge of pathological possibilities allowed them to do, he may accomplish that for which they only paved the way.

Why one person should have this effect more than another it is indeed difficult to say, but no more so than in many other situations where personal influence seems to rest on anything but the reasonable foundations that one would naturally expect.

A former patient, a bright, intelligent girl, suffered

after her discharge from constipation as she had done before. After trying various persons she at last settled upon one practitioner of a popular fad as the one for her.

"What does she do?" she was asked.

"Oh, she sits and looks out into space."

"And what do you do?"

"Oh, I sit and look out into space. Then I go home and have a movement of the bowels; but I can't do it alone."

There is no reason to suppose, however, that this influence is of any extraordinary character. There is nothing in these psychic therapeutics to induce a belief in any communication of nervous force or in any telepathy. The influence undoubtedly reaches the nerve centres of the patient through the ordinary channels of the senses, and the recuperative force just as undoubtedly originates there. It is simply set free by an external stimulus, or else the opposing inhibitory force of the fixed idea is removed.

There is no doubt that the peristaltic activity of the intestines is under nervous control, and that there is a continuous connection of the local plexuses with the highest nerve centres. Yet we are only too well aware that no amount of reasoning on the propriety of setting that mechanism in action, and no amount of firmness of intellectual conviction is sufficient to produce the desired result; but we know that habit, without conscious cerebral action, sets the apparatus in motion, and also that an unusual cerebral impression entirely disconnected with any idea of intestinal action, like fear, for instance, may do so.

It appears necessary that the influence which is to promote such a psychic change as must take place in cases of hysteria and consequently in many of chronic invalidism, that which is to make the cerebral hemispheres again resume their control of the muscles, which is not merely to diminish the extreme sensitiveness to pain and fatigue, but inhibit that active search for it so commonly seen; that which is to set flowing again that nervous current which promotes nutrition; in a word, that influence which cures, whether in the hands of the physician who has studied the case and who knows it scientifically, or of the charlatan who makes no pretence to such knowledge and shrewdly guesses at it from the failures of his predecessors, must reach that psychical region that is not in full view of the ordinary consciousness, the so-called subliminal consciousness.

It is apparently in some lower stratum of cerebral action that intellectual convictions are moulded into confidence, desire and activity, and there also apparently the same convictions may arise without the intervention of distinct perception or logical reasoning. There are those who hold that this region may be reached most quickly and certainly through hypnotism, that is, the patient is made more receptive and suggestible thereby. We have seen how it is reached by methods which have but little to do with the reason, and much with mystery and marvel. It is certain, however, that these are not the *only* channels through which an impression can be made, and it seems probable that when the physician, by beginning with the ordinary consciousness and by oft-repeated direction and encouragement, sometimes amounting to a re-education, can stimulate the motor powers of the will and set them free from the inhibitory control of fear, habit and hypochondrical delusions, the result is quite as complete

and permanent a one. This comparison, in my relative inexperience with other methods, I make with considerable diffidence.

Different persons in their normal mind vary immensely as to their persuasibility and reasonableness, and the hypnotists recognize as well the same distinction in the susceptibility to their influence. It is probable that the two qualities are closely allied if not the same, and it seems not only reasonable but strictly in accordance with observed facts to suppose one avenue of approach more practicable in one set of cases and another in another.

A firm conviction, unreasonable, unaccountable, absurd, even almost unacknowledged by the patient, is a more powerful moving force than an intellectual conclusion, no matter how soundly based upon facts and logically constructed, but if the one can be made to support the other, no matter which goes first, we have a more active and constant force than either alone can give. The learned and skilful physician can argue with his patient that having no organic disease and having thoroughly rested, she ought to get well. If he can make her thoroughly believe it she will get well, but if only half-persuaded that she is going to do so, it may require the mysteries of some patent cure, perhaps in the hands of an ignoramus (and more effective for that very reason), something which impresses the feelings as well as the intellect, which soaks into the lower stratum of consciousness, to complete the work and give that little shock which shall start the machinery already in working order but motionless.

Many of the agencies of the simplest character in use in the treatment of nervous invalidism are of value, not so much because they actually contribute strength, as because they convince the patient that she already has it. Gymnastics are of quite as much value because they oblige her to take a definite initiative without hesitation and on order, which massage and electricity do not do, as because they increase muscular strength. They undoubtedly do good by promoting muscular development, but they do at least as much by convincing the patient that she can herself move her muscles with ease.

There is often no more obstructive frame of mind on the part of a patient than a highly logical and intelligent one, or, better, the belief that she has such a one and the desire to exhibit it.

An argumentative patient can always have a reason ready, if she be inclined in that direction, why each thing that is ordered by her physician is exactly the wrong one for her, however well it may be adapted to those of ordinary mould.

As we all think —

"Whene'er we groan with ache or pain,—
Some common ailment of the race,—
Though doctors think the matter plain,—
That ours is a peculiar case."

Pride in her own case is a sentiment which it is highly important to retain upon the side of the physician. If it take the form of an ill-concealed exultation over its difficulties and obscurity, or the patience with which sufferings are borne, the number and distinction of the physicians who have been consulted and their discomfiture therein, it is naturally a most unfavorable element. If she say in effect, "I defy you to cure me," she will probably be the victor. But

if it move in the opposite direction and the patient, whether from her own usual mental condition or led by persuasion and personal influence, or some less commonplace motive, believe that she is standing on a higher mental or moral plane than her neighbors, or that her recovery is phenomenal, and that she is performing wonderful feats of strength and endurance, it is of the greatest value. She is your strongest ally.

Expectant attention is a very different, and for therapeutic purposes a much better thing than argumentative and combative attention. In a receptive condition, either natural or induced, the truths of which the patient may have been previously intellectually convinced, assume a controlling position over the will and motor functions. The doctrine becomes a force.

Nervous invalidism is a psychosis, and the study of it is a branch of morbid psychology.

It is very possibly associated with actual changes of a chronic character in the neuron, analogous to those which have been found as the result of fatigue.

It is, to a considerable extent, the consequence of congenital conditions, or of heredity, that is, of the transmission of an enfeebled or distorted nervous system.

On this basis the fully developed condition may be acquired at any time, though most easily in youth, either gradually or as the result of special strain or shock or acute disease.

It varies from pure nervous exhaustion on the one hand, to pure hysteria and insanity on the other, but most chronic cases stand somewhere between the two extremes.

The foundation of a rational treatment is a diagnosis, a diagnosis by exclusion, not simply a recognition that the patient is weak, anemic, hysterical and nervous; but a conviction so founded on a thorough examination, and so firm that it can be confidently imparted to the patient, that the symptoms do not depend upon structural disease of the organs with which they appear to be connected.

There are no organs which may not be involved, but by far the most commonly so, and calling for the most circumspection in diagnosis and care in treatment, are the pelvic and digestive.

On this foundation the treatment consists of three essentials, any one or two of which may take the lead in the individual case.

Food to furnish material for the growth of the neurons.

Rest to give time for them to appropriate it and to grow.

Mental and moral control, by stimulating healthy function, to restore their lost tone and activity.

A DEATH FROM JOY.—It is stated in *Le Progrès Médical* that a certain notary who was serving a five years' term of imprisonment at Riom, was informed by the inspector of prisons on a recent visit that two years of his sentence had been remitted. On hearing the unexpected good news, the prisoner fell dead. Whether a post-mortem examination was made is not stated, but it seems probable that it must have been some cardiac lesion which thus transmuted a pardon into a death sentence.

Original Articles.

NOTES ON THE REPAIR OF RUPTURE OF THE PERINEUM THROUGH THE SPHINCTER ANI.¹

BY W. L. BURRAGE, M.D., BOSTON.

My excuse for bringing the subject of complete rupture of the perineum before this Society, a subject that has been gone over again and again in the medical societies and the medical press of the world during the last twenty years, is my conviction that in spite of the amount of attention it has received, the matter is not properly understood by the profession. This is instanced by the large number of complicated operations invented for the repair of this injury, and, from my observation of the operation in the hands of prominent operators, where I have found that a very considerable proportion of the operations have been failures either in restoring the function of the sphincter or in leaving the patient without a proper perineum. I have reference to the secondary operation.

It is in the hope of provoking discussion on an important subject that I shall state my views somewhat dogmatically.

Operators advocate flap splitting, the use of the rectal tube after operation, a preliminary operation on the rectal tear followed later by a closure of the vagina, keeping the bowels constipated for a week or ten days after operation and other measures that I believe are faulty in principle.

The problem of the closure of a complete rupture of the perineum is a comparatively simple one after we have studied Emmet's conclusions and mastered his technique. There has been a great deal said about Emmet's operations for lacerated cervix and perineum; but, from my observation few operators who have not seen him do these operations have grasped his ideas. It is a sufficient commentary to note that one of the leading American text-books of gynecology, published only four years ago, has an entirely erroneous description of his perineal operation for rupture of the pelvic floor.

Although there have been some valuable additions to Dr. Emmet's procedures since he first called the attention of the profession to the repair of complete rupture of the perineum some twenty-five years ago, notably the stretching and paralyzing of the sphincter fragments before operation and the early moving of the bowels after operation, I think I am right in saying that we owe a correct understanding of the repair of these injuries to the genius of the Grand Old Man of Gynecology.

The location and form of the common tears of the perineum have been shown by Reynolds² and more recently by Dickinson.³

Granting what Dickinson says, that complete rupture never takes place in the median line, nevertheless, when these tears are seen some months or years after the injury, their general appearance is, as he says, median. Not only are they median, but in a majority of cases that have come under my observation, there has been no appreciable damage to the pelvic floor, beyond the rupture of the perineum and the sphincter ani. Whether this is due to the fact that there was no original injury to the pelvic floor, or that

the injury has been repaired by cicatrization, I cannot say. This is shown by the close apposition of the posterior and anterior vaginal walls and by the absence of prolapse, conditions that do not obtain when there has been appreciable damage to the levator ani and pelvic fascia.

Clinically it is important to draw a distinction between injuries to (1) the pelvic floor proper (the levator ani muscle and pelvic fascia); (2) the perineum (the external muscles and tendons, transversus perinei, and bulbo cavernosus); and (3) the sphincter ani. For we are able to distinguish between these three sorts of injuries and we adapt our measures for repair to each. For instance, after the parts have cicatrized we cannot say whether the bulbo cavernosus or transversus perinei muscle has been torn; but, by means of our sense of touch and by noting whether the floor of the pelvis is up against the anterior vaginal wall, as in the normal condition, we can say whether the pelvic floor is injured. We can also estimate, by sight as well as by touch, the external tears and the tears of the sphincter ani. Now, if the pelvic floor has suffered injury, it is probably in one or the other sulcus, as shown by Reynolds, perhaps in both; and it must be repaired by denuding in the sulci and catching up the sundered structures, according to the rules laid down by Emmet. If, on the other hand, the injury has been to Group 2 or 3, to the perineum proper or external muscles and to the sphincter ani, the repair is effected by bringing the separated parts together by sutures passing through the divided structures straight across from side to side.

In complete rupture, so called, or rupture involving the sphincter ani, it has been my observation that in a majority of cases the injury is, as I have said, limited to Groups 2 and 3. Therefore, the operation for the repair of this condition is much simpler than if it involved also the repair of the pelvic floor.

The appearance of the parts when cicatrization has taken place is about as follows: (Fig. 1.) The sphincter ani, torn in two, is retracted, the ends being represented by a small dimple in each buttock. The concave retracted sphincter forms the lower margin of the anal orifice, the upper margin being made by the more or less torn recto-vaginal septum. It is usually V-shaped, with the apex of the V above. The mucous membrane of the rectum is everted, red, and covered with mucus. The posterior vaginal wall at the apex of the V is in apposition with the anterior vaginal wall. The patient suffers only from incontinence of feces and gas.

The operation for the repair of a torn perineum should be undertaken as soon after the receipt of the injury as possible, that is, at the conclusion of labor, if the patient's strength will allow. At the primary operation it is possible to make out with more or less accuracy the individual muscles that have been torn and to draw together their ends. At the secondary operation, after cicatrization, this is rarely possible. The primary repair is effected by means of stitches of silkworm gut passed straight across from side to side, entering the needle at a quarter of an inch from the torn edge of the vagina on the left side at the highest point of the rent. The point of the needle is brought out at the edge of the rectal mucous membrane, reinserted in a similar place on the opposite side, and out again on the vagina on the right side at a quarter of an inch from the edge. Stitches are placed a quarter

¹ Read before the Obstetrical Society of Boston, May 11, 1895.

² Transactions American Gynecological Society, 1891.

³ American Gynecological and Obstetrical Journal, vol. vi, No. 5.

of an inch apart, and extend from the uppermost limit of the rent in the vaginal septum to the superficial stitch in the sphincter. The remaining steps of the operation are precisely the same as for the secondary operation to be described shortly, except that there is no denuding to be done, and the tissues being soft and edematous it is of especial importance not to tie the sutures too tightly. The after-treatment is the same.

There is no doubt in any one's mind that at this stage the object of the operation is to restore as far as possible the original condition of the parts. I speak of this fact because later on when the secondary operation is under consideration we hear of "building up a perineum," and many operators seem to be devoting their energies to manufacturing some sort of an artificial dam at the vulval outlet; something that, when built, does not much resemble anything seen in nature, as I can testify by frequent observation. My aim in doing the secondary operation is to restore the natural relation of the structures of the perineum and sphincter. The burden of proof rests with those who claim to improve on nature.

The secondary operation for the repair of a complete rupture should be undertaken as soon as the torn edges have cicatrized. If a primary operation has been done and has been unsuccessful and followed by induration of the surrounding tissues, a sufficient time must be allowed to elapse for the tissues to regain a healthy condition or the secondary operation will not be a success. It may take several months of treatment with douches to prepare the parts. This is a point often overlooked.

The advantage of operating reasonably soon after the receipt of the injury is that the sphincter ani muscle becomes atrophied from long disuse; and the results obtained from operations done several years after are not as good as those done several weeks or months after labor. I have, however, operated on two cases eight years after the rupture in each case, and obtained a perfect result with both.

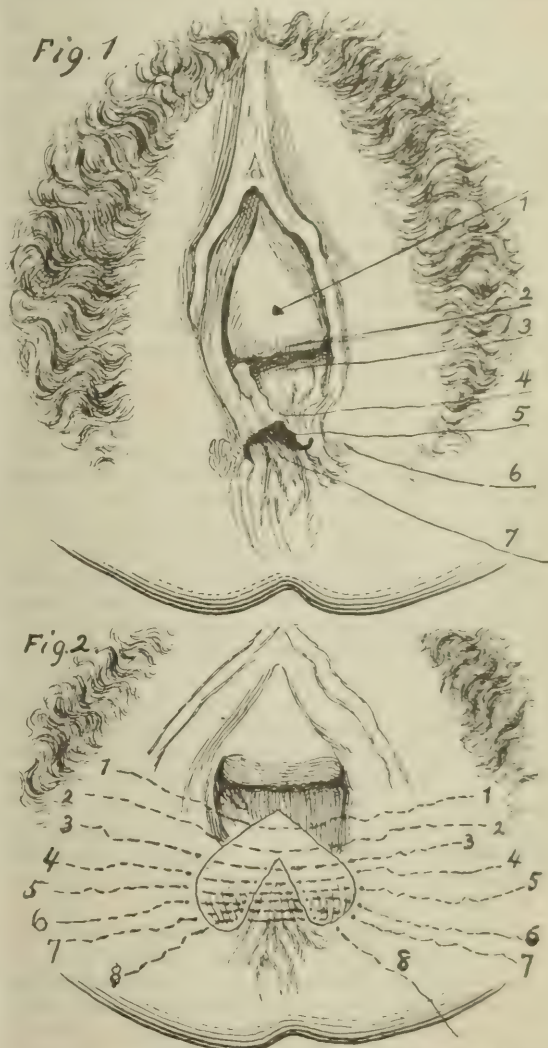
The operation about to be described has proved uniformly successful in my hands, both in restoring the sphincter ani and in bringing back the normal contour of the perineum. It is Emmet's operation, that I learned at the Woman's Hospital in New York, with several modifications suggested by experience. The principal points to be remembered in the operation may be grouped as follows:

- (1) Preparatory treatment.
- (2) Preliminary stretching of the torn sphincter muscle.
- (3) Method of denuding.
- (4) Passing of the sutures.
- (5) Fastening of the sutures.
- (6) After-treatment.

Inattention to the details of any one of these six groups will lead to failure. Success lies in careful and painstaking attention to minute details. It goes without saying that the operation should be aseptically conducted, the vagina and vulva being first thoroughly scrubbed with green soap, water and a nail-brush and then with corrosive (1-2,000). The instruments and sponges are sterilized and the operator's and assistants' hands and arms rendered aseptic. In operations on the vagina and anus, especially where the rectal mucous membrane is exposed, absolute asepsis of the operation field is impossible. Clinically, I have obtained the best results by sponging the tissues

occasionally during the operation with 1-3,000 corrosive. On account of the excessive vascular supply of the parts, the corrosive does not interfere with the nutrition, but seems to promote primary union.

(1) The preparatory treatment consists in getting rid of all traces of suppuration and induration in the tissues by douching, and in thoroughly opening the bowels for a week before the operation. For the latter purpose a five-grain pill of ox-gall three times a day, and castor oil forty-eight hours before the operation, followed by an enema the morning of the oper-



1, Meatus urinarius. 2, Anterior vaginal wall. 3, Posterior vaginal wall. 4, Upper limit of tear in recto-vaginal septum. 5, Anal orifice. 6, Dimple marking left end of sphincter ani. 7, Everted rectal mucous membrane.

ation are to be recommended. Thorough attention to the bowels is of extreme importance because of the danger of scybalous masses passing the sphincter during the first days following its restoration. To further ensure there being no hard masses in the bowel the diet should be restricted to broths and soups for two days before; milk being forbidden.

The patient should be given three prolonged, hot vaginal douches (temperature of 120° F.) the day before, and one the morning of the operation. This douching very much lessens the amount of oozing, an

important consideration both for the patient and for the operator.

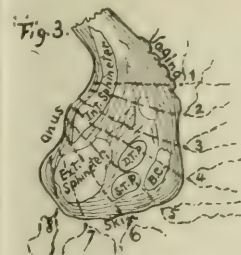
(2) The chances of success are much increased by following the rule in all rectal operations, namely, First stretch the sphincter. It may be argued that the sphincter has been already not only stretched but torn in two. Very true; but it has been in a state of rest since it was torn, and is in addition contracted. The moment the torn ends are stitched together and the patient is out of either the irritation from the accumulation of gas, or the pain from the operative bruising of the parts, causes reflex contractions of the muscle that must interfere with a successful result. The thoroughly stretched muscle remains paralyzed for about forty-eight hours. Having stretched the muscle the bringing of the ends out of their pockets and the stitching of them together is made much easier and the edges of the rectal mucous membrane make better apposition. The stretching is done by grasping the tissues firmly on one side over the dimpled cicatrix with the thumb and forefinger of one hand and holding this point fixed, while with the thumb and forefinger of the other hand, the surrounding tissues are forcibly pulled away from it. Then the fixed point is transferred to the opposite side and the pulling repeated. Several minutes are devoted to this procedure. I regard it as of the first importance.¹

(3) The denuding should begin below over the dimples marking the retracted ends of the sphincter, and in these situations should go deep enough to reach muscle tissue. For this purpose I catch the dimpled cicatrix with a tenaculum and raise it up and then cut it out with the scissors. The denuding is carried on from below upward because by this plan the blood from the upper parts does not hinder the work below. Above, in the vagina, the denudation should go at least half an inch beyond the upper limit of the rectal tear. It makes the line of union firmer to have two or three stitches above the beginning of the opening into the rectum. The cicatrized margin of the rectal mucous membrane must be carefully refreshed. The limits of the cicatricial tissue are the limits of the denudation throughout. On the outside the uppermost caruncle is the highest limit of the denudation. Scissors are preferable to the knife, because by the pinching action of the scissors on the tissues the bleeding is less. Dr. Emmet has used scissors exclusively in his plastic work for many years.

Cases of recto-vaginal fistula and cases of rupture of the major part of the sphincter without complete division of all the fibres, are treated by cutting through the sphincter muscle and then treating the case exactly as if it were a complete tear originally. In this way only is it possible to denude the edges of the rectal fistula properly or to restore the function of the sphincter.

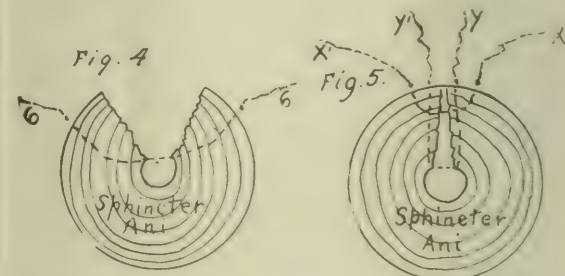
(4) The sutures should be of pure silver wire, No. 29, and the wire should be polished. Copper wire, silver-plated, is not pliable enough. The same fault attaches to the larger sizes of wire. The first stitch is taken at the apex of the denudation in the vagina (Fig. 2). The needle (I prefer one with a round point, an inch and a quarter long and slightly curved at the point) is entered a quarter of an inch from the left-hand edge and buried until it emerges at a correspond-

ing point on the opposite side of the wound. When the gap in the rectum is reached, the point of the needle is brought out so that it just misses the rectal mucous membrane. It is then reinserted on the



Antero-posterior section of perineum, not in median line.

opposite side so that it misses the rectal mucous membrane there and thence through to emerge on the surface of the vagina. The stitches are a quarter of an inch apart beginning above and ending at the anus, all straight across as described.⁵ When the ends of the sphincter ani are reached, the point of the needle is made to dip down deeply so as to pass through the entire thickness of the retracted end of the muscle as described on page 397 of Emmet's book, "Principles and Practice of Gynecology," 1884. (Figs. 4 and 5.) It is often well to hold up the end of the muscle with a tenaculum while the needle is being passed, thus ensuring that the entire thickness of the end of the muscle is included and that the needle passes far enough from the ends. Two deep sutures are passed in this way and one superficial, which brings the outer edges of the muscle into apposition. I have not used the stitch formerly advocated by Emmet that ran from posterior to the ends of the sphincter up through the lower border of the recto-vaginal septum, because passing through the other sutures at an angle, it constricts the tissues and is apt to cause an abscess. Emmet himself has not used it for several years now.



X, X' shows stitch improperly passed. Y, Y' and 6, 6 shows stitch properly passed; 6 corresponds to 6 in Fig. 2.

Dr. Emmet stated in 1873 that after years of study, he had arrived at the conclusion that the cause of failure in perineal operations involving the sphincter, was chiefly owing to a faulty method of passing the sutures through the sphincter, and he published then, what is now generally conceded to be the proper method. It is to be noted that in passing the sutures there is no elaborate scheme to be followed; they are all passed in the same way, except those through the end of the sphincter, which are placed deeper than the rest, as described. The greatest possible care must be exercised to make the stitches equi-distant and considerable time and attention are necessary to do this

⁵ It is to be noted that the line from the fossa navicularis to the anal opening on the outside skin surface, is the arc of a larger circle than is the line from the apex of the rectal tear to the anal opening on the anterior surface of the rectum; therefore, the stitches are farther apart from the fossa navicularis to the anus on the skin side and nearer together on the rectal side. "They radiate here like the sticks of a fan," as Emmet expresses it. That is to say, they are more than a quarter of an inch apart outside and less than a quarter of an inch apart on the rectal side. (Fig. 3.)

¹ It is fair to say here that I have to-day received a letter from Dr. Emmet in which, although endorsing the chief views expressed in this paper, he says that he has not stretched the sphincter and does not believe it necessary.

properly. Perfect apposition of the lips of the wound is to be aimed at. No cicatricial tissue is to be left in denuding and no raw surface is to be left at the end. It is to be noted that no rectal stitches are used. These are hard to place, hard to remove and, to my mind, quite useless.

The operation is an almost exact counterpart of that for vesico-vaginal fistula. In the latter operation no stitches are placed in the bladder mucous membrane. Why should any be put in the rectal mucous membrane?

(5) If silver wire is used, each suture should be shouldered and then twisted through the shield, beginning above in the vagina and ending at the anus. The shield should be used, not as I have often seen it used, simply as an instrument to hold the tissues down while traction is being made on the wires, but as furnishing a sharp edge over which to bend the wires until they are twisted. The rule is to get the proper tension and then twist until the wires cross at the shield. The tension on the stitches must be carefully graduated, experience alone telling what is the proper amount to employ. It is a common fault to get them too tight. The twisted ends in the vagina should be cut off about three-quarters of an inch long and folded down as Dr. Emmet does it. Those on the outside should be clamped, each with a perforated shot at a distance of a quarter of an inch from the skin and the ends cut off in the shot, thus leaving no sharp points projecting. Before twisting the outside sutures, it is essential that the patient's feet should be brought down so that they rest on the table, because the lithotomy position, in which the rest of the operation is performed, puts the perineum on the stretch. This point has a bearing on the after-treatment, as we shall see.

The use of silver wire requires a special training. If an operator has been unable to make himself familiar with Emmet's ideas on this subject, he had better not use it but use silk-worm gut instead. Wire makes an ideal suture material. Besides being perfectly strong, non-porous and capable of being rendered aseptic, it forms when properly placed a splint for the tissues while union is being established. Fastening the ends of the sutures with shot is much superior to the older method of enclosing them in a tube, as, with the shot, they are less likely to get caught on the clothing and they are much easier to keep clean.

(6) The after-treatment is as important as the operation itself. Formerly it was the recognized treatment to keep the bowels constipated for ten days or two weeks, feeding the patient on beef-tea and chicken broth, until they were moved. This method had the disadvantage of being unnatural, uncomfortable, and of leaving the patient very weak from the lack of nourishment when she began to sit up. By this method also, it was thought necessary to keep the patient's knees tied together, until the stitches were out and to keep her on her back continuously. And besides, the urine had to be drawn by catheter. Simplicity in technique has now taken the place of all these precautions. It is not many years since it was thought to be essential that every laparotomy case should be kept flat on the back for at least forty-eight hours after the operation.

Any one who has had the care of women operated on by the older methods has a pretty vivid idea of the suffering that is entailed by constipation of ten days,

nothing but beef-tea for nourishment, not being allowed to turn over in bed, and the frequent use of the catheter, even if the patient was fortunate enough to escape a cystitis. Afterwards came a long tedious convalescence.

The after-treatment I employ in cases of rupture of the perineum through the sphincter is as follows: At the conclusion of the operation the vagina is douched with corrosive, the parts about the vulva are dried with a sterile towel and the patient is put to bed. The motions of the patient in bed are restrained only until she is well out of the ether. Then, unless she is a nervous and excitable person, she may be turned on her side carefully by the nurse for the sake of variety and to ease the backache. If, on the contrary, she is wilful and difficult to control, she must be kept on her back for twenty-four hours, because in this way only is it possible to prevent twitching about. Excessive flexure of the thighs on the abdomen and separation of the knees while in this position are the only two postures that put the perineum on the stretch. The patient if left to herself is not likely to put herself into these positions. Twitching about is objectionable because the wound is likely to be rubbed on the bed-clothes. Any reasonable amount of abduction of the thighs with the legs extended is in no way harmful, therefore there is no need of tying the knees together except as a reminder to a nervous patient to keep still.

The patient is to pass water voluntarily if she can. Every effort is made to avoid the use of the catheter, because even when it is used a few drops of urine always get on the wound. Therefore why not let the urine run freely over the perineum. After the use of the catheter, no matter how aseptic it is, of what material made, or how carefully it is passed, a certain proportion of cases have a resulting cystitis, which much prolongs the convalescence and leaves the bladder in an irritable condition. Each time after micturition the nurse separates the labia and squeezes a little warm water from a piece of absorbent cotton over the parts. She performs the same office after every movement of the bowels. Twice a day, night and morning, the parts about the vulva are bathed with warm corrosive (1-5,000).

The diet is limited to gruels and broths for three or four days, the object being to have the nourishment concentrated and with as little resulting fecal matter as may be. At the end of this time the patient has semi-solid diet and when she gets up solid food.

The bowels are moved on the morning of the next day following the operation with a saturated solution of Epsom salts, a teaspoonful of which is given every half-hour until the bowels move a little, or until five doses have been administered. The salts are repeated each day in sufficient quantity to cause two or three fluid movements in every twenty-four hours. This is the rule until the stitches come out on the eighth day.

By the method of treating the bowels just outlined all danger of scybalous masses passing the sphincter and spoiling the result is avoided. The amount of fecal matter that often accumulated in the lower bowel at the end of ten days of treatment by the constipating plan was surprising; and it was a job of considerable magnitude, necessitating a great deal of manipulation, many enemas, and sometimes even digital evacuation to establish a free rectum. Many newly united sphincters were unable to stand the strain put on them

in this way. By moving the bowels early and often there is no trouble with flatus. No rectal tube is necessary, and therefore no dilating of the sphincter, and the pushing of a hard, unyielding foreign body by the line of union. No enemas are necessary. The less the operation field is handled the safer I feel as to the result. Should there be a great amount of soreness about the wound I have two small pieces of linen or gauze soaked in Pond's Extract and water, equal parts, placed one on each side of the shotted sutures and kept wet. As a routine, one corrosive douche of two quarts (1-5,000) is given twenty-four hours after the operation, to cleanse the vagina of any blood that may have collected there. No further vaginal douche is given until the stitches are removed.

The patient sits up on the tenth day, and is about in two weeks.

Emmet gave utterance to most of the ideas advocated in this paper at least ten years ago. Six years ago I was first impressed by the results obtained by stretching the sphincter before operation and moving the bowels soon after, and found them far better than by any other method. Since then I have operated by that method, and have had uniformly successful results; and it is because of these favorable results, and because I believe the correct principles of repair are shown in the technique, that I have ventured to call your attention to the subject anew.

The points that seem to me to be of especial importance are the preliminary stretching of the sphincter; thorough attention to the bowels, both before and after the operation; and in operating in the simplest manner possible, that is, by using only one set of interrupted sutures passed straight across.

Clinical Department.

TWO ILLUSTRATIVE CASES OF POSTERIOR POSITION OF THE OCCIPUT.¹

BY CHARLES W. TOWNSEND, M.D.

ALTHOUGH the simple expedient used in these cases is well known to the members of this Society, cases of posterior position are so often mismanaged that it seems worth while to allude occasionally to the subject.

This has been brought to mind recently by a case where I was called by two consultants to do craniotomy. I found the head presenting at the pelvic brim, occiput right posterior, and slightly extended. Numerous attempts had been made to drag the head through the pelvis, which naturally resulted in failure. Besides this the forceps had slipped and the child's scalp was torn in one place down to the bone.

It was a simple matter under ether to make an accurate diagnosis of the position, and thus determine the cause of the trouble. Many physicians seem to be satisfied with the diagnosis of head presenting, without an accurate diagnosis of position. Even if the sutures and fontanelles are obscured by a caput succedaneum, it is always easy, at least under ether, to feel an ear which determines the exact position.

With one hand in the vagina the head was easily turned from O. D. P. to O. D. A., the shoulders and body of the child being turned at the same time with

the other hand placed externally. Keeping the head in this position by an assistant's hand placed externally, the forceps (with Reynolds' traction-rods) were applied, followed by an easy delivery of a living child weighing eight pounds.

Another case, seen a few weeks ago, was a primipara with the child presenting in the rare O. L. P. position. This position is not so very exceptional as some suppose, for I have seen six or eight examples of it.

Here I kept the head well flexed but it refused to rotate, owing to inefficient pains. After a second stage of two hours, the head and body were easily rotated as described before. The head was held in place by the hand in the vagina while the blades of the forceps were applied. This is perhaps the easiest method and the one I usually employ. A living child weighing nine and one-half pounds was brought into the world with some difficulty over an intact perineum.

If the forceps had been applied without rotating the head, or if version had been done, it is evident that the child's chances and those of the perineum would have been small.

A CASE OF APPARENT HERMAPHRODITISM.¹

BY FRANCIS MINOT, M.D.

THE patient is dressed as a woman, is twenty-five years old, tall, muscular and of dark complexion. There is no beard, the breasts are masculine, the voice base. Has never menstruated.

The clitoris is of the shape and appearance of an ordinary glans penis, with a prepuce which partially covers it, but is cleft below, presenting exactly the appearance of a circumcised organ. In the place of the meatus is a simple depression. Below the clitoris is the urethra, and below the urethra is the entrance to the vagina with a hymen. The finger easily penetrates into the cavity for about an inch, no cervix or other organ being felt. Both the labia are normally developed, but nothing can be felt within either, but she says that something is apt to come down into the left labium when she strains much; and on her making a "bearing down" effort, a hernia is seen to protrude into it.

She says she has no sexual desire, and has no voluptuous sensations in the clitoris, and her mother says her daughter does not seek the society of men.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY EDWARD REYNOLDS, M.D.

CELIOTOMY FOR ECTOPIC GESTATION.

WERDER¹ writes on celiotomy for ectopic gestation at or about term, and reports an interesting case in which he made the diagnosis at six months and operated about two weeks before the expected time of term, keeping the patient under observation in the mean time. After opening the abdomen, the case proved to be a tubal pregnancy ruptured primarily into the cavity of the broad ligament, and secondarily,

¹ Medical Record, 1894, No. 21, vol. xivi

¹ Read before the Obstetrical Society of Boston, May 11, 1895.

¹ Read before the Obstetrical Society of Boston, May 11, 1895.

into the general abdominal cavity, a portion of the child being covered only by its own membranes. After the removal of the child it was found that on the upper and left surfaces of the sac there were numerous and firm intestinal adhesions. While the operator was endeavoring to separate these, he was interrupted by a severe hemorrhage from the placenta at the bottom of the sac. This was arrested by clamping the ovarian artery with one forceps and some branches of the uterine artery with another. The placenta was then removed with very little loss of blood. The free portion of the sac was excised, the remaining portion gathered together by silk sutures and secured to the parietal peritoneum and drained. The recovery was uneventful. The child had club feet, marked asymmetry of head and face, etc., but did well until the third day, when its temperature rose, and it died on the fourth day, probably from pneumonia. This was, when reported, the seventeenth successful case of the delivery of a living ectopic child by celiotomy at or near term. In twelve of these, the placenta and part of the wall of the sac were removed; in five, both sac and placenta were left and drained. Werder advocates the removal of both sac and placenta whenever it is possible, and thinks that by securing the ovarian artery and the branches which connect it with the uterine artery, as in this case, it will be possible to accomplish the removal of the placenta in the majority of cases. In his case a severe hemorrhage ceased as soon as these vessels were secured. When it is impossible to remove the placenta, he recommends allowing it to empty itself of blood through the cut end of the cord, stripping from it the amnion, cutting the cord close in order to remove as far as possible all these lowly organized tissues, and then shutting the wound without drainage. This he does in the belief that after ligation of the ovarian artery, the placental blood-supply will be so lessened that prompt shrinkage will be effected, but that sufficient circulation will be left to maintain life; and he regards the risk of this procedure as less than the risk of sepsis, etc., from the sloughing away of the placenta. He would reopen the abdomen only in the presence of symptoms which call for it.

Edebohl² reports a case in which he removed a tube from which an ectopic ovum was in the act of escaping. The patient was brought to him when apparently about two months pregnant. The history was not characteristic. On examination, a globular tumor was found behind and to the left of the uterus. It was about two inches in diameter and sensitive on pressure. The cervix was patulous and soft, with some eversion of the mucosa; everything else normal. Celiotomy was advised. About two teaspoonfuls of decidual detritus was removed from the uterus on July 10th, and the abdomen opened. About an ounce of free blood was found in the peritoneal cavity. The left tube and ovary were shelled out of some soft adhesions and removed. The ovum was in the act of passing through the abdominal ostium of the tube, about one-third of it being in the abdominal cavity, the remaining two-thirds still within the tube. There was no rupture of the tube wall.

A METHOD OF TREATING PLACENTA PREVIA.

Dührssen³ describes a method of treating placenta

previa by the introduction of an intra-uterine, or more properly, an intra-oval colpeurynter. The cervix being large enough to admit two fingers, the membranes are ruptured, the folded colpeurynter introduced within them and distended with not more than half a litre of water. The operator then makes steady traction upon the tube connected with the instrument, and so compresses the detached portion of the placenta against the uterine wall by pressure from within. The author reports six cases treated by this method in which all the mothers did well and five children were born alive.

[This method is evidently applicable only to cases of marginal or slight lateral attachment; and while the method is certainly physiological and sensible, it must be remembered that a large proportion of such cases do well by simple rupture of the membranes, after which the presenting part compresses the placenta against the uterine wall under the force of the intra-uterine pressure. For cases in which this result does not follow, the use of the colpeurynter is worth bearing in mind.]

SYMPHYSEOTOMY.

Assistant-Surgeon Shah⁴ operated on a Hindoo woman with a conjugate diameter of about two and one-quarter inches. The membranes had ruptured and the liquor amnii drained away. Two previous children had been born by spontaneous labor, but the patient had been a cripple from rheumatism since the second birth. The operation was subcutaneous, the tendons of the recti muscles being also severed. The pubic bone was separated two inches, and the child was born a half-hour later by spontaneous labor. The child was asphyxiated, and although it was resuscitated, died soon after in dyspnea. The wound was covered with iodoform, a tight pelvic bandage was applied, and the patient was in good condition three weeks after the delivery.

Garrigues⁵ did symphyseotomy in a case complicated by a pelvic tumor. The pelvic bones separated five inches; the wound suppurated and required the use of a drainage-tube. The pelvis was immobilized by rubber adhesive plaster. The patient left the hospital on the thirty-fourth day after the operation, with no signs of the tumor apparent. The child did well, but three months after delivery the mother's gait was waddling; she complained of occasional pain in all three joints of the pelvis, and had some cystocele. The lower portions of the pelvic bones were separated by half an inch; the upper portions were in apposition.

Philander A. Harris⁶ reports two symphyseotomies. The first was done on a primipara with a three-inch conjugate. The operation was done by the open method. The symphysis separated but a little over an inch. A ten-pound child was delivered by forceps alone, and the mother made an uninterrupted recovery.

In the second case the conjugate was a little under three inches, the left leg was half an inch shorter than the right and the synchondrosis was a quarter of an inch to the left of the median line. The position was posterior, and delivery by forceps failed. The operation was again by the open method, the separation one inch. This, however, was due almost wholly to the motion of the right side, the left being apparently

² American Journal of Obstetrics, January, 1895.

³ Deutsche med. Woch., 1894, No. 19.

⁴ Indian Medico-Chirurgical Review, 1894.

⁵ Medical Record, 1894, No. 19.

⁶ American Journal of Obstetrics, 1894, vol. xxx, No. 6.

anched. An eight-pound child was delivered by forceps. The sharp corner of the left side of the pelvis perforated the anterior wall of the vagina and made a groove over the right frontal portion of the child's head. The mother made an excellent recovery and was free from pain or difficulty of any kind at the end of two months with firm union of the symphysis. The child did well.

[Two of these four cases (Shah's case and Harris's second case) were done in patient's who would not ordinarily be considered fit subjects for symphyseotomy, which makes the good results which followed them, especially interesting. The difficulty in locomotion which followed in Garrigues's case was probably due to the occurrence of suppuration, and is a fresh reminder of the importance of absolute asepsis in this operation.]

SIGNS OF MATURITY AT BIRTH.

Frank⁷ studies the value of signs by which the maturity of a child at birth can be determined. He concludes that there is no one sign or set of signs which are by themselves sufficient to establish maturity. He thinks the classical reliance upon the length of the finger-nails, the presence or absence of lanugo and the size of the epiphyses is unsafe. A subnormal temperature in a non-asphyxiated child is in his opinion indicative of prematurity. To the attainment of average length and weight he attaches much importance. Finally, he believes that the proportion between the girth about the shoulders and the circumference of the head is of considerable value. When the shoulder girth is greater than that of the head, the child is usually mature. If the circumference of the head is not at least 32 cm. the child is almost certainly premature. He concludes wisely that it is often not possible to decide positively whether a child is or is not at full term.

LABOR COMPLICATED BY HEART DISEASE.

Hirst⁸ reports his experience in the conduct of labor complicated by heart disease as very much more fortunate than would be gathered from the literature of the subject. In his large experience he has so far never lost a patient from this complication, although he has attended some of the most severe type, of which he reports briefly, four. His communication is devoted mainly to outlining the treatment which he has adopted. He recommends that in addition to the ordinary care of diet, regulation of bowels, limitation of exercise and exposure to cold, the pregnant woman with heart disease should have iron and strychnia, and either digitalis or strophanthus, in larger doses than would be given to the same patient were she not pregnant. The urine should be examined more frequently and more critically than it usually is in pregnancy. Labor should, as a rule, be induced prematurely, both in order to secure an easier labor and to avoid the strain upon the heart which is incidental to the increased pressure of the latter days of gestation. In labor he recommends the use of large doses of digitalis and strychnia until the os is of the size of a dollar. Then, in vertex presentations, he applies forceps and extracts the child as rapidly as possible, with a minimum regard to the integrity of the maternal tissues and without anesthesia. In several cases he has made deep incisions of the cervix to facilitate the delivery,

and thinks this plan has a double advantage to the woman. It not only shortens her labor and saves her the fatigue of a voluntary muscular effort in the second stage, but it ensures a hemorrhage from the lacerations along the birth canal after the delivery of the child, which latter factor Hirst considers the best safeguard against engorgement of the lungs and overstrain of the heart after child-birth. During delivery a hypodermic syringe filled with a nitro-glycerine solution and some pearls of nitrate of amyl should be close at hand. No ergot should be given, and post-partum bleeding when within bounds, should be encouraged. The binder should be tight enough to partly compensate for the sudden diminution of intra-abdominal pressure, and should be applied at once.

DISINFECTING THE HANDS.

Reinicke⁹ has experimented extensively upon the value of different methods of disinfecting the hands. He obtained the best results from the following method: The hands were thoroughly brushed with a mixture of green soap and alcohol for not less than five minutes; then again in alcohol for the same time, and finally in an alcoholic solution of corrosive sublimate 1 to 1,000. This was found to be efficient in destroying germs, with a minimum of damage to the hands.

RUPTURE OF THE UTERUS.

Gessner¹⁰ reports two cases which were brought into the clinic of the University of Berlin after rupture of the uterus. In the first case there was a transverse presentation, with a prolapsed arm and cord. While preparations for version were being made, the uterine contractions stopped and the cord ceased pulsating. There was no hemorrhage. The child was extracted by the attending physician and easily resuscitated. But on examination a complete rupture of the uterus was found and the patient was at once taken to the clinic, where Olshausen performed celiotomy. The rent was sutured, gauze drainage was employed, and the patient made a good recovery. In Gessner's second case labor was delayed by hydrocephalus. Forceps had been applied, but failed to lock and were removed, no traction having been made. The patient was then sent to the clinic, where craniotomy was done and rupture of the uterus found. The rupture was probably not complete, and was treated by gauze drainage without celiotomy. This patient also made a good recovery.

Cholmogoroff¹¹ reports an interesting case of complete rupture of the uterus. The patient had a just-minor pelvis of moderate size, and had had four difficult labors, the last terminated by craniotomy. The fifth pregnancy was normal, but labor was ushered in by hemorrhage of moderate degree. A midwife, who was in charge, ruptured the membranes, but as labor failed to advance, sent her into the hospital. On admission, the long axis of the fetus was parallel to that of the uterus. The os was fairly dilated; the fetal heart sounds were absent; the breech was at the pelvic inlet, S. L. P.; the right foot was on the same level with the breech; hemorrhage persisted, but was not excessive; the right foot was drawn down, and extraction of the child was attempted, but the hemorrhage continued. The extraction was most difficult,

⁷ Centralblatt für Gynäkologie, 1894, No. 47.

⁸ Loc. cit., 1894, No. 2.

⁹ Zeitschrift für Geburtshilfe und Gynäkologie, Band xxxi, Heft 1.

¹⁰ Arch. v. f. Gynäkologie, 1894, Band 48, Heft 1.

¹¹ American Journal of Obstetrics, March, 1895.

and was only accomplished by perforation of the after-coming head, the opening being made through the palate. After the extraction, a moderate hemorrhage continued, and an examination showed a transverse rupture of the uterus just above the cervix. The placenta lay among the intestines, and the fetus had also been partially in the abdominal cavity. The hemorrhage was sufficient to demand suture of the rent, and as the first part of the labor had not been aseptically conducted, it was thought that the peritoneum was probably infected. The peritoneum was irrigated through the rent with a two-per-cent. solution of boracic acid, a Sims speculum was passed, the borders of the tear were drawn down with tenacula, and it was closed over the greater part of its extent by sutures. At the left angle of the tear an opening sufficient to admit two fingers was allowed to persist. Through this opening strips of gauze were passed into the abdominal cavity and the lower ends allowed to remain in the vagina. The hemorrhage now ceased, but on account of the absence of asepsis during the earlier portion of the labor, the uterine cavity was lightly tamponed with iodoform gauze. The intra-uterine gauze was removed on the fourth day, the intra-abdominal on the eighth. The patient had a mastitis, but otherwise did well.

• PERFORATION OF THE UTERUS.

Mann¹² reports three cases of perforation of the uterus after abortion, with prolapse of intestine through the rent. The first case was brought into the Buffalo General Hospital with the following history: The patient had herself passed a No. 8 catheter with its stylet its full length into her uterus. There was no pain, and she was not conscious of any harm. She was supposed to be between two and three months pregnant. The next day she had pains, and on the following day sent for her physician, who passed his finger into the cervical canal and felt what he supposed were the membranes. The next day he dilated the cervix with a steel dilator, and with the aid of a sharp curette and his finger removed the ovum. But on again introducing his finger, he felt that there was something still within the uterus. This he caught between his finger and curette and pulled down into the vagina, believing it to be another portion of the membranes. As it seemed large and shortly refused to advance, he looked at it through a speculum, and then found that it was the small intestine completely torn across. An hour and a half afterwards, the abdomen was opened in the Buffalo General Hospital, the uterus being first curetted and packed with iodoform gauze. The ileum was found to have been torn across to the ileo-cecal valve, and to have been separated from the mesentery for fully six inches. The head of the colon was enlarged and injected with blood, and its peritoneum was torn in several places. The opening in the fundus-uteri admitted the finger. The abdomen contained a small quantity of blood and feces. The mesentery was tied off with catgut, the abdomen washed in sterilized water and dried with sponges. The whole head of the colon, with the ileo-cecal valve and the separated portion of the ileum, was turned in until it was out of sight, and the peritoneum brought together with sutures. The other end of the torn ileum was then trimmed off and united to the colon in its continuity by Murphy buttons; the perforation of

the uterus was closed with catgut and the abdomen drained. She left the hospital at end of three weeks in good condition.

The other two cases were not under Mann's observation, but were reported to him by the physicians concerned. In the first, a noted gynecologist dilated the uterus with steel dilators and put in a placental forceps to pull down the ovum, but, instead, drew out intestine. He was away from home, unprepared for celiotomy and unable to get assistance, but being anxious lest the patient should be harmed by delay, he opened the abdomen, drew the intestine back, and closed the uterine wound with sutures. The patient died of a septic peritonitis within forty-eight hours. In the second case an inexperienced physician dilated the uterus with steel dilators, passed in the forceps and drew down the small intestine. Instead of replacing it or preparing to open the abdomen, he lost his head and kept on pulling until he had drawn out six feet of gut. He thought it the intestine of the fetus; but as the fetus was only three months old, the mistake was a strange one. After realizing that it was the maternal intestine and that he could not get it back, he cut it off and sent for a consultation. The patient naturally died; and as Mann remarks, dryly, the patient's family, fortunately for the physician, remained in ignorance of the cause of death.

The article closes with a plea for care in the use of dilators after abortion, at which time the uterus is much more easily torn than in the non-pregnant condition: The success of Mann's own case shows that the most desperate cases of this accident are not necessarily followed by death; and the absence of hemorrhage in large numbers of previously reported cases of perforation of the uterus, hints that it is best to take whatever time may be necessary for making adequate preparations for celiotomy rather than to indulge in a hurried and probably necessarily slovenly operation, as in the second case.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, May 11, 1895, the President, DR. JAMES R. CHADWICK, in the chair.

DR. W. L. BURRAGE read a paper entitled

NOTES ON THE REPAIR OF RUPTURE OF THE PERINEUM THROUGH THE SPHINCTER ANI.¹

DR. C. M. GREEN would agree in the main with what the reader had said. He had not, however, been accustomed to stretch the sphincter ani before operation. As to the results of treatment he had had only two cases that were not complete successes; one of these being his first case of the kind, and one he had operated on too soon after the primary operation. For the rectum he always used catgut, closing this wound before he passed the perineal sutures. For the latter he uses silver wire.

DR. F. H. DAVENPORT said he avoided disturbing the patient by a long preliminary treatment, attending to the bowels only twenty-four or forty-eight hours beforehand. He is sure that stretching the sphincter is an additional point of value, and he has adopted it.

¹² American Journal of Obstetrics, May, 1895.

¹ See page 108 of the Journal.

For the rectal tear he has used a running catgut suture, using for the perineum during the last two years silkworm gut in place of silver wire as it adapts itself better to the tissues and is more easily removed.

DR. G. HAVEN used silkworm gut entirely now, and has not regretted giving up silver wire. He also closes the rectal wound as described by Dr. Davenport.

DR. J. R. CHADWICK gave up silver wire fifteen years ago. He has given up catgut for the rectum as not holding well and swelling so much, and he has used silk instead. He has never stretched the sphincter and he fails to see how it can be done forcibly enough to be of any service.

DR. W. L. BURRAGE, in closing, said that the stretching of the sphincter could be accomplished without much trouble, and was of great advantage.

DR. CHARLES W. TOWNSEND reported

TWO ILLUSTRATIVE CASES OF POSTERIOR POSITIONS OF THE OCCIPUT.²

DR. G. HAVEN had within a week attended a case where the position was O. L. P. Here he had rotated and delivered in the manner described by Dr. Townsend. He had seen some three or four cases where the position was O. L. P.

DR. C. M. GREEN said that although this method was often used at the Boston Lying-in Hospital it was not, he believed, described in text-books. He considered it a great obstetrical advance.

DR. G. HAVEN said the secret of success in these cases is holding the head in place, otherwise, it was very apt to turn back before the forceps are applied.

DR. C. M. GREEN said that it is very important to turn the body by the hand placed externally, at the same time that the head is turned. In some few cases this is impossible, but this is exceptionable. In these cases podalic version would be resorted to.

DR. FRANCIS MINOT reported

A CASE OF APPARENT HERMAPHRODITISM.³

DR. F. W. DRAPER said that the case suggested an extreme hypospadias in the male.

DR. C. W. TOWNSEND referred to a case he had reported to the Society two years ago⁴ where the individual comprised certain characteristics of both sexes, so that it was impossible to say whether the patient was male or female or both combined. Here the clitoris or penis was an inch and three-eighths long in the flaccid state, and although the patient dressed as a woman, the hairy and muscular development resembled that of the male. There was a history of apparent menstruation and also of masturbation with discharge of fluid. The characteristics of the two sexes as found in this individual were as follows:

MALE.

Muscular and bony systems.
Breasts and nipples.
Distribution of hair on body.
Early alopecia of scalp.
Partial descent of testicle(?).
Seminal discharges(?).
Undeveloped hypospadias penis.
Cleft scrotum.
Non-descended testicles.
Absence of regular menstruation.

FEMALE.

Enlarged clitoris.
Labia majora.
Uterus.
Slight menstrual flow on three or four occasions, with melinina.

DR. G. HAVEN showed a specimen of

CANCER OF THE UTERUS

removed by hysterectomy.

² See page 112 of the Journal.

³ See page 112 of the Journal.

⁴ See the Journal, March 30, 1893, p. 306.

AMERICAN SURGICAL ASSOCIATION.

NEW YORK, MAY 28, 29 AND 30, 1895.

(Concluded from No. 4, page 94.)

LIGATURE OF THE INNOMINATE ARTERY, WITH THE REPORT OF A CASE,¹

was the title of the next paper, which was read by DR. H. L. BURRELL, of Boston.

The following paper was then read by title:

TWO CASES OF DISPLACEMENT OF THE ULNAR NERVE AT THE ELBOW, SUCCESSFULLY TREATED BY OPERATION,

by SIR WM. MACCORMAC, of London.

The next paper was entitled

IMMEDIATE SUTURE OF THE GALL-DUCTS AND THE GALL-BLADDER AFTER EXTRACTION OF STONES, WITH CASES,

by DR. JOHN WHEELOCK ELLIOT, of Boston.

The author claimed that the operations of cholecystotomy and cholecystenterostomy have become too much the routine practice in the relief of gall-stones, and that incision of the ducts or the gall-bladder followed by immediate suture is the proper operation in the majority of cases, especially in recent cases. He reported five such operations; one on the hepatic duct, one on the common duct, and three on the gall-bladder. All have been successful.

Dr. Elliot's conclusions were as follows:

(1) Every operation should be conducted with the idea of restoring the functions of the ducts, and that any irreparable injury to them is a serious calamity.

(2) Immediate closure of the gall-bladder is safe if the ducts are clear and its walls healthy.

(3) Incision and suture of the cystic duct is preferable to prolonged manipulation.

(4) Incision and suture of the hepatic and common ducts is the operation of choice for impacted stones.

(5) The mortality of this operation is less than 18 per cent.

(6) If the condition of the patient is critical, a preliminary cholecystotomy is advisable.

(7) Cholecystenterostomy should be reserved for irremediable stenosis of the common duct.

DR. S. J. MIXTER, of Boston, read a paper on

CONGENITAL ESOPHAGEAL POUCH: EXCISION; IMMEDIATE SUTURE OF ESOPHAGUS; RECOVERY.

Mrs. E. C. H., fifty years of age, in January, 1893, experienced difficulty in swallowing. She had always had some difficulty in swallowing, but it was only four years previous to this that it grew so excessive. Esophageal bougies were passed, but without marked improvement, previous to admission to the hospital.

Attempts were made to pass esophageal bougies and probangs, but without success, they all being stopped about eight and a half inches from incisor teeth. Some regurgitation of food followed these attempts.

It was found, however, that a bougie of any size that could be made to pass the obstruction by hugging the right side of the esophagus, went on without difficulty into the stomach without being grasped as by a stricture. In three weeks she left, being able to swallow slightly better, but on March 12, 1894, she returned, having worn an esophageal tube most of the time, and having only been able to swallow soft solids and liquids.

¹ To be published in the Journal of August 8th.

The operation was an incision three inches long parallel to and in front of sterno-mastoid muscle. The omo-hyoid was divided, and the esophagus reached in the usual manner. The bulb of a probang previously introduced could be easily felt, and on dissection the pouch in which it was situated was easily isolated. An incision was made into the sac, whence the finger could be passed without difficulty up into the pharynx, and, after hooking it over a sharp edge of mucous membrane, down into the esophagus. The largest bougie (about three-quarters of an inch in diameter) could be easily passed into the stomach after the tip has been guided by the finger past the fold. The pouch, about the size of an egg, lay to the left and behind the esophagus. Enough of the sac was removed to make the esophagus a straight tube from the "spur" up, and the edges were united with interrupted catgut stitches. The external wound was closed, with the exception of a small opening for gauze drainage wick. Recovery was perfect, and patient had had no return of the trouble when heard from recently, being able to swallow any kind of food.

This case is a perfect example of the true esophageal pouch, there being no constriction in the tube, and the obstruction to the passage of food being only the thin crescentic edge of the spur between pouch and esophagus, which, pressed against the opposite side of the esophagus, acted as a valve.

The paper included a summary of cases up to 1895.

DR. ROSWELL PARK, of Buffalo, read a paper

ON THE CONSEQUENCES OF HYPEREMIA AND THE PATHOLOGY OF INFLAMMATION AND SUPPURATION.

Purely mechanical and traumatic disturbances and surgical infectious diseases, especially their local manifestations, have about the same apparent beginning, and their local phenomena are in general the same up to a certain point, when there is wide variation in local manifestations and systemic complications. Heretofore all these manifestations have been included under the term "inflammation"; and we have been taught that inflammation at one time is congestion with slight exudation, at another hyperemia with copious exudation, or, at still another it leads to pus production, while at yet another its final result is hyperplasia and new tissue formation with more or less induration. Hence we have had described "simple," "acute," "infective" and "chronic" inflammation, etc.

Dr. Park's thesis was that the term "inflammation" ought to be confined exclusively to one distinct class of lesions, those produced by micro-organisms, and that the term "inflammation" should never be applied to those other lesions into which the question of infectious micro-organisms never enters, such lesions to have names based upon the pathological lesions.

It is well enough to say that all inflammation begins with congestion, and this may be true; but many congestions never terminate in genuine inflammation. Congestion should be described as the result of certain exciting causes, of which bacteria may be one; in which case the congestion itself is subsidiary and in a measure accidental or conservative.

In a violent sprain of the knee-joint we note the old *calor, rubor, dolor et tumor* of our forefathers, with disturbed function; this indicating that there has been dilatation of vessels, the redness being caused by hyperemia, the pain by tension and pressure on nerves,

the heat by the same cause as the redness *plus* some more active chemical change, and the swelling by the escape of fluid into previously existing cavities. Let everything go well, and this fluid is quickly absorbed, the vessels return to their natural size, pain, redness and swelling subside, save for perhaps a little chronic thickening of the parts. Here are the phenomena of hyperemia, exudation and resorption; the first due to traumatic influences, the last to the conservative powers of the system.

This should not be spoken of as "inflammation." But let there be infection from any source, and let micro-organisms once secure access to the parts within, and how quickly is the whole clinical picture changed! We have not only purulent synovitis or pyarthrosis, but we have unmistakable, perhaps fatal, constitutional disturbances. This is inflammation: a condition of congestion and exudation *plus* the special disastrous characteristic, *infection*. Without infection, no genuine inflammation.

Dr. Park was inclined to endorse Metschnikoff's definition of inflammation, as a phagocytic reaction on the part of the organism against irritants in the shape of micro-organisms, the essential phenomena of inflammation representing an actual struggle between the phagocytes and the irritants — Virchow's "battle of the cells" — pus and pus-cells being simply *débris*, the dead bodies of animal cells slain in the conflict.

Dr. Park submitted a classification for text-book arrangement, commencing with hyperemia and congestion, then covering inflammation, that is, infection — the matter of pus-formation first in its pathological and then in its clinical aspect. He differentiated between the various substances known as "pus," and suggested the following names: For material produced in the course of an acute phlegmon, infectious, toxic, the good old name "pus"; for material from healthy granulating surfaces, or from raw tissues which have not yet had time to granulate, which is free from bacteria, and has no infectious or toxic properties, the name "pyoid" or "puruloid"; for the contents of old cold-abscesses which have long since lost everything except the grossest and crudest resemblance to the pus which it may originally have been, the name "archepyon."

There is more in all this than straining after accuracy, because the treatment in these different conditions is distinct and unmistakable, and would be unfortunate in either of the other states; real, genuine pus requiring the promptest possible evacuation, as pus left alone will do more harm than the knife of the surgeon if judiciously used; pyoid or puruloid material calling for little or no special treatment, except absolute cleanliness; and archepyon indicating a condition which calls for extirpation of infected tissue, complete and final disposition of that membrane formerly known as pyogenic membrane, eradication of all infected tissue, etc.

The limiting membrane of old or cold abscesses is anything but pus-producing, but, on the other hand, pus-protective, and hence to call this membrane pyogenic is a misnomer. Dr. Park suggested, instead, "pyophylactic." He raised some practical questions as to the extirpation of pyophylactic membrane in the average cold-abscess, and stated that where complete extirpation was impossible he excised so much as proper access could be had to, and then used a solution of chloride of zinc, 50 per cent. strength, to mop out

the sinus after being curetted, or in case the curette cannot follow it, with which the sinus is injected.

If the pyophylactic membrane is not treated by extirpation, it is gradually made away with by granulation tissue, and the removal of its component parts by phagocytic action and substitution of granulations therefor. This process is liable to interruption or complete cessation, even to reinfection from organisms yet alive within its substance. Hence, the ideal method of dealing with this membrane is complete removal; next to this, complete destruction by caustic agents; and in default of these, the application of antiseptics and stimulating substances.

Dr. Park repeated the distinction made in 1890-91 between the obligate and the facultative pyogenic bacteria, the former including those whose function seems to be solely to set up septic disturbance and produce pus — the various staphylococci, namely, the staphylococci pyogenes aureus, albus, citreus, epidermidis albus, etc., and the streptococci; and the latter class including those which have only occasional pyogenic properties, such as the bacillus tuberculosis of Koch, the tetanus bacillus, the bacillus mallei, etc.

Dr. W. S. HALSTED, in discussing the paper, spoke of some of the difficulties often encountered in determining what was present in a joint, that is, whether it be hyperemia or inflammation, instancing the fact that a subcutaneous injury about the knee-joint may give much redness, but this might not be due to micro-organisms. He alluded to a very interesting case, which was recently in the Johns Hopkins Hospital, of a man with endocarditis and sloughing of the valves of the heart due entirely to the ordinary gonorrheal organism. As to the part of Dr. Park's paper referring to granulation, the speaker stated it was very difficult sometimes to tell from the product obtained whether an infection had taken place or not. He thought that some of the names suggested by Dr. Park were good and worthy of consideration.

Dr. L. McLANE TIFFANY considered Dr. Park's idea a very good one, but the difficulty, in his opinion, was the determination whether or not a micro-organism was present.

Dr. JOHN PARMENTER, of Buffalo, agreed with the changes suggested by Dr. Park, of which he thought there certainly was great need. The problem in his opinion was, What is the causation of pus? In several cases he had been in doubt on this point.

Dr. ROSWELL PARK stated that, in his opinion, if there had been infection by organisms, one would soon be made aware of the fact by the formation of pus, and if this did not occur it would be safe to assume that there was no infection.

Dr. CHRISTIAN FENGER, of Chicago, then read a paper entitled

HERNIA OF THE BLADDER AS MET WITH DURING OPERATIONS FOR INGUINAL AND CRURAL HERNIA.

Dr. S. H. WEEKS, of Portland, Me., reported

A CASE OF CHOLECYSTECTOMY.

The patient was a married woman, forty-seven years of age. For four years she had been subject to very severe paroxysmal attacks of pain in the upper part of the abdomen. The pain would begin in the right hypochondriac region and extend across to the epigastric and left hypochondriac regions, the pain also at times extending upward toward the right

shoulder. It was most intense in the epigastric region, and extended upward to the neck in the median line. During the paroxysms she vomited freely, the vomited matter always containing a large amount of bile. Diagnosis of biliary colic due to occlusion of the cystic duct having been made, an operation was recommended, and was done eighteen days after her admission to the hospital, a vertical incision about four inches long being made external to the right rectus muscle at a point corresponding to the tip of the tenth rib. The gall-bladder was much contracted and contained from 12 to 15 small calculi, varying in size from gravel to a pea. After these were removed from the gall-bladder, Dr. Weeks passed his finger along the under surface of the cystic duct, and found it filled with a large calculus. This was removed by making an incision through the walls of the duct, and was found to be 20 mm. in its long diameter and 14 mm. transversely. After the removal of the stone from the cystic duct, the gall-bladder was removed, tying the cystic duct as high up as possible; but it could not be tied beyond the incision for the removal of the calculus, and consequently there was an opening through which bile could escape. A drainage-tube of glass was inserted well down to the bottom of the wound, and iodoform gauze packed freely about it. The gauze was packed into the wound during the operation upon the gall-bladder and ducts to protect the peritoneal cavity from blood and bile. Much pain followed the operation for several days, probably occasioned by the glass drainage-tube, and a rubber tube is recommended in preference, supplementing it always by gauze packed around the drainage-tube.

At first there were some disagreeable symptoms of pain in the side, vomiting and high temperature, a large amount of bile escaping from the wound, but five days after the operation she rested well, and about three weeks later was discharged from the hospital, the wound having completely healed and the patient entirely relieved of all her former symptoms.

Dr. M. H. RICHARDSON, the Secretary of the Association, showed two stones he had recently removed. In the first case the stone was removed by a suprapubic operation, four weeks ago.

Dr. ROSWELL PARK, of Buffalo, read the closing paper, entitled

INJURIES TO PNEUMOGASTRIC AND PHRENIC NERVES.

He stated that this paper was the result of a suggestion made two years ago at a meeting of the Association, when some one expressed the opinion that a table showing the results of injuries to these nerves would be of interest. He had made a collection of as many as possible, and said he would be glad if any members present could furnish him with the histories of any others. Injuries to the phrenic nerves seem to be much more dangerous than injuries to the pneumogastric.

Dr. FENGER said that he had histories of two cases which he would be pleased to contribute to Dr. Park's paper; on motion it was decided that he should do so.

Dr. BRADFORD handed around a photograph which showed what a good result had been obtained by a man sixty years of age, in the attempt to get motion in the knee-joint by tying weights to his feet, sitting on a chair, and throwing the weights off. In this crude way complete motion of the joint was restored, and the man has since been able to walk perfectly well.

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RECENT ACCIDENTS FROM ANTITOXIN.

IN the *Revue Mensuelle des Maladies de l'Enfance*, March, 1895, MM. Guinon and Rouffilange report a fatality attending the use of Roux's antitoxin.

It was a case of diphtheria of medium gravity; patient a girl aged three years. The tonsils and part of the velum pendulum were well covered with false membranes; there was nasal catarrh and swelling of the glands on the left side. The serum treatment was begun on the third day. After a first injection of 15 c. c. the pseudo-membranous patches began to loosen and ceased to spread, and there was cessation of the nasal discharge, but the glandular swelling increased, and an eruption resembling urticaria appeared on the trunk and lower extremities, and the urine became slightly albuminous.

A second injection of 5 c. c. of serum practised the next day was followed by prostration, diminution of the quantity of urine, and increase of the albuminuria; the local state remained stationary; the adenopathy had lessened; the tongue and the lips were swollen.

The following day, after a third injection of 10 c. c., the anuria became complete; there supervened edema of the eyelids and a fetid diarrhea, with abdominal tympanites and vomiting; on the mucous membrane of the lips and fauces there was noticed a slight bloody exudation; the lesions of the throat remained unchanged but the adenopathy had disappeared.

The anuria as soon as recognized was combated by warm baths (water about 90° F.), subcutaneous injections of 40 c. c. of saline water (7 per cent.), full warm-water lavements, hot applications to the loins, and forced feeding with milk by means of the nasal tube. Under the influence of this treatment the urinary secretion was becoming re-established, when, three days after the last antitoxin injection, another injection of 10 c. c. was made, and this was followed anew by anuria. The next night the child was attacked by coma and convulsions, and died.

In this case, the aggravation of urinary troubles

after each one of the three last injections was very marked, although the quantity of serum used was very small, and MM. Guinon and Rouffilange conclude that "whenever the permeability of the kidney is compromised by an intense nephritis due to diphtheritic or streptococcus poisoning, it is dangerous to further tax the renal filter by obliging it to eliminate the toxins of the antidiphtheritic serum."

In another case, reported in the May number of the same journal, the injection of serum caused anuria and collapse; the child was, however, saved. After the fourth injection of 10 c. c. an urticaria appeared, first local and around the site of the injections, then diffuse. On the sixteenth day, eight days after the last injection, there was a new attack of urticaria with vomiting, articular and muscular pains, multiple glandular swellings and oliguria. Two days later there was anuria with collapse, fortunately, however, yielding to an energetic treatment.

The writer in the review thus comments on this case: "The alarming symptoms came on at a time when the kidney is seldom gravely attacked by the diphtheritic poison. They began by an urticaria resembling the rash with which we are so familiar in connection with sero-therapeutic poisoning. . . . Neither during nor after the urinary troubles which came so near being fatal was there any paralysis, a complication so characteristic of diphtheria-poisoning."

Still more recently, at a meeting of the Société Médicale des Hôpitaux, July 5, 1895, M. Moizard reported a case of angina (not diphtheritic) treated by antitoxin and followed by death. Though the case was mild, yet it was regarded as genuine diphtheria till complete absence of the Löffler bacillus was demonstrated by a careful examination. Pending the result of this examination, a preventive injection of 10 cubic centimetres of serum from the Institut Pasteur was made. The false membranes separated kindly, and the general condition seemed satisfactory for a number of days, when, on the sixth day after the injection, high fever set in with a scarlatiniform eruption starting from the point where the injection was made and spreading over the body. No albumin was detected in the urine. The patient subsequently died in convulsions. Moizard ascribes the death to the toxic action of the serum on the central nervous system. He draws the important conclusion that in doubtful cases it is not best to make preventive injections of antitoxin till the presence of the specific bacillus has been determined.

At the same meeting, M. LeGendre expressed the same opinion, and declared that the antitoxin injections should only be practised against confirmed diphtheria. He would also forbid any topical applications to be made to the throat till the proper bacteriological examinations have been made, as these applications momentarily destroy the Löffler bacillus and thus interfere with the diagnosis.

M. Bucquoi said that he could not altogether approve of this course in doubtful cases, for it might sanction a dangerous procrastination; but he would

still make it a rule whenever in presence of an angina with suspicious characters to practise without delay a preventive injection of serum.

M. Gaucher, whose heroic methods of treatment in this disease are well known, and who claims extraordinary success therefrom, condemned both a servile reliance on bacteriological methods of diagnosis, and on serotherapy as a mode of treatment.

CEREBRO-SPINAL MENINGITIS IN AN INFANT.

A CASE of meningitis at the unusually early age of six days is reported by Dr. T. M. Rotch, in the August number of the *Archives of Pediatrics*. The infant was healthy at birth and remained in perfect health for six days, when she began to have convulsions. The temperature rapidly rose, reaching 104.2° F. The temperature subsided somewhat, but the convulsions were frequently repeated until they reached fifty in number. Death occurred on the eighth day of life.

The onset of the attack followed a period of extreme nervous excitement of the mother, who was nursing the infant. When first seen by the author in consultation with Dr. W. L. Richardson, it seemed possible that the convulsions were of a reflex form, such as might follow from disturbance in the breast-milk. The absence of retraction of the head, opisthotonos, any abnormal symptoms connected with the eyes, and the perfect tranquillity and apparently healthy condition of the infant in the intervals of the convulsions, made the supposition of the convulsions being reflex still more probable.

The post-mortem examination was made by Dr. W. F. Whitney, eighteen hours after death. The calvaria presented nothing abnormal. The inner surface of the dura mater was covered with opaque, yellowish patches, the lymph being especially marked over the base of the skull. The vessels of the pia mater were filled with an opaque, greenish-yellow, purulent exudation. This extended over the entire brain and into the spinal canal. Microscopic examination showed the presence of large micrococci, usually associated in pairs, two of which were sometimes united with a chain of four (pneumococcus). Other organs of the body were normal. The condition was, therefore, acute cerebro-spinal meningitis with general venous congestion. The author reports the case to warn us that a most guarded prognosis should be given in all cases of infantile convulsions.

MEDICAL NOTES.

DIPHTHERIA IN PARIS. — The *Lyon Médicale* is authority for the statement that during the week ending June 29th there was only one death from diphtheria in Paris. This is the smallest mortality since the mortality statistics of Paris have been published.

Is antitoxin to be credited with this remarkable result?

THE ITALIAN CONGRESS OF INTERNAL MEDICINE. — The annual Italian Congress of Internal Medicine will be held at Rome in the month of October. Serotherapy will be the principal subject for discussion. Professors Foa, of Turin, de Renzi, of Naples, and Giovanni, of Padua, are announced to take part in the discussion.

CRANIECTOMY SUPERSEDED. — Dr. Walter Scargill, of Colchester, England, has made the discovery that travelling not only develops the youth but actually increases the size of the head in the middle-aged, not on paper, but actually. He claims to have verified an increase in circumference of two to three centimetres, even at the age of thirty, forty-five and sixty years. Applying this principle to the treatment of microcephalus, he thinks that the idiots suffering from this disease should be moved every year from one asylum to another, a method of treatment which *La Médecine Moderne* remarks is certainly simpler than Lannelongue's method of craniectomy.

A NATURAL FEET SOCIETY. — Some English ladies, residents in China, have started a society to put a stop to the practice of binding the feet of young girls. Chinamen, who resent the impertinence, ask the members of the new society to join them in the formation of a Natural Waist Society, to put an end to tight-lacing. — *Medical Record*.

MR. HEATH RE-ELECTED. — Mr. Christopher Heath has been re-elected President of the Royal College of Surgeons, England. Mr. Reginald Harrison and Mr. Pickering Pick have also been appointed Vice-Presidents.

RUSSIAN SUBSCRIPTION IN HONOR OF LAVOISIER. — It has been intimated to the French Académie de Médecine that the emperor of Russia has directed the inauguration of a public subscription for a monument to Lavoisier, the great scientific chemist. In Russia no subscription is permitted for the purpose of honoring any foreigner until the approval of the emperor has been obtained.

THE EFFECT OF OVARIOTOMY UPON THE VOICE. — The well-known effect of castration in young males in heightening the pitch of the voice has lead Dr. J. Moure¹ to investigate the effect of ovariectomy upon the voice. His observations in two cases of ovariectomy in young women showed an effect exactly the opposite of that of castration in men, since the voice became deeper and harsher, and the patients thought they were hoarse. The higher notes were lost and the voice fell from soprano to mezzo-soprano. This small number of observations is obviously entirely insufficient to establish a fact; and as no previous cases are on record of the production of any changes in the voice by ovariectomy, the observations must await confirmation from further cases.

¹ *Annales des Maladies de l'Oreille, du Larynx, etc.*, No. 4, 1895.

THE CZAREWICH HAS CONSUMPTION.—It is announced that Dr. Leyden, of Berlin, and Professor Nothnagel, of Vienna, have been called to see what can be done for the Czarewich, who is said to be suffering from phthisis in an advanced stage.

A CONFERENCE ON BOVINE TUBERCULOSIS.—An important convention was held in the United States Hotel in Boston, on July 25th, of representatives of boards of agriculture and cattle commissions, to consult in regard to interstate questions in the handling of bovine tuberculosis. Representatives of the boards of health or agriculture of Massachusetts, Maine, Vermont, New Hampshire, Connecticut and New Jersey were present. The question of the practicability of interstate quarantine statutes and regulations for the control of interstate traffic in cattle was discussed at length.

A NEW METHOD OF ATTRACTING PATRONAGE.—One of the companies that run lines of steamers on the great lakes has announced that it will give a prize of \$250 in gold for every baby born on one of its vessels this season; \$500 for twins and \$1,000 for triplets. This is encouraging, the prize for triplets being notably appreciative. They are worth the price, and the money will start the parents off very handsomely under what would otherwise be unfavorable conditions.—*Boston Herald*.

A small reward for adding sea-sickness to the pains of child-birth!

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, July 31, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 54, scarlet fever 23, measles 30, typhoid fever 27.

NEW YORK.

DR. LEWIS APPOINTED PRESIDENT OF THE BOARD OF HEALTH.—Dr. Daniel Lewis has been appointed President of the State Board of Health. Dr. Lewis was born in Alleghany County, New York, in 1846, and graduated from the College of Physicians and Surgeons in 1871. For many years he has been prominent in the profession of New York City, and not long since was president of the State Medical Society. He is a trustee of the New York Academy of Medicine and professor of cancerous diseases in the Post-Graduate Medical School.

DR. TRACY SUCCEEDS DR. NAGLE.—Dr. John T. Nagle has resigned his position as Registrar of the Bureau of Vital Statistics, and been succeeded by Dr. Roger S. Tracy, who occupied the post from 1887 to 1892. Dr. Tracy has been connected with the Board of Health since 1870, and is well known as a statistician. Dr. Nagle retired on account of ill health. He was appointed inspector of the Board of Health in 1868, and has served with the Department ever since.

He is the first officer of the Health Department to be retired under the pension law passed by the recent legislature, the enactment of which he was instrumental in securing. It allows a maximum of \$1,200 a year, but for the present Dr. Nagle will receive but \$600. The amount will probably be increased when the fund permits.

FRACTURE OF THE CERVICAL VERTEBRÆ.—A patient recently died in Roosevelt Hospital who survived a fracture of the cervical vertebræ for ten months. At first the case was regarded as quite hopeless, but in a short time the patient, a male, forty-five years of age, began to improve, and until a week before his death it was thought that he might possibly recover ultimately.

DEATH OF A CENTENARIAN.—Mrs. Cynthia Falconer Smith, the oldest resident of Westchester County, died at her residence at Elmsford, near White Plains, on July 22d, in her one hundred and third year. Mrs. Smith was born at Tarrytown, near the place of her death, on September 3, 1793, and came of a distinguished Huguenot and Revolutionary family. She was a lineal descendent of the famous Admiral de Coligny, and her great-grandfather, General John Falconer, at whose house in White Plains were the headquarters of the Duc de Lauzerne during the American Revolution, was an aid-de-camp of General Washington. Her elder son died in December last, at the age of eighty-two, and the younger survives her, aged sixty.

DANGER OF ANSWERING TELEPHONE CALLS.—The possible danger of answering calls from strangers by telephone is illustrated by the case of Dr. George Drury, a well-known physician of Brooklyn, who on July 27th was thus decoyed to an empty house and after being nearly choked to death was robbed of all his valuables. He was then left bound and gagged, and he remained unconscious for a considerable time.

SUICIDE OF DR. HAGAN.—Dr. Thomas M. Hagan, a bright, young physician of the medical staff of the City Insane Asylum on Hart's Island, committed suicide by stabbing himself on July 24th. For some time he had been in poor health, and he was a most assiduous student. He was twenty-seven years of age, a graduate of the Louisville Medical College and had been at the asylum less than a year. His parents reside near Louisville, Ky.

Miscellany.

THE BICYCLE AND MEDICAL PRACTICE.

THE use of the bicycle has expanded and developed from a salutary athletic exercise into a great social obsession. It has seized upon every class of society, both sexes, all ages, and every condition of life. It is taken up by the well because it makes them feel better, by the invalid because it makes them feel well,

by tired people because it rests them, and by the rested because it makes them feel tired. The fat ride to get thin and the thin to get fat. It has displaced the horse, and in women has, in a measure, replaced the uterus. It has made the simple and ancient custom of walking most unpopular, it has cut down the function of the steam-car, and competes successfully with the suburban trolley. The doctors have taken it up and expressed their approval of it, and we are far from saying a word in opposition. The bicycle has come to stay, though not with quite the omnipresent activity which it now enjoys. Already we notice grave and reverend seigniors in our profession riding along the cobble-stones in their golf suits instead of lying comfortably back in their victorias. Time that used to be spent in serious scientific pursuits at the hospital, in the laboratory, and at the desk is now shortened in order to enjoy a ride up the Boulevard. The bicycle has cut down the scientific activity of the New York profession at least fifty per cent. already.—*The Post-Graduate*.

THE ETIOLOGY OF GOITRE.

DR. H. C. L. MORRIS, writing in the *British Medical Journal*, speaks of his experience with goitre in Hambleton, a small town of two thousand inhabitants in Buckinghamshire, England. In the space of two and a half years, fifty-five well-studied cases came under his observation. The soil of the district from which the patients came was extremely chalky, the chief source of water-supply being from wells sunk into the chalk. All of the cases were water drinkers, only four of the number males. The ages ranged from four to seventy-six.

The conclusion to which Dr. Morris's study leads, is that the presence of calcium and magnesium carbonates in the water was the sole cause of the disease in his cases. In making this statement he does not exclude the possibility of other causes in other regions. The writer is confident that heredity had nothing to do with the etiology of his cases. In but one case was there the slightest suspicion of it as a causative factor. Nor was he able to determine that intermarriage played any part in the propagation of the disease.

Altogether the communication is a valuable one, and throws new light upon a still more or less open question.

A REPORT ON ONE HUNDRED AND THREE OPERATIONS ON THE STOMACH.

MICULICZ reported at the Twenty-fourth Congress of German Surgeons the results of 103 operations on the stomach and pylorus, the operations included in the report being gastrotomies, gastroenterostomies, resections of the pylorus and pyloroplastic operations. Of these cases 35 were operated on by the writer at Krakau and Königsberg, 68 in Breslau. The mortality of the former series of 35 cases was 37 per cent., of the latter series of 68 cases 15 per cent., a comparison which certainly shows the value of experience and practice in these cases.

In 25 operations for non-malignant stricture of the

pylorus, there were only two deaths. Of 73 patients operated upon for carcinoma, 16 died. The causes of death were collapse, pneumonia, inanition and in only two cases wound infection. The operation for carcinoma prolongs life on an average about half a year, and at any rate gives great relief from the symptoms.

Miculicz relies for improvement in his results in the future mainly upon progress in the methods of diagnosis, since he considers that the technique has already been perfected as far as is possible with our present knowledge. For purposes of exploration he recommends an incision of only two to four centimetres in length, which he considers will be found fully sufficient for purposes of diagnosis, and possesses considerable advantage over long incisions with respect to after-treatment.

THE EFFECT OF VIVISECTION UPON THE GREATEST OF VIVISECTORS.

THE *Lancet*, in a recent editorial, says that since the publication by Moleshott of his beautiful monograph on Douders, no worthier tribute has been paid by one of our profession to a professional brother than Dr. Mosso, of Turin, has paid to Ludwig the great physiologist and teacher. Certain extracts from this editorial will bear perusal by anti-vivisectionists, both lay and medical, in view of their well-known contention that vivisection brutalizes the mind of him who practises it.

"On passing from Ludwig the experimental philosopher, to Ludwig the man and the citizen," says the editor, "Professor Mosso has much to tell the world of the deepest interest. 'Ludwig,' he says, 'the greatest of vivisectors, was president of the Leipzig Society for the Protection of Animals, and remained to the last one of its most active members.' Germany owes it to him that her horses and beasts of burden are now humanely treated. To him is due that awakening of the true humanitarian spirit toward the brute creation that culminated in the 'Verband der Thierschutz-Vereine des Deutschen Reichs' (Union of German Societies for the Protection of Animals). It was mainly from her sense of the gentler attitude to be encouraged toward animals on the part of the rising generation, that Leipzig made him an honorary citizen on the fiftieth anniversary of his graduation in medicine. 'No physiologist,' continues Professor Mosso, 'has ever sought with greater frankness than he to impose just limits on vivisection. The gates of his institute were ever open to all who wished to assure themselves that he, in the midst of his experiments, knew how to spare suffering. The vivisector's art attained such perfection in his hands that, having to sacrifice an animal, he did not let it feel that it was even being tied. He would apply the muzzle and instantly proceed to the exhibition of ether or chloroform, which in a few seconds, in a dog, for example, made it insensible. It is an error,' adds Professor Mosso, wisely, 'it is an error to believe that experiments can be performed on an animal which feels. The perturbation induced by pain in the functions of the organism is so profound as to render useless the experimenter's study. It was Ludwig who uttered the celebrated *mot* that some physiologists, to study

the nervous system, act like him who fires a pistol into a watch to see how the chronometer works. Suffering ought to be entirely eliminated from physiologic experiment, because the instruments we employ to-day are so delicate that they become unserviceable the moment the animal is agitated or moves.' . . .

"Illustrative anecdotes without number might be multiplied to prove the real humanity of Ludwig — of the man who was denounced on anti-vivisection platforms as the 'arch-fiend' of the 'Nine Circles,' and as the keeper of the worst 'torture den' in Europe. Well may the physiologist and the physician cry aloud, 'Humanity! what offences are perpetrated in thy name!' Professor Mosso's masterly 'full-length' of a biologist, a teacher, and a philanthropic citizen, surpassed by none of his generation, ought to send a thrill of shame through the promoters of a mischievous propaganda which, mistaking sentimentality for sentiment, and morbid hyperesthesia for sound feeling, would have tied the hands of one of the most beneficent students of nature who ever devoted his life to the healing art."

PALLIATIVE TREPHINING IN CEREBRAL TUMOR.

ALBERT¹ has practised palliative trephining in three cases of cerebral tumor occurring in Nothnagel's clinic, applying to cerebral surgery the principle upon which the operations of gastrotomy in neoplasms of the esophagus and enterostomy in malignant disease of the rectum are based. Paracentesis of the ventricle was not employed, the procedure consisting simply of making extensive openings in the skull, in the first cases without opening the dura.

The first case was that of a young man of eighteen who for years had suffered from dizziness, vomiting whenever the head was lowered, and later from salivation, constipation, disturbances of vision and headache. The trephine was applied over the right parietal bone, a piece the size of a dollar being removed. The tense dura bulged into the defect, and pulsation was plainly felt. The headaches were relieved by the operation: the vomiting, however, continued. The tension of the dura gradually decreased. After four weeks the operation was repeated on the left side. The headaches disappeared permanently, the vomiting (twice a day) remained, and the salivation was not affected.

The second case was that of a woman of twenty-seven, who soon after her confinement, six months before, began to have severe pain in the right side of the back of the head, which lasted all day. Later, pain in the extremities, and disturbances of vision came on, with blindness of the right eye, paresis of the left arm and leg, deafness of the right ear, finally anemia and right facial paresis. Trephining over the right parietal bone. Dura very tense, pulsating sluggishly; puncture with a small trocar gave exit to a small amount of fluid. Temporary improvement of the headache, followed by recurrence.

The third case was that of a man of thirty-nine, who for two years had suffered from very severe headaches, nausea and vomiting, especially in the morning, in the evening dizziness and ringing in the ears.

¹ Wiener med. Woch., 1895, No. 1.

Temporary improvement followed mercurial inunctions and an intercurrent attack of typhoid. Eight months ago disturbances of vision had appeared. Improvement after a course of treatment at Aix. Slight left facial paresis. Removal of a bone flap from the left parietal. Dura not tense, non pulsating. Improvement of the headache and amblyopia; no vomiting; improvement in gait. Later, improvement in vision. After four weeks, recurrence of vomiting and dizziness. Opening the dura gave exit to no fluid, but there was prolapse of cerebral substance attended by symptoms of irritation on the part of the left arm. Later, trephining was done on the left side, with slight improvement. The cerebral hernia sloughed; and three months after the first operation fever and headache ensued, with temporary improvement followed by recurrence. Two months later, that is, five months after the first operation, death occurred with symptoms of encephalomalacia. The post-mortem revealed an endothelioma of the tentorium and the left central hemisphere.

Albert reserves judgment as to the advantages of the operation.

THERAPEUTIC NOTES.

THE TREATMENT OF ERYSIPELAS WITH ABSOLUTE ALCOHOL.¹—Langsdorff, of Baden Baden, has treated 32 cases of erysipelas of the face and other parts of the body with compresses saturated in absolute alcohol, and reports that he has secured excellent results. The painful tension of the skin disappeared in from one to two hours, and in the course of a day the temperature fell to normal. After eight to ten hours, marked swelling of the skin took place, especially about the centre of the inflamed area. New areas of the disease often appeared near the border of the original patch, which readily yielded, however, to renewed applications of alcohol. Desquamation followed after some days, at which time applications of lanolin were valuable. Complications, such as connective-tissue necrosis from the alcohol applications, were not observed by Langsdorff. To prevent evaporation the compresses must be covered with some impermeable material; and they should be changed every fifteen minutes, until all inflammation has subsided, two to three days being generally required.

MERCURIC CHLORID IN THE TREATMENT OF RHUS POISONING.—Witmer, in the *Philadelphia Polyclinic* calls attention to the value of corrosive sublimate in the treatment of dermatitis venenata. The case is cited of a patient who was very susceptible to the poison, and had yearly attacks of a severe type, frequently lasting for six weeks. He applied for treatment in the early part of May with the typical eruption on the face and fingers, and was given one-thirty-second of a grain of mercuric chlorid every three hours. Within four days the eruption had entirely disappeared. The topical applications consisted of lead-water and laudanum during the acute stage; of hot water, frequently applied, during the stage of exudation, and of a two-per-cent. carbolated petrolatum ointment during the stage of desquamation. This case was of interest owing to the rapid convalescence of the patient during a time when the toxic plant (rhus) was particularly virulent.

¹ Wiener klin. Woch.

METEOROLOGICAL RECORD.

For the week ending July 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro. Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean. Maximum. Minimum.	8.00 A. M. 8.00 P. M.	Daily mean. 8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	
S..14	30.01	64 71 56	71 89	80	N.	N.	11	14	C.	O.	.39
M..15	30.06	64 69 58	74 76	75	N.E.	S.W.	2	10	F.	F.	
T..16	30.00	64 69 59	93 97	95	E.	N.E.	6	12	O.	R.	.03
W..17	29.95	63 66 60	92 95	95	N.	S.E.	5	4	O.	C.	
T..18	29.94	72 82 63	67 50	58	N.W.	N.	10	7	O.	C.	
F..19	30.10	71 82 60	67 64	64	N.W.	W.	6	5	C.	F.	
S..20	30.05	74 80 67	74 80	77	S.W.	E.	2	5	O.	F.	
Mean	30.01	74 60		78							.42

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 20, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					Scarlet fever.
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,956,000	1012	595	35.30	8.90	26.50	3.30	.30	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	473	264	27.72	7.35	19.32	3.99	—	
Brooklyn	1,043,000	545	316	35.82	8.46	29.70	2.70	.54	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	228	93	20.24	10.56	12.76	3.96	1.76	
Baltimore	500,000	—	—	—	—	—	—	—	
Cincinnati	325,000	146	66	23.46	8.97	18.63	—	—	
Cleveland	325,000	157	—	32.00	5.12	30.08	.64	—	
Washington	285,000	—	—	—	—	—	—	—	
Pittsburg	272,000	120	73	33.20	4.15	28.73	2.50	1.66	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	35	9	20.95	17.10	14.25	—	—	
Charleston	65,165	36	18	24.93	11.08	16.66	—	—	
Portland	40,900	—	—	—	—	—	—	—	
Worcester	100,410	31	21	45.22	6.46	38.76	—	—	
Fall River	92,233	53	36	44.50	3.76	26.32	—	—	
Lowell	90,613	49	32	51.00	—	44.88	2.04	—	
Cambridge	39,007	—	—	—	—	—	—	—	
Lynn	65,123	15	2	—	13.33	—	—	—	
Springfield	50,284	25	16	64.00	12.00	60.00	—	—	
Lawrence	49,900	29	22	51.75	10.35	61.75	—	—	4.00
New Bedford	47,711	24	20	58.24	4.16	50.00	—	—	4.16
Holyoke	33,348	—	—	—	—	—	—	—	
Brookton	33,336	4	2	—	—	—	—	—	
Salem	33,155	8	4	37.60	—	37.50	—	—	
Haverhill	32,925	8	3	—	25.00	—	—	—	
Malden	30,209	7	3	14.28	—	—	—	—	
Chelsea	29,406	11	3	—	9.09	—	—	14.28	
Fitchburg	29,383	7	4	28.56	—	28.56	—	—	
Newton	28,837	11	5	27.27	27.27	18.18	9.09	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,964	7	2	—	—	—	—	—	
Waltham	22,058	9	2	—	33.33	—	—	—	
Quincy	19,642	5	1	—	—	—	—	—	
Pittsfield	18,802	6	2	33.33	33.33	—	—	33.33	
Everett	16,585	3	1	—	—	—	—	—	
Northampton	16,331	—	—	—	—	—	—	—	
Newburyport	14,073	8	3	12.50	12.50	12.50	—	—	
Amesbury	10,920	4	0	—	50.00	—	—	—	

Deaths reported 3,069; under five years of age 1,629; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 1,017, consumption 263, acute lung diseases 163, diarrheal diseases 794, diphtheria and croup 86, typhoid fever 37, whooping-cough 29, measles 28, scarlet fever 16, cerebro-spinal meningitis 10, malarial fever 9, erysipelas 8.

From typhoid fever New York 10, Philadelphia 8, Brooklyn 6, Boston, Pittsburg, Nashville and Charleston 2 each, Cincinnati, Cleveland, Providence, Fall River and Lowell 1 each. From whooping-cough New York 17, Philadelphia 4, Brooklyn 3, Cincinnati and Pittsburg 2 each, Lowell 1. From measles New York 17, Philadelphia 6, Brooklyn 4, Cleveland and New Bedford, 1 each. From cerebro-spinal meningitis New York and Boston 4 each, Worcester 2. From malarial fever Philadel-

phia and Brooklyn 3 each, Charleston 1. From erysipelas New York 4, Boston 2, Philadelphia and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending July 13th, the death-rate was 19.9. Deaths reported 4,033; acute diseases of the respiratory organs (London) 187, diarrhea 564, measles 126, diphtheria 72, whooping-cough 54, scarlet fever 37, fever 23, small-pox (London) 1.

The death-rates ranged from 8.9 in Huddersfield to 27.4 in Wolverhampton; Birmingham 18.1, Bradford 18.4, Cardiff 12.4, Gateshead 15.2, Leeds 21.0, Leicester 22.1, Liverpool 30.2, London 21.0, Manchester 20.7, Newcastle-on-Tyne 15.6, Nottingham 16.6, Portsmouth 13.7, Sheffield 17.0, Sunderland 18.6, Swansea 10.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 20, 1895, TO JULY 26, 1895.

The extension of leave of absence on account of sickness, granted FIRST-LIEUT. ALEXANDER S. PORTER, assistant surgeon, U. S. A., is further extended two months, on account of sickness.

Leave of absence for one month, with permission to apply for an extension of ten days, to take effect on or about July 20, 1895, is granted COLONEL DALLAS BACHE, assistant surgeon-general, medical director, Department of the Platte.

APPOINTMENTS.

DR. J. H. WRIGHT has been appointed second assistant to the pathologist at the Boston City Hospital.

DR. E. W. TAYLOR has been appointed visiting neurologist to the Long Island Almshouse and Hospital.

DR. ALEXANDER QUACKENBOSCH has been appointed visiting ophthalmic surgeon, and DR. E. A. CROCKETT, visiting aural surgeon at the City of Boston Almshouse and Hospital on Long Island.

BOOKS AND PAMPHLETS RECEIVED.

Albany Medical College Catalogue, 1894-95, and Announcement, 1895-96.

Thirteenth Annual Announcement of the Medical Department of Niagara University, 1895-96.

The Flechsig Method in the Treatment of Insane Epileptics. By L. Pierce Clark, M.D. Reprint. 1895.

Faculty. Session 1895-96. When to Pluck a Medical Student. Free Medical Education in Denver. Reprints. 1895.

Twelfth Annual Report of the Superintendent of Health of the City of Providence, for the year ending December 31, 1894.

Woman's Medical College of the New York Infirmary, Thirtieth Year, Annual Catalogue and Announcement, June, 1895.

The Use of Vaccine Serum in the Treatment of Variola. By Llewellyn Eliot, A.M., M.D., of Washington, D. C. Reprint. 1895.

Transactions of the Medical Association of Central New York, Twenty-seventh Annual Meeting, Buffalo, N. Y., October 16, 1894.

Civil Service Reform in State Institutions; Reorganization of the Medical Staff. By Boerne Bettman, M.D., Chicago, Ill. Reprint. 1895.

The Annual Report of the Superintendent and Physician of Walnut Lodge Hospital, Hartford, Conn., at the annual meeting, January 1, 1895.

Fortieth Annual Report upon the Births, Marriages and Deaths in the City of Providence for the year 1894. By Charles V. Chapin, M.D., City Registrar.

The Murphy Button; With a Report of an Unsuccessful Cholecystoduodenostomy. By Aug. Schachner, M.D., Ph.D., Louisville, Ky. Reprint. 1895.

An Address Delivered at the Opening of the Twenty-fifth Annual Meeting of the Medical Society of the State of California, held in San Francisco, April, 1895. By G. L. Simmons, M.D., President, Sacramento, Cal.

In the Circuit Court of the United States at Chattanooga, Tennessee, April Term, 1895. W. R. Amick, Plaintiff, vs James E. Reeves, Defendant. Action for Libel. Pleadings in the Cause; Arguments of Counsel; Charge of the Court. Reported by Miss Julia Akers, Stenographer.

The Annual Report of the Department for the Insane of the Pennsylvania Hospital for the year ending fourth month, 25th, 1895. Presented to the One Hundred and Forty-fourth Annual Meeting of the Managers of the Pennsylvania Hospital, by John B. Chapin, M.D., Physician-in-Chief and Superintendent.

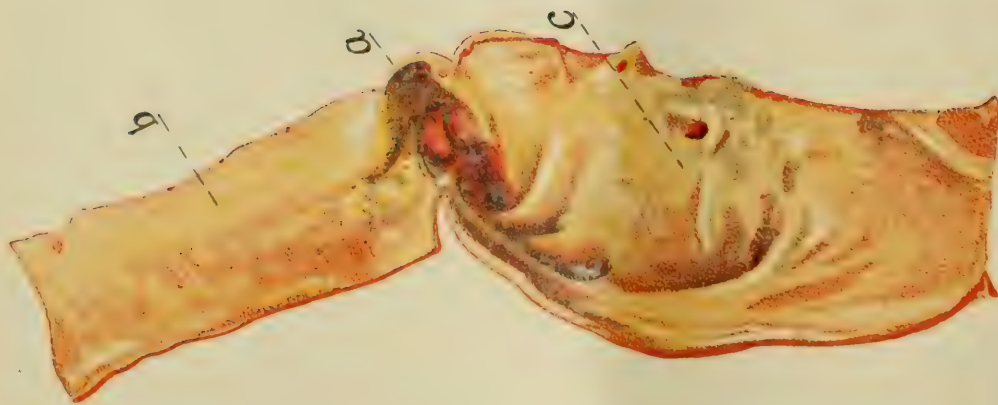


FIG. 1.

Carotid and subclavian arteries, with the occluded innominate.
a, Inset ligature of innominate, with occlusion. *b*, Carotid. *c*, Sub-
 clavian.

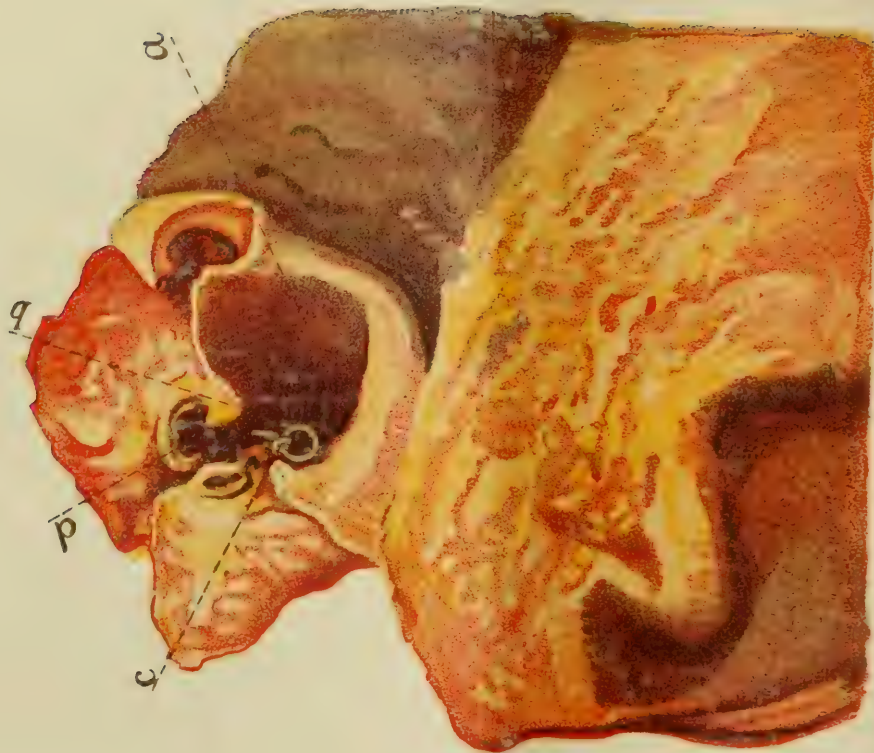


FIG. 2.

Portion of arch of aorta, showing innominate. *a*, Innominate ar-
 tery. *b*, projecting spur where the ligature has cut through. *c*, Loop
 of ligature within the lumen of the artery. *d*, Lumen of the artery
 above ligature.

Original Articles.

LIGATURE OF THE INNOMINATE ARTERY,
WITH THE REPORT OF A CASE.¹

BY HERBERT L. BURRELL, M.D., BOSTON.

THE ligature of the innominate artery has been so fatal an operation that it had been questioned whether the operation is justifiable or not. This leads me to record this case. Some of the accounts of attempts to ligature the artery describe such difficulties of technique, as, for example, in the article by Mitchell Banks, that any surgeon hesitates before performing this hazardous operation. The literature of the subject is not large, but it is filled with an almost unbroken record of fatal results. The causes of death as the result of the operation have been three: first, shock; second, hemorrhage, usually from the distal end of the artery; and, third, sepsis.

The operation of ligature of the innominate artery has been done twenty-nine times, including my own case. Twenty-six were performed for aneurisms of the subclavian artery, generally involving the junction of the carotid and innominate arteries; and three times it was done for trauma — of these one was for hemorrhage from the subclavian, one for hemorrhage from the axillary artery, and one for secondary hemorrhage following ligature of the subclavian.

Three cases are reported as recoveries; the first was Smyth's of New Orleans, 1864. The patient lived ten years, but finally died from hemorrhage from the sac of the original aneurism. The second case was that of Lewtas, of India, 1889, who reported a recovery at the end of 43 days. The third was Coppinger's, of Dublin, 1893, who reported the patient well at the end of 42 days. Graefe, of Berlin, in 1822, reported a case which died on the 68th day of hemorrhage.

The success of an operation must be considered as applied to an individual case. If my own case had been reported at the end of 50 days, it would go on record as a successful case. In the light, however, of Graefe's case that died from hemorrhage on the 68th day, it is too early to report a recovery on the 42d or 43d day. In my own case the patient lived 104 days. He had been up and about for a number of weeks attending to his affairs, and died of hypertrophy and dilatation of the heart and general arterial sclerosis. The innominate artery was closed and the aneurism had shrunk. The patient might have lived for a long time so far as the ligation of the innominate was concerned.

The success of this operation may be measured by the question whether the patient lived longer and with more comfort than without operation. I believe (it is unfair to assert) that the patient lived as a result of the operation in more comfort and a longer time than he would have without operation. With the foregoing qualifying statement I beg to record the case as one of recovery, with death resulting from other causes on the 104th day.

Appended to this article is an epitome of the recorded cases of ligature of the innominate artery.

The various materials which have been used for securing the vessel are as follows: silk, hemp, catgut, ox-aorta, kangaroo tendon, and a clamp combined with acupressure.

¹ Read before the American Surgical Association, New York, May, 1895.

In the majority of instances the method of exposing the vessel has been the obvious one of making an incision along the inner border of the lower part of the sterno-cleido-mastoid muscle, combined with a division of at least a part of this muscle.

At the time this operation was done I supposed that the removal of a portion of the sternum and the sterno-clavicular articulation was a new procedure, but it has been found that Cooper, of San Francisco, twice used this method of exposing the artery. Bardenheuer also has a number of times resected the manubrium, the sterno-clavicular articulation and portions of the first and second ribs, in order to remove with safety large tumors at the base of the neck. He is convinced that ligature of the innominate artery cannot be done with safety unless a free access to the artery is obtained.

It seems clear that the removal of that part of the sternum which overlies the innominate artery must allow the operator accurately to place a ligature in a far more satisfactory manner than if the ligature is slid down in the dark behind the sternum.

The medical history of this case was the following: The patient, a male, R. F., was fifty-four years of age, married, a clerk, and was under the care of my colleague, Dr. A. L. Mason.

The family history was as follows: The father died of old age; the mother, a brother and one sister died of consumption; three sisters are alive and well.

The present history is as follows: The patient had always been well until two years ago when he noticed a little shortness of breath. He had never had any venereal disease, rheumatism or chorea. He had never worked very hard, nor was he of a nervous temperament. About eighteen months ago he noticed a "lump in his throat" on the left side, which, on exertion, seemed to throb and to choke him. There was no pain. The lump has increased in size but very little. About a fortnight previous to entrance he had to walk some distance, since which time he has had a good deal of dyspnea and the choking sensation has increased. The patient sleeps well, his appetite is good, his bowels are regular, and there is no palpitation of the heart.

Physical Examination: The patient is well developed and nourished. The tongue is clean. The pulse is regular, of good strength and volume. The heart area is enlarged one finger's breadth to the right of the sternum. The apex is in the fifth interspace, one-half inch to the outer side of nipple. Over the entire precordium is heard a blowing systolic and a sharp diastolic murmur, especially well-marked over the aortic region. This is transmitted upward and outward into the axilla, and is heard also faintly over the back at the level of the sixth dorsal spine. There is a marked pulsation of the vessels of the right side of the neck, where there can be made out a well-marked, expansive thrill and a systolic bruit (Fig. 3, A).

Lungs: Good resonance and respiration over all.

Liver: Dulness from fifth rib to one inch below the costal border.

Spleen: Area not enlarged. Edge not felt.

Abdomen: Lax, tympanitic, not tender.

Extremities: There is a well-marked pulsation in the vessels at both elbows and wrists, and also in the posterior tibial artery behind the internal malleoli, especially on the right side. At these places a faint

systolic murmur can be made out synchronous with the heart's action. No edema.

Examination of eyes negative.

Urine: 1.016, pale, acid, no sugar, slight trace of albumin. No examination of sediment recorded.

Temperature normal.

After consultation with Dr. Mason it was decided to explain to the patient the serious character of his condition. The man was told that an operation could be done which might benefit him. He decided to do whatever was thought or found best for him to do. It was decided to expose the pulsating tumor in the neck, and to place ligatures proximally, if possible, distally, if necessary, to secure the closure of the aneurism.

On January 15, 1895, ether having been administered, and in the presence of my colleagues at the Boston City Hospital and a large number of physicians and surgeons, and the third class of the Harvard Medical School, the following operation was carried out with the co-operation of Dr. H. W. Cushing:

An incision was made at the anterior edge of the right sterno-cleido mastoid muscle extending from the

forceps. A flat copper retractor was slid underneath the sterno-clavicular articulation and the sternum while the trephine was being used to protect the underlying parts.

Throughout the operation, and especially in the removal of the bone, Dr. Cushing's advice and assistance were invaluable. When this block of bone was removed there was exposed the right innominate vein and the left innominate vein going down to form the superior vena cava, with the vagus and recurrent laryngeal nerves resting on the innominate artery, all plainly to be distinguished. The wound at this time was filled with bubbling air which had been sucked into the areolar tissue which surrounds the great vessels at the base of the neck. Its presence was ominous, and it was felt at this step by all of those who were present that if any large vein were pricked a fatal result would be inevitable. Precautions were taken to prevent the entrance of air by keeping the wound filled with sterile water.

The exposure which was given by the removal of a part of the sternum and the sterno-clavicular articulation was extremely satisfactory, and I can hardly understand how a ligature can be placed on the innominate artery with any safety without a clear view of the anatomical structures involved. The undulating innominate veins and vena cava, the important recurrent laryngeal and vagus nerves, the tracheal tug on the artery, the close proximity of the right pleura and the expansile pulsation of the artery itself, all make conditions which require delicacy in manipulation and accuracy in recognizing all structures.

The sheath of the vessel was opened and the innominate artery was isolated. Then came the problem of how the ligatures should be passed. The rule, of course, is to pass the ligature away from danger. This was impossible, owing to the size of the vessel and the fact that it was surrounded by important structures on every side. The separation of the sheath of the artery was finally completed by means of the forefingers placed on either side of the vessel. The artery was estimated to be one and a quarter inches in circumference. The ordinary curved aneurism needle was too small to pass about the vessel, and the blunt point of the aneurism needle, it was felt, might wound important structures posterior to the vessel. A flat (three-quarters of an inch in width) copper spatula, curved on itself, was passed about the vessel. As soon as this copper spatula was in position, a flat braided-silk ligature was passed around the vessel by an aneurism needle and tied in a square knot. It was feared that the extra turn in the first part of a surgeon's knot might tear the vessel. Fully three minutes were taken in securing the first ligature. Gradually it was drawn tighter and tighter until the circulation was completely cut off. The coats of the vessels were felt to give way while tying this first ligature which was placed three-quarters of an inch from the aorta.

The second ligature of silk was placed in the same manner one-half inch higher up, but was not drawn as tightly as the other, for the coats were felt to give way and the possibility of a tear of the innominate artery was recognized. Both ligatures were tied in square knots and cut short. It was my intention to sever the innominate artery between these ligatures, to place the vessel at rest by avoiding the tracheal tug; but the size of the vessel and the feeling that came to

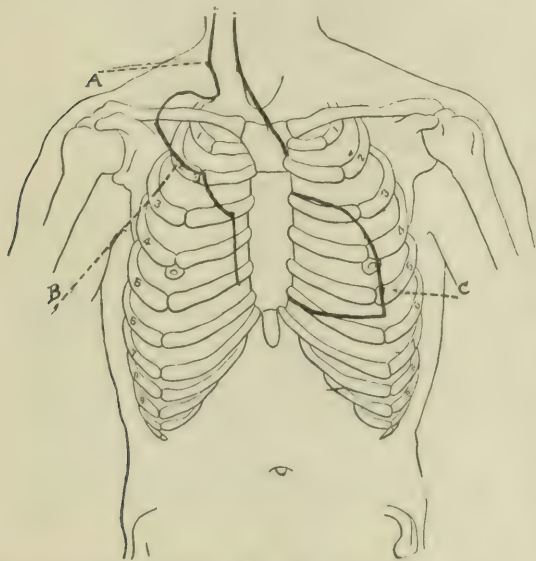


FIG. 3.

A. Limit of thrill. B. Line of dulness. C. Area of heart's dulness.

level of the cricoid cartilage to two inches below the upper border of the sternum. From this point another incision extended outward four inches in length to the junction of the outer and middle thirds of the clavicle. This skin flap with the fascia and platysma muscle was turned back. The sterno-mastoid was severed close to its insertion into the clavicle and sternum. The sterno-thyroid, sterno-hyoid and omo-hyoid muscles were also divided. This brought to view a fusiform aneurism in the right subclavian and right carotid arteries, extending down and on to the innominate. It was believed that enough of the innominate could be exposed to place a ligature between this fusiform aneurism and the aorta. By means of a half-inch trephine operated by a surgical engine the right sterno-clavicular articulation and the right half of the notch of the sternum for about an inch down from the top were honeycombed. The bony parts were by this means weakened and the removal of the articulation and the piece of the sternum was easily completed by bone

my fingers while tying the second ligature that the artery was not completely closed at this point, led me to give up this step in the operation.

The overlying muscles were sutured in approximately their original positions, and the wound was closed as rapidly as possible. An aseptic dressing was applied. The operation lasted one hour and a half. The pulsation was gone from the neck and from the right carotid and radial arteries. The right arm was wrapped in cotton wadding, and bandaged to maintain its temperature. After the operation the right pupil was more dilated than the left and reacted more slowly to light. There was a relative anemia of the right tympanic membrane. Had very little shock, very little pain.

On the second day the patient was remarkably comfortable. He was given one-eighth of a grain of morphia every four hours to secure rest. Pressure on the finger-nails of the right hand showed a slight return of circulation. The right pupil had become the same in size as the left. The patient had a slight hacking cough.

3d day: Urine normal, with exception of high color.

4th day: The patient was comfortable; some mucus collected in the throat. It was feared that the efforts at expectoration would disturb the healing of the ligated artery. Free catharsis was established by salines.

5th day: The finger-tips of the right hand showed a pink color. The fingers could be moved a little.

6th day: The wound was dressed. Violent pulsation could be seen near the sternum. An extremely small, but yet distinct, radial pulse could be felt. A few sutures were removed. Union had occurred by first intention. The patient was remarkably self-contained and obeyed instructions.

7th day: The prickly sensations and numbness in the arm and hand which were present for the first three days had wholly disappeared.

8th day: The patient has had tincture of digitalis (ten drops every four hours) and atropine (one-hundredth of a grain three times a day) since operation. The digitalis was now administered every six hours. A feeble pulse in the right radial artery could be felt, but it was distinctly later than the pulse in the left radial. Subjective sensations of warmth and heat in the right arm and hand could be felt, also slight prickling sensations.

9th day: Some headache. Complained of general pruritus, which was relieved by alcohol baths. Atropia omitted; digitalis reduced to ten drops three times a day. Attempts were made to secure sphygmographic tracing of the right and left radial pulse, but the pulsation was so feeble on the right side that no record could be obtained.

10th day: Wound was dressed; all the sutures were removed; union by first intention had occurred except for a small granulating area at the angle of the wound over the sternum.

12th day: Patient has been reading papers for several days. Complained of some pain in the region of the wound, which he attributes to the incision.

16th day: The right arm was still in a protective dressing, but could be used considerably.

17th day: Wound of neck firmly closed.

19th day: The patient could now move about in bed somewhat, and could lie on the left side. Arm still kept in protective dressing.

37th day: Patient wished to get out of bed, saying that he was relieved of all the symptoms for which he came into the hospital.

40th day: All cardiac stimulants were omitted. From the 43d to the 47th day the patient had a slight attack of tonsillitis, from which he quickly recovered.

52d day: All protection to the arm was removed.

53d day: The right arm was swollen. There was no pain, but there was still a sensation of numbness in the arm.

59th day: The arm remained swollen for three or four days. The patient sat up in a chair for four hours.

60th day: The loss of strength in the right arm was felt more than when he was in bed.

62d day: Walked up and down the ward without fatigue.

63d day: Complained of slight pain at the seat of operation. Could use his right arm to write.

69th day: Walked over to the operating theatre, and was shown at the clinic without inconvenience to himself.

73d day: The patient had been up and about ward for over a week; slight edema of the ankles occurred at night. A mitral and aortic murmur could be heard over the cardiac region. Just over the right sternal notch a pulsating tumor could be felt, which was probably the stump of the innominate artery. Pulsation was not transmitted into the carotid. There was a fair pulse in the right radial, which was constantly increasing in strength and volume. No vertigo or other symptoms of cerebral anemia were present. He was discharged at his own request, and was ordered to take digitalis from time to time.

83d day: The patient walked about, attending to some minor matters of business. Yesterday he walked up and down a hill a quarter of a mile in length. He was feeling well and was gaining in strength daily.

100th day: Came to town again to-day. Complained of some swelling of the feet and ankles. Slight dyspnea.

On the morning of the 104th day, having been perfectly comfortable during the preceding day, the patient sat up in bed, complained of shortness of breath, became very pale, his face was covered with profuse perspiration, and he died in twenty minutes.

The following is the account of the autopsy by Dr. W. T. Councilman:

The body is large, strongly built, well nourished and pale. There is a punctured wound, evidently made by the undertaker, on the left side of the sternum between the third and fourth ribs. A similar puncture in the abdomen to the left of the median line. No preservative fluid had been injected.

On the right side of neck there are two smooth cicatrices, one commencing 6 cm. above the clavicle and to the right of the sterno-cleido mastoid and extending a little below the upper extremity of the sternum in the median line. Another cicatrix of the same length commences at this point and extends along the upper edge of the clavicle. The skin is tightly adherent to a mass of indurated tissue, chiefly at the angle of junction of the two cicatrices. There is a slight depression corresponding to the right sterno-clavicular articulation.

The abdominal cavity contains a considerable amount of clear fluid. Peritoneum everywhere smooth, liver and spleen free from adhesions. Diaphragm in normal position.

The upper lobe of the right lung is free from adhesions, both the parietal and the visceral pleura smooth and glistening. The lower and middle lobes firmly adherent.

The left lung is adherent over lower lobe and the lower portion of the upper. In both lungs there is considerable induration of the apices. The surface is somewhat puckered, the pleura thickened, and bands of indurated tissue extend from the pleura toward the hilus. In this indurated tissue there are a few small caseous and partly calcified nodules. This condition is more marked in the right lung than in the left. The tissue of both lungs hyperemic and firm. The large vessels of lung and bronchi normal.

The pericardium is smooth. The heart is greatly hypertrophied. In the wall of the left ventricle there is a punctured wound made by the undertaker, which passes through the wall of the ventricle and has lacerated the aortic and mitral valves. The myocardium is normal. All the cavities of the heart, particularly on the left side, are dilated. The valves are smooth and normal. The coronary arteries are dilated, the lumen irregular, and here and there in the walls there is marked thickening of the intima. The aorta in its entire extent and the large arteries coming off from it are greatly dilated and thickened. The most marked dilatation of the aorta is in the ascending portion, and more on the right side. The thickening of the arteries is due to the formation of irregular hyaline masses in the intima. In places these patches are yellowish and opaque, but there is no calcification in any part.

The measurements of the aorta are as follows: Just above the orifice, 10 cm. in circumference; at the most dilated portion in the middle of ascending portion, 12 cm.; in the middle of arch, 10 cm.; and at the beginning of the thoracic, 8 cm.

The subclavian artery of the right side (Fig. 1) is thickened and greatly dilated. The intima is smooth, and shows a few yellowish foci. The dilatation affects the circumference of the artery equally. At the commencement of the axillary artery it is 2.1-2 cm. in circumference, and at the point of greatest dilatation is 4 cm. The left subclavian is 3 cm. in circumference, and the carotids on both sides 2 cm. There is a general dilatation of the iliac arteries; and in the right common iliac, just beyond its origin, there is a circumscribed dilatation affecting chiefly the posterior wall.

There is considerable firm cicatricial tissue around the innominate artery and the beginning of the right subclavian and carotid. The innominate artery is completely closed just at the origin of the subclavian and carotid (Fig. 1, a). A little firm fibrin is adherent to the artery at the point of closure. The orifice of the innominate artery (Fig. 2, a) is considerable dilated. Above the orifice it is still more dilated, the dilatation affecting equally the circumference of the artery. At the orifice it is 4 cm. in circumference, and at the greatest dilatation $6\frac{1}{2}$ cm. The artery is thickened irregularly, the intima smooth and free from fibrin; 3 cm. from its origin the calibre is narrowed. At this point there is a sharp, angular projection of the wall into the artery (Fig. 2, b). In the angular projection the media of both sides, closely united to each other, can be made out. At the point of the angle they appear to fuse into one another and are lost in some hyaline cicatricial tissue. The angular projection is only seen on the anterior part of the artery. There is a line of cicatricial tissue which is continuous with the apex of the projection and extends around the entire artery. Toward the right side of the artery there is a ligature (Fig. 2, c) within the lumen of the artery. The ligature forms a loop with an inside diameter of 5 mm. There is a distinct knot, and the ligature is held by one end of the knot, which is embedded in the wall of the artery. Above this point there is a narrow part of the artery (Fig. 2, d), 1 cm. in length, which extends up to the point where the artery is closed.

The abdominal organs are normal, with the exception of a slight degree of chronic passive congestion and induration of the liver, spleen and kidneys. The right testicle shows a marked degree of chronic interstitial orchitis. The tissue is indurated with bands of fibrous tissue extending from the tunica into the tissue. The left testicle shows a slighter

degree of induration. A small amount of fluid in left tunica vaginalis.

The right sterno-clavicular articulation is removed. The end of the clavicle is united with the sternum by fibrous tissue. A part of the costo-clavicular ligament remains. A part of the clavicle and the right side of the upper extremity of the sternum are removed (Fig. 4).

ANATOMICAL DIAGNOSIS.

General arterio-sclerosis, with dilatation and thickening of aorta and large arteries. Circumscribed dilatation (fusiform aneurism) of right subclavian, innominate and right iliac. *Double ligature of innominate artery. Occlusion of artery by the upper ligature, severance of artery by lower ligature with following healing, the ligature remaining within the artery and the continuity of the lumen being restored.* Heart hypertrophy and dilatation. Relative insufficiency of the cardiac valves. Chronic passive congestion of lungs, liver, spleen and kidneys. Ascites. Pleuritic adhesions over lower lobes of both lungs. Old tuberculosis of apices of both lungs, with induration. Chronic interstitial orchitis. Cicatrices on neck from operation wound. Loss of substance of sternum and clavicle at articulation. Syphilis.

MICROSCOPIC EXAMINATION.

Sections were made from the aorta at various places, and from the innominate artery, including the projecting spur at the point where the ligature is adherent (Fig. 2, b). The sections of the aorta show the same general condition. The adventitia is thickened, and areas of round-cell infiltration are found around the vessels. Many of these cells have the character of lymphoid cells, others are larger and epithelioid in character. The media shows changes in various degrees. Small areas of round-cell infiltration similar to those in the adventitia are found and in places these extend from the adventitia into the media. The least alteration is found in the media adjoining the adventitia. Here the normal arrangement of the muscular and elastic tissue is preserved. Everywhere adjoining the intima there are various degrees of degeneration. The degeneration is most marked and extends deeper into the artery opposite the places where the intima shows the greatest thickening. In these degenerated places the muscular fibres are atrophic. The distinct lamination is lost and the single fibres run irregularly in the tissue. The elastic fibres cannot be made out. Between the degenerated muscular fibres there is an irregular, hyaline-looking tissue which stains diffusely blue with hematoxylin. The intima is thickened by the formation of a dense hyaline tissue containing few cells. The greatest thickening corresponds to the most marked degeneration of the media. On one of the sections an interesting condition is seen. At a point corresponding to a marked elevation of the intima there is a distinct line of fracture in the media. One end of the fractured media is turned up and distinct, the other end is obscured by the presence of granular necrotic tissue which extends from the intima into the space between the separated portion of the media. At this point the media is infiltrated with polynuclear leucocytes.

The sections of the innominate artery (Fig. 5) show an extreme degree of endarteritis. The adventitia is thickened, cicatricial and infiltrated with cells. There is cellular infiltration of the media with well-marked degeneration of the muscular and elastic tissue. The intima is greatly thickened. On the distal side of the spur (Fig. 5, a) there is a mass of refractive, hyaline-looking tissue containing much nuclear detritus. In places there is much hyaline fibrin, and remains of blood-vessels can be seen. In a few places the mass is covered by the cells of the intima. At the beginning of the projecting spur both of the muscular coats in contact with each other can be made out. Toward the extremity of the spur both coats pass into hyaline necrotic tissue. At the lower side at the beginning of the spur the muscular layer is broken across, one end is continuous with the spur, the other is adherent to the bend of the upper portion. All around this area there is dense cellular infiltration which extends from the adventitia into the

projection and between the two muscular layers. At this point all this tissue is fused into a necrotic hyaline mass.

This case is one of arterio-sclerosis affecting the aorta and the large arteries. There is everywhere marked degeneration of the media, which has been followed by dilatation of the arteries and thickening of the intima. There is a general dilatation, and in places a more circumscribed fusiform dilatation. One of the sections shows, in addition to the degeneration of the media, a fracture of this, with separation of the ends. The most interesting feature of the case from the pathological point of view is the condition found at the proximal ligature of the innominate. The point where the ligature was applied corresponds to the apex of the projecting spur and to the line of cicatrix in the intima continuous with this. The ligature did not bring the artery together equally, but the anterior portion, which was probably thinner, was drawn in toward the posterior. There is a fracture of the media which does not correspond to the line of ligature and which probably resulted from injury at the operation. This ligature gradually cut its way through the artery and cicatricial tissue formed behind it. It is most remarkable that the cutting of the artery by the ligature should have been so even that the entire ligature with its knot should lie in the lumen of



FIG. 4.

Sterno-clavicular articulation, showing loss of substance of sternum and end of clavicle on right side.

the artery. It is not possible that it could have cut through the artery at the time of its application or shortly afterwards. This ligature was of great importance in taking the strain of the aortic pressure from the distal ligature until it was included in the firm cicatricial tissue. The cutting through of the ligature was probably materially assisted by the pressure of the blood in the dilated artery. It is curious that no fibrin should have been found about the ligature. It was not examined microscopically, but it had probably become organized and covered with a smooth layer of the intima.

The diagnosis of syphilis was made from the interstitial orchitis.

The case which is here reported seems to teach some very important lessons, and they are:

(1) That a patient with general arterio-sclerosis and an enlarged and dilated heart may be kept under ether an hour and a half, subjected to a severe operation and recover with but little shock.

(2) That while the ligation of the innominate artery is not of necessity fatal, yet it will always be an extraordinary operation, fraught with danger from the cutting off of an extensive area of circulation. The removal of the sterno-clavicular articulation and such a portion of the sternum as may be necessary, makes the performance of the operation more practical and one of relative simplicity and safety.

(3) That the absence of pain or marked discomfort

following the operation, the complete relief of all the patient's symptoms and his almost uneventful recovery are remarkable.

(4) That the secondary hemorrhages which have occurred in almost all of the recorded cases were undoubtedly due to local sepsis, and that the recovery of this case was due to the accuracy with which it was possible to place the ligatures and to the asepsis.

(5) That if the innominate is ligated at all, two ligatures are necessary, one to act as a breakwater by obstructing the constantly recurring waves of blood coming from the aorta.

(6) That the collateral circulation was principally established in this case by a downward stream of blood from the right carotid and vertebral arteries into the right subclavian artery. That while the fusiform aneurism had shrunk, there was very little fibrinous clot above the second ligature (*vide plate*).



FIG. 5.

Section of innominate artery, through *b*, Fig. 2. *a*, Thickening of intima in artery at *d*, Fig. 2. *m, m, m*, Media. Further explanation in text.

This would lead me in another case of fusiform aneurism in this situation to ligature the carotid, if possible the subclavian in its first part, and, if practical, the vertebral.

(7) That the unique behavior of the first ligature that was applied to the innominate is perhaps the most interesting fact which we learn from this case. When the innominate artery was tied something in the wall was felt to give way. The ligature gradually cut its way through the coats of the vessel, followed by an inflammation with organization which prevented a secondary hemorrhage, and finally rested, organized and probably covered with a smooth layer of the intima, inside the innominate artery. This places a new fact at our disposal as regards final disposition of the ligature.

OPERATIONS.

No. 1. Valentine Mott, New York, 1818. Death, 26th day, by hemorrhage. Silk ligature. Operation: A transverse incision just above the clavicle, and carried to the upper part of the sternum, terminating immediately over the trachea, to the extent of three inches. A second incision, about the same length, extending from the termination of the first, along the inner edge of the sterno-mastoid muscle. The triangular flap was dissected back; cautious division of sternal part of mastoid, and as much of the clavicular portion as the size of the wound permitted, and

the flap reflected up. Aneurism of innominate, carotid and subclavian.

No. 2. Graefe, Berlin, 1822. Death, 68th day, from hemorrhage. Operation for subclavian aneurism. Longitudinal incision along anterior edge of sterno-mastoid down to sternum. Ligature not described.

No. 3. Norman, Bath, 1824. Death, 3d day, from hemorrhage. Operation for subclavian aneurism. Ligature and operation not described.

No. 4. Arendt, St. Petersburg, 1827. Death, 8th day, from sepsis. Operation for subclavian aneurism. Ligature not described. Operation: Incision three and a half inches long, on inner border of sterno-cleido-mastoid to half an inch below border of sternum.

No. 5. Hall, Baltimore, 1830. Death, 6th day, from hemorrhage. Operation for subclavian aneurism. Ligature and operation not described. Up and walking about 5th day.

No. 6. Bland, Sidney, 1832. Death, 18th day, from hemorrhage. Operation for subclavian aneurism. Ligature, thread. Operation: Incision made, extending upwards about two inches from the inner edge of the sternum, and about an inch and a half downwards, below the inner margin of that bone. The sternal insertion of the mastoid muscle was divided, and dissection further prosecuted by the careful separation of the fibres of the sterno-thyroid and sterno-hyoid muscles in their longitudinal direction.

No. 7. Dupuytren, Paris, 1834 (reported, but not performed by him). Death, 3d day, from hemorrhage. Operation for subclavian aneurism. Operation and ligature not described.

No. 8. Lizars, Edinburgh, 1837. Death, 21st day, from hemorrhage. Operation for subclavian aneurism. Ligature not described. Operation: Incision made, beginning at about one inch over the sternum, and extending four inches along the inner margin of the sterno-mastoid muscle. The sterno-hyoid muscle was then carefully divided, bringing into view the sterno-thyroid muscle, which was cut across in a similar manner.

No. 9. Hutin, Paris, 1842. Death, 12 hours after operation, from hemorrhage. Operation for secondary hemorrhage after a penetrating wound. Ligature and operation not described.

No. 10. Gore, Bath, 1856. Death, 17th day, from hemorrhage. Operation for subclavian aneurism. Hemp ligature. Operation: Usual longitudinal incision, and sternal attachment of sterno-mastoid were divided.

No. 11. Pirogoff, St. Petersburg, 1856. Death, 48 hours, from probable septicemia. Operation for subclavian aneurism. Ligature and operation not noted.

No. 12. Cooper, San Francisco, 1859. Death, 9th day, probably from sepsis. Operation for subclavian aneurism. After 5th day became restless, had dyspnea, retention, etc., till death. Ligature not described. Operation: Incision made, four inches long, in a line parallel, and half an inch above the upper margin of the clavicle, commencing internal to the sterno-clavicular articulation, and terminating near the anterior margin of the trapezius muscle. A transverse incision was then made, commencing a little to the inner side of the centre of the first, and extending upwards, external to the sterno-cleido-mastoid muscle, terminated two and a half inches above. The summit of the sternum and the sternal extremity of the clavicle were removed. This barely made room sufficient to enable one to reach the arteria innominata, owing to the large size of the aneurismal tumor at that point.

No. 13. Cooper, San Francisco, 1860. Death, 34th day, from hemorrhage. Operation for subclavian aneurism. Ligature not noted. Same operation as before, a portion of the sternum and clavicle being removed.

No. 14. Smyth, New Orleans, 1864. Recovery. Operation for subclavian aneurism. Carotid and innominate ligated, and 54 days later the vertebral also ligated. Ligature not noted.

No. 15. Lynch, 1867. Death, 12th day, from hemorrhage. Operation for secondary hemorrhage after gunshot wound. Ligature and operation not described.

No. 16. Porter, Dublin, 1867. Died of hemorrhage six weeks after. Operation for subclavian aneurism. Ligature not described. Clamp applied to innominate for three days and then removed. Mott's operation, V-shaped incision.

No. 17. Bickersteth, Liverpool, 1868. Death, 9th day, from hemorrhage. Operation for subclavian aneurism. Silk ligature. Operation: The usual triangular incision was made, dividing the sterno-mastoid, the sterno-hyoid and the sterno-thyroid muscles. Passed a lead wire around the innominate and held it by a clamp. Two days after, the wire separating, a silk ligature was applied to the artery in two places.

No. 18. A. B. Mott, New York, 1868. Death, 23d day, from hemorrhage. Aneurism burst into pleural cavity. Operation for subclavian aneurism. Mott's operation. Innominate and carotid tied.

No. 19. Partridge, Calcutta, 1870. Death, 1½ hours after, from hemorrhage. Operation for secondary hemorrhage. Previous operation, ligature for aneurism of carotid 13 days before. Operation and ligature not described.

No. 20. Buchanan. Death in a few minutes from shock. Operation for subclavian aneurism.

No. 21. O'Grady, Dublin, 1873. Death, 20 hours after operation, from shock. Operation for subclavian aneurism. Ligature and operation not described. Removed inner two inches of clavicle.

No. 22. Thompson, Dublin, 1882. Death, 42d day, from hemorrhage. Operation for subclavian aneurism. Tape ligature of ox-aorta. Two incisions: first, along clavicle, beginning with anterior border of sterno-mastoid muscle and extending outwards; second, along inner border of same muscle, beginning at same place. Sterno-mastoid, sterno-hyoid and sterno-thyroid divided.

No. 23. Banks, Liverpool, 1883. Death, 37th day, from hemorrhage. Kangaroo tendon. Operation for subclavian aneurism. Innominate and carotid ligatured. Mott's operation.

No. 24. Bull, New York, 1884. Death, 33d day, from hemorrhage. Operation for subclavian aneurism. Innominate, right common carotid and vertebral arteries were all ligatured simultaneously with a double catgut ligature.

No. 25. May, Birmingham, 1886. Death, 19th day, from hemorrhage. Catgut ligature. Operation for subclavian aneurism. Incision along inner third of clavicle and a second down line of common carotid, two meeting in episternal notch. Flap dissected back, and sterno-mastoid, sterno-hyoid and sterno-thyroid muscles divided.

No. 26. Durante, Rome, 1887. Death, 16th day, from hemorrhage and hemiplegia. Operation for subclavian aneurism. Mott's operation. Innominate, carotid and vertebral ligatured.

No. 27. Lewtas, India, 1889 (Mendon Hospital Peujab). Recovery at report, 43 days after. Catgut ligature. Operation for hemorrhage following traumatic aneurism of subclavian. Ligated carotid and innominate. Incision along inner border of lower end of sterno-mastoid. Partially cut sterno-hyoid and sterno-thyroid.

No. 28. Coppinger, Dublin, 1893. Recovery when exhibited at end of 42 days. Operation for subclavian aneurism. Innominate and carotid both ligated. Operation and ligature not described.

No. 29. Burrell, Boston, 1895. Recovery, all symptoms relieved and patient out and about. Two silk ligatures on innominate. Operation for fusiform aneurism of carotid, subclavian and innominate arteries. Death from arteriosclerosis and an enlarged and dilated heart on the 104th day.

Bardenheuer has a number of times exposed the innominate artery and the contiguous parts by resection of a portion of the manubrium sterni and the sterno-clavicular articulation, while removing tumors which involve the root of the neck. He is convinced from his experience that the ligature of the innominate can only intelligently be carried out by resection of a portion of the sternum and sterno-clavicular articulation.

Bujalski, of St. Petersburg, is said to have ligatured the

innominate artery twice. No published reports of the cases can be found, and they are considered by most authors not sufficiently authentic to be classed among the others. Not given by Thompson, because he said he could not verify them. Given by Le Fort, also by Velpeau.

UNFINISHED OPERATIONS.

No. 1. Porter, W. H., Dublin, December, 1831. Patient up and about when last reported on the 61st day. Operation for subclavian aneurism.² Innominate exposed, which was greatly dilated. Impossible to put ligature around. Wound dressed and healed.

No. 2. Hoffmann, New York, 1839. Operation for subclavian aneurism. Exposed the innominate, intending to ligature. Finding the vessel so large, he considered it inexpedient to proceed and abandoned the operation.

No. 3. Key, London, 1844. Patient died 23d day after operation. Attempted to ligature innominate for aneurism of the innominate, but had to desist on account of size of tumor.

No. 4. Peixeto, Rio Janeiro, 1851. Silk ligature. Common carotid had been ligatured previously for a tumor of the ear, and several hemorrhages resulting, an "expectant" ligature was passed around innominate in case of further hemorrhage, but it was not tightened. No further hemorrhage occurring, it was removed in five days.

No. 5. Charity Hospital, New Orleans, 1894. In a personal letter Dr. Edmond Souchon speaks of a case in which the innominate was exposed by removal of a part of the sternum, but not ligatured because it was found so greatly enlarged.

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MODERN VIEWS OF THE NATURE AND TREATMENT OF EXOPHTHALMIC GOITRE.¹

BY JAMES J. PUTNAM, M.D., OF BOSTON.

THE various problems connected with the origin and treatment of exophthalmic goitre, or Graves's disease, as we may justly call it, have long been and are long likely to be fascinating objects of speculation and research for the physician and the pathologist. Not only have the frequency of the affection and its resistance to ordinary methods of treatment, its striking and mysterious symptoms, its obscure relationship to so many other diseases of the nervous system, inspired the wish to probe its secrets deeper, but it has shared, to a considerable extent, in the lively interest which attaches to the recently discovered functions of the thyroid gland, and has thus attracted the attention of surgeons and physiologists in large measure.

Its literature has rolled up to an enormous pile; but, fortunately, it has been brought better within the reach of the ordinary student from having been carefully collated in a few exhaustive monographs published within the past year. Yet, so far are we from positive knowledge, that almost each one of the writers of these essays, all having the same facts before them, has a somewhat different theory to propose as to the nature of the malady.

I should hesitate then to bring before you a subject so confused, were it not for its intrinsic fascination, for the new and important observations, especially in the line of therapeutics, and for the fact that although we cannot arrive at positive conclusions, yet the very study of the problems involved is an instructive education.

The principal theories of the disease are three in number:

(1) That it is due to localized lesions of the medulla oblongata.

(2) That it is a neurosis.

(3) That it is of toxic origin, and that the existence of the poison is in some way related to disease of the thyroid gland.

As our knowledge and our pathological and physiological conceptions widen with the advance of time, it may appear that each of these views contains some part of the truth, and that what we need is the generalizing touch of some deeper student and more prophetic genius to unite them all.

(1) It is almost imperative to admit that the medulla oblongata is in some way, directly or indirectly, involved, for in that rich and mysterious area lie the principal centres of cardiac activity and regulation, of the vaso-motor system, of the sympathetic nerves, the centres related to the digestion of sugar, and many more, while close by are grouped the centres for the ocular muscles.

This region is also, in a sense, an important emotional centre, for, remote as it is from the cerebral cortex, which is the sanctum of our higher interests, lesions of the medulla are very prone to give rise to emotional manifestation, and so a new relationship to Graves's disease is established. This is an important matter because it involves the principle that any influence which excites the bodily symptoms of an emotion is likely to excite the emotion itself.

Again, skilful investigators have actually succeeded,

² Operation described on p. 99, vol. xvii, Guy's Hospital Reports.

¹ Read before the Massachusetts Medical Society, June 11, 1895, and recommended for publication by the Society.

experimentally, in exciting, through mutilations and excitations of the medulla oblongata and the nerves that spring from it, some of the most typical symptoms of Graves's disease.

The objection to the medulla oblongata theory, in the sense in which it is generally upheld by its supporters, is, first, that it is not proved; second, that it is not probable. It might even be said, strictly speaking, to be disproved, for although gross lesions have been found in the medulla in several cases — congestion, small hemorrhages, degeneration of the restiform body — they are neither uniform nor constant, and so are probably secondary, not primary.

Nutritional lesions there may well be, and finer methods of research may find them out, but we touch here upon the domain of the *neuroses*, and that introduces a new problem which we must consider later.

On general grounds the theory is improbable, because it is not inadequate to explain the vast array of symptoms that claim our notice. There is no other disease of the medulla which gives rise to anything comparable. The *animus*, so to speak, which has led some pathologists to search for gross lesions in the medulla, though the search seemed to be so often in vain, has been the laudable desire to substitute the evidence of the senses for vague theory, and a sort of hatred of the term "neurosis," as meaning everything and nothing. But this feeling should not be allowed to entice us too far.

A good theory may be more useful than a partial observation of fact, and though we cannot yet define the term *neurosis* with complete satisfaction, we are surely in better position than ever before to look forward to the time when a good definition will be practicable, and to divine its scope.

(2) But the theory which of late years has inspired the most widespread enthusiasm, is that which refers the symptoms of Graves's disease to a toxic cause, and assumes that the poison which gives rise to it is either formed in the thyroid gland or else, being formed in other tissues, gets into the circulation in a noxious form through lack of the supposed antitoxic properties of the thyroid secretion. I may say in passing that this toxic theory is not the only thyroidal theory of Graves's disease. It has long been known that large goitres could cause, perhaps by irritation of the nerves in the neck, disorders of the heart's action, and even exophthalmus and other symptoms of true Graves's disease. Usually the typical symptom-complex does not occur in these cases of so-called pseudo Graves's disease, though it is a matter for grave doubt whether the partial and secondary forms of the affection ought to be distinctly separated from the more complex and typical forms. In my opinion the local action of the goitre does often contribute a certain share to the clinical picture, in accordance with a principle which I will later endeavor to state, although it does not act as the whole cause of typical cases.

The merits of the toxic theory may be characterized as follows: It is, in the first place, entirely conceivable that the symptom-complex of Graves's might be, in one sense, of toxic origin. There is no more reason why this set of symptoms should not be called out by a poison having special chemical characters and affinities than that strychnia, atropine, or the toxic cause of myxedema, if such be its cause, should produce their characteristic results. Cocaine, indeed, is said by Durduffy to produce symptoms in several respects

resembling those of Graves's disease. It need not be even assumed that the disease of the thyroid is the first link of the chain. A disturbance of its innervation might conceivably be the influence which set the match to the train.

This toxic theory comes moreover at a good time for receiving favorable notice. "Toxic" is nowadays a good word to conjure by. The enormous impulse which bacteriological investigations and the study of ptomaines and leucomaines and nucleins, and the highly toxic substances generated in consequence of the removal of the suprarenal capsules and other glands, have given to the doctrine of the organic poisons, has lent to the term "poisoning" a wider meaning than it has ever held before. Men are now prepared to believe that anemia is a toxic disease, and even that a large number of mental affections, and possibly even neurasthenia and hysteria, should be included in the same category. Of course, in a sense, every change in nutrition of a morbid kind may be called toxic, and that the only question is how far it is worth while to extend the term at present.

But while we may admit that the symptoms and pathological changes which underlie Graves's disease might conceivably be induced by a poison of some sort, it is another matter to furnish the proof that this occurs, or that the assumed poison is derived either directly or indirectly from the thyroid gland. The arguments which have been used in favor of this view are in the main the following:

(1) Many cases are now on record showing that Graves's disease may pass over into myxedema, as the degenerative changes in the thyroid gland become more serious. Furthermore, myxedema and Graves's disease may coexist in the same family, and one or two instances are on record where the two diseases have existed side by side in the same individual (Sollier and others).

(2) It has been noticed that when thyroid preparations are given to myxedematous patients for therapeutic reasons, the pulse sometimes becomes rapid, and feverishness and loss of flesh, diarrhea, and other symptoms of nervous excitability make their appearance, such as suggest the nervous erythism of Graves's disease, though so far as I know a typical picture of Graves's disease has never been produced in this way. Similarly, when thyroid preparations are given to persons in health, analogous results occasionally occur; and conversely, these preparations are usually not well borne by patients with Graves's disease. Again, in the first stage of the cachexia which follows the removal of the thyroid, tremors and tetany and other signs of nervous disturbance often make their appearance.

(3) There is a certain contrast between the symptoms of Graves's disease and those of myxedema, which at first sight seem very striking. This contrast is tersely expressed by Möbius, who says: "In one case we have enlargement, in the other diminution in the size of the thyroid gland; in the one a rapid, in the other a slow heart beat; in the one we have a fine skin, warmer than usual and inclined to sweat, while in the other the skin is thick, cold and dry; on the one hand we see increased mental irritability, a condition of irritable weakness; on the other, slowness and dulness of mental action."

(4) The urine in Graves's disease is much more toxic than that of health, though injections of it into

animals do not give rise to the typical complex of Graves's disease.

(5) Belladonna, which checks secretions and might be supposed to exert its action in case of the thyroid, has been thought by some observers to be of service in Graves's disease, though I have not found it to be so.

(6) The excision of portions of the thyroid gland in Graves's disease is sometimes strikingly productive of relief to the symptoms, and the same may be said of other modes of treatment, such as electricity or injections of iodine, which are directed to diminish the size of the thyroid.

(7) While it is generally held that *thyroid* preparations rather aggravate the symptoms of Graves's disease, several cases are now on record, indicating that preparations of the *thymus* have a very beneficial action in this same affection. It might perhaps be urged, though I do not remember to have seen the suggestion made, that the reason that young children are, as a rule, exempt from Graves's disease, is that the thymus persists in them for a considerable time.

(8) The histological investigations of Greenfield and others have been held to indicate that the changes that occur in the thyroid gland in Graves's disease are such as would be likely to go with increased activity as a secreting organ.

On these and other grounds it is strongly held by many writers that the symptoms of Graves's disease are due to an excess of the thyroid secretion or to its being modified in character. But interesting as these arguments are, a careful examination of them seems to me to show that the thyroïdal secretion theory of Graves's disease is still extremely vague and lacks a sound basis.

The strongest argument in favor of the thyroïdal theory is perhaps that drawn from the therapeutic action of thyroidectomy, and as that is a subject of great practical interest also, it is well worthy of your consideration.

In spite of the great attention which the surgical treatment of goitre in general has received for a very long period, it is only within a comparatively few years that thyroidectomy or kindred operations have been done in Graves's disease, if we except a few isolated cases. Two years ago I was able to collect only about fifty cases of such operations, but they have been multiplied with greater rapidity. Kocher, the surgeon of Berne, declares, in his recent and very valuable paper, that he alone has done over fifty such operations, out of a total of some two thousand goitre operations of all sorts. The operations have been practically of three kinds: partial thyroidectomy; ligation of the thyroid arteries — of which, according to Kocher, only three out of the four should be tied; and exposure of the gland by median incision (Jaboulaye), after which it is separated from its bed, and left, covered with an antiseptic dressing, to dry and shrink, between the lips of the open wound in the skin, the edges of which are stitched back. The results of all these operations, of which a ligation of the vessels is probably on the whole the best, have been very satisfactory, and there would be every reason for advising them in a given case, were it not that every now and then a death occurs for which no satisfactory reason can be found. I have recommended the operation myself in two cases, and it was skilfully carried out by Dr. J. C. Warren. One of

the patients died on the eighth day after operation, though she was a young and healthy girl and the wound had been doing perfectly well. The other patient lay at death's door for some days, but since then has been gradually though slowly improving, and now, at the end of two years, is able to say that she is much better than before the operation was done. During the first few days after she was operated upon Dr. Warren called my attention to the fact that a large quantity of thyroid secretion was escaping from the wound, and it occurred to us both that her serious prostration might be due to poisoning from this source. The same idea has suggested itself to others, and Kocher dwells on it at some length. He refers particularly to the fact that in one of the desiccating operations *à la* Jaboulaye, to which I have referred, it was noted that the exposed surface of the gland sweated out a quantity of fluid which was presumably thyroid secretion. It is, however, difficult to see why, if this poisoning theory of these deaths is correct, they should not occur in a larger number of cases, nor why the fatal end should occur so suddenly when the patient had previously been doing so well, as happened, for example, in Dr. Warren's case, and in another described to me by a colleague in New York.

It is interesting to note that the improvement after operation sometimes takes place quite rapidly, sometimes very slowly.

But there are other methods besides thyroidectomy which, by acting on the gland itself, occasionally produce favorable results in Graves's disease, and so lend support to the thyroid theory. Such are the internal use of iodine, which has been revived in the clinics at Berne. The local use of electricity comes under the same category, especially when used by the method, which I believe to be the best one, of powerful and prolonged Faradic currents applied so as to literally squeeze out the contents of the gland. This method, which is a modification of those in earlier use, was first suggested, I think, by Dr. W. J. Morton, of New York, and in our hands at the Massachusetts General Hospital it has proved of real service.

In the same connection is, perhaps, to be mentioned the use of thyroid and thymus extracts.

Every one is now aware that among the extraordinary results of feeding with thyroid extracts — results which embrace improvement in the nutrition of the skin and its appendages and the relief of obesity — it has been observed by v. Bruns, and now by many others, that the ordinary forms of parenchymatous goitre, especially in young persons, sometimes really melt away with great rapidity.

Occasionally, and in spite of the tendency to increase of the nervous symptoms under this influence, the same treatment leads to a diminution of the goitre in Graves's disease as well, and to an eventual improvement in the condition of the patient, a fact which is a blow to the excessive-thyroid-secretion theory of the disease.

Still more recently, Owen and Miculicz discovered that thymus extracts seem to be still more apt to relieve the symptoms of Graves's disease, though without necessarily causing any great reduction in the size of the gland. These observations are of great scientific and practical interest, but they are as yet too few in number to make it necessary to dwell upon them at length. [See a paper by Cunningham in the *Medical Record* of June 15, 1895; and an editorial in the

Boston Medical and Surgical Journal, July 11, 1895.]

But in spite of the fascination of the thyroidal-poisoning theory of Graves's disease, and the high ability of the men who support it, it cannot be said to have as yet fully established itself, or not, at least, as the exclusive cause of the affection.

The theory has taken three forms:

- (a) That the thyroid secretion is secreted in excess;
- (b) That it is altered in character;
- (c) That it fails to neutralize other organic poisons formed in the course of general metabolism.

The arguments in support of each of these different views should be different, but the supporters of the general theory are too apt to select those parts of each which seem favorable and to apply them to the support of the general view, which thus escapes criticism by its vagueness. It can hardly be that an excess of thyroid secretion is the invariable cause of Graves's disease; for the nervous symptoms, especially the tachycardia, may begin years before any goitre is observable. It is true that even a normal sized goitre may possibly have a hypersecretion, yet it remains to be proved that it does so.

Again, as patients improve in their nervous symptoms the gain is by no means always proportionate to a diminution in the goitre, though usually it is so.

Finally, thyroid preparations do not always aggravate, but sometimes relieve the symptoms; and though Kocher suggests that this may be only when they act by diminishing the size of the goitre, yet the explanation is manufactured for the exigency and as yet lacks proof.

Neither is it probable that a *vitiation* of the thyroid secretion is the invariable cause. For the removal of a part of a morbid goitre should not cause this vitiated secretion of the rest to change its character; nor would the squeezing out of the vitiated contents of a diseased gland by strong Faradic currents be likely to relieve the symptoms, at least without making them worse for a time, which does not happen. And if it is a vitiated secretion which is in play, then there is no special reason why the fact that the addition of a little more normal secretion, given therapeutically, makes the patient either better or worse, should count as an argument in favor of the view; nor ought the contrast between myxedema and Graves's disease, which might, if well established, count in favor of the hypersecretion theory, be reckoned as an argument for a vitiated secretion or of some other non-neutralized poison of whose physiological action we know nothing.

Obviously, we must wait for further light before deciding. It has even been suggested that the enlargement of the thyroid may be a conservative effort on the part of the organism to secure an increased amount of secretion for nutritional purposes, and that it grows smaller under the influence of thyroid extracts given therapeutically, because these act as a substitute. This reasoning has been applied, to be sure, more especially to the case of the ordinary non-exophthalmic goitre, and the arguments in its favor are not forcible enough to command acceptance. It shows, however, the complex nature of the problem and the way in which theory runs loose in attempts to solve it.

Meantime, it must not be supposed that the only remedies of value are those which act directly on the

thyroid gland. The time-honored treatment by complete rest is still one of our best measures; and of new methods, Kocher himself, on the basis of observations made by his assistant, has advocated the use of sodium phosphate, as diminishing the irritability of the nervous centres in the medulla.

We are trying it on a considerable number of patients now under treatment at the hospital, but cannot speak positively of the result.

(3) Finally, it is imperative to say something of the "neurotic" theory of the disease, though the problem is so complex that I approach it with diffidence, the more so that I must condense into a few sentences an argument which should occupy a volume.

It is obvious that if satisfactory conception of this sort can be framed it would have the great advantage of bringing Graves's disease into line with the other members of the vast neuropathic family of diseases, the psychoses, the neuroses, the degenerative affections with which it is clinically so closely related.

The first question is, What do you mean by a neurosis? Is it a "functional" or an "organic" disease, to use the current terms? In this connection I would call attention to a valuable paper by Professor Obersteiner of Vienna, published in the *Wiener klin. Wochenschr.*, April 25, 1895, though I do not wholly agree with his reasoning or conclusions. Obersteiner points out, what is certainly true, that many conditions which have been called "functional," that is, have been supposed to be without anatomical basis, are being classed, thanks to our better methods of research, among the diseases of known pathology. At the same time, he believes that there are and probably always will be a certain number of affections, or symptoms (which may exist either independently of the so-called organic nervous diseases or in conjunction with them), having the peculiarity that they are due to a quasi-physiological disorder, if the expression may be allowed, of the higher functions of the brain; that they are, in short, allied to the psychoses. Many hysterical symptoms are of this character. This is a useful generalization and akin to the explanation which I have to offer, but should approach the problem in a somewhat different way.

Speaking broadly, one may divide the diseases of the nervous system into three principal classes: (a) those where certain nerve elements degenerate, mainly because of inherent weakness; (b) those dependent on a toxic cause or on impairment of the circulation, that is dependent in a general sense upon their blood-supply; (c) those which arise because from one or another cause the harmony which should exist between the different portions of the nervous system is broken. It is in this latter class I think that the neuroses belong, though I may say, in passing, that the same disease should often be classed under more than one heading, the classification here suggested being merely offered to show the different etiological tendencies which are at work.

Much needless discussion has been spent on the question whether in the neuroses and psychoses there is any demonstrable change in the elements of the nervous system.

In one sense the answer is a simple one. The current terms, namely, are meaningless. There is no such thing as a functional disease of the nervous system, if by that is meant one that has no correlate in change of structure. Even fatigue leaves a mark in nerve-

cells, which, as we may recognize with pride, a student of Clarke University, Mr. Hodge, was the first to note. The only sense, so far as I know, in which we may not expect to find a structural correlate for a manifestation of disordered function, is where the disorder is adopted, as it were, by the organism, so that it is no longer proper to speak of it as a disorder at all. It is not to be supposed, for example, that such a trick as biting one's finger-nails or scratching one's head, nor even, necessarily, all of the habitual symptoms of such an affection as Graves's disease, would inevitably be registered by any mark transcending those of normal activity and fatigue, though in the end such changes would be likely to occur, and in the case of Graves's disease it is quite probable that by finer modes of research lesions will be found, especially in the medulla oblongata. We know that other affections presumably referable to cerebral or spinal disease, such as diabetes, progressive muscular atrophy, tabes, are occasionally met with in association with Graves's disease. The decisive investigations in this direction must be left for the future, but it may safely be predicted that when lesions are found they will be discovered not only in the medulla oblongata, but in higher and related centres as well, and probably in the peripheral nervous system in addition, as Maude has justly assumed.

The essential characteristic of the neuroses and psychoses is, to my mind, that in their origin, and at first, they are quasi-physiological, though morbid, manifestations of cerebral activity.

As one observes the smooth flow of life in a healthy man, all his functions seem so firmly harmonized, so absolutely subordinated to the interests of his conscious personality, that it is difficult to conceive what organized riots, what complex displays of independent action will make their appearance when once this harmony, this healthy interdependence of function, is disturbed by disease.

The laws under which these outbreaks occur are the laws of "dissolution" of the nervous system, and it is the merit of Hughlings Jackson in England, and of Charcot and his followers in France, to have studied them with preëminent clearness of insight.

The point for our notice is that, under the conditions indicated, the multiform nerve functions which, under the normal regime, were kept within their proper channels of usefulness, now, deprived of leadership and control, run riot like a horse that has lost his rider, though it may be, as Dr. Jackson has pointed out, that they act in a real though misguided attempt to meet the exigencies of the movement.

It is for this reason, and because even in disease the likeness to normal action is preserved, that the term quasi-physiological is justified.

Does all the vast array of symptoms of this mysterious Graves's disease form a confused and accidental jumble, or can we find the bond which unites them?

I have already indicated that such a bond has been sought in the anatomical relationship of the nerve centres related to these various symptoms. It has been sought also in the action of some supposed poison generated in consequence of disease of the thyroid gland. Either or both of these hypotheses may be true, but behind, and independent of them, there is, I believe, a physiological or quasi-physiological bond which unites the symptoms of Graves's disease, and this is of a double nature.

(1) They are united by their close relationship to the manifestation of emotion. The trembling hand, the staring eyes, the rapidly beating heart, the sweating skin, the husky voice, the relaxed bowels, belong to the picture of painful expectancy and fear. The likeness, though but a caricature, is too striking to be mistaken, and has attracted the attention of a number of observers, among whom I will mention McKenzie in England, and Peter and Raymond and Sériex in France, and Buschan in Germany.

It is an important advance in conception and definition, rather than a discovery, of modern psychology, to recognize that outward expression not only illustrates but forms an integral part of the mental state with which it occurs. This is eminently true of the emotions, as James, Lange and Féré have clearly shown. An emotion is an intellectual cognition *plus* a host of bodily states which we can only imperfectly analyze and separate.

In Graves's disease the first impulse to the outbreak is often, if not usually, an emotional cause. In a case of my own, a woman went down a dark stairway, and at the bottom was suddenly seized and roughly handled by a man, and then and there her disease began. Many such cases are on record (see *Brain*, 1894, p. 221, and Buschan).

But, it will be urged, many cases of Graves's disease begin insidiously without emotional antecedents, and sometimes in such a manner as to make it more than probable that a disease of the thyroid gland, or it may be even an irritation starting in the nasal cavity or elsewhere, set the match to the train. I have observed myself an interesting case where prolonged vomiting gave the first impulse. It is also true that the disease may run its course without being associated with any high degree of emotional display.

The explanation for this I have already tried to suggest. We cannot tell absolutely why the predisposition to this or that special neurosis exists, but, given the predisposition, it is enough to call out, by some local excitement, any one of the symptoms which belong to the quasi-physiological group, and the rest will make their appearance. Just as we can work ourselves up into the outward show of passion for our own amusement, and without feeling passionate, so the outward shows of passion may be called out, it is fair to think, by some purely reflex cause, without their usual emotional accompaniment, if only there is sufficient coherence between the different elements of the symptom-complex to form a tolerably definite group.

In a predisposed person, either a prolonged attack of tachycardia, or an enlargement of the thyroid, or a poisoning from thyroid secretion, or any one of many causes may bring on the disease.

(2) I have tried to point out how this array of symptoms only indicates one of the modes of dissolution, so to speak, of the nervous system, and that herein the relationship of Graves's disease to the other degenerative neuroses finds itself explained. Even when regarded as a symptom-complex of agitation and fear, it is still, not only as subserving some definite end, that the symptom-group is to be looked upon, but in part as a phenomenon of a paralytic or degenerative character. This is indicated by the term *embryocardia*, which has been used as a substitute for tachycardia, to indicate the degenerative nature of the heart failure.

In fine, the best explanation of Graves's disease and of its relation to the affections observed with it — so

far as an explanation is possible — seems to me something like the following: The cardinal symptoms of the disease are united by a physiological bond, in that they form a group characteristic of strong emotion of the nature of expectant fear. Even the conjoined affections are all excitable under the influence of emotion, as an examination of Féré's important volume on the pathology of the emotions will show. To a certain extent the numerous symptoms of Graves's disease form a coherent group, and are capable of independent existence as a "segmented" piece of cerebral activity, to use the term of Prof. Josiah Royce. Although often excited by emotion, this segmented group of activities may be called out in various other ways. The prolonged existence, for example, of either one of the symptoms may after a time call out the rest. In this way, emotional excitement, irritability of the medullary centres, goitre, tachycardia, may serve as the starting-point of the whole assemblage of symptoms. In this way, too, the increased secretion, or any other disease of the thyroid, may contribute to the nervous erythism, general or local, or increase the tendency to the outbreak, in an otherwise predisposed person.

If one lobe of thyroid is the larger, or if nasal or uterine irritation exist, these influences will contribute their share to the modification of the symptom-complex.

Conversely, any treatment which tends to relieve any part of a train of morbid processes — the general nervous excitability, the uncontrolled action of the heart, the local irritation starting from any part of the body or from the thyroid — will contribute to the cure of the patient.

In short, I regard Graves's disease as a "degenerative neurosis"; as one of the ways in which the nervous system suffers "dissolution"; as marking one of the many lines of cleavage at which the nervous functions break when exposed to strain.

DISCUSSION.

DR. GEORGE B. SHATTUCK, of Boston: Dr. Putnam has certainly stated for us in a very admirable manner all that is to be said at the present time with regard to the modern views of the nature and treatment of exophthalmic goitre.

My only complaint in regard to his paper would be that it was possibly too condensed, too concise.

I am very glad that this subject was taken up here to-day, and in such a competent manner, for two reasons. One reason is, because the disease about which Dr. Putnam has read his paper, is one of a large group of very complicated and mysterious disorders, and any light which can be thrown upon any one of that number will help us to a better understanding of the entire group.

It is a disease which has been for a long time an opprobrium of medicine, and one which all of us have in the past approached with misgiving as to our ability to procure positive improvement when a case came into our hands.

The other reason I am glad that the subject has been brought up here on this occasion and to-day is, that if it is to be discussed in the Medical Section it is time that it was done. It is one of the numerous diseases which the surgeons seem disposed to wrest from us and include in the department of their universal profession. If we are to discuss it from a medical point of view, it is high time we should begin.

Our reasoning in regard to this disease has been up to the present time, and after listening to Dr. Putnam's paper I still think it continues to be, purely hypothetical.

The treatment has been largely empirical, and I am afraid that even now it continues to be so.

I was in hopes that Dr. Putnam would be able to give us a little more encouragement with reference to the treatment; some spar to which we might cling with the hope that we might be carried to the shore of positive knowledge with reference to the general reasoning as to the cause of the disease.

Dr. Putnam has stated very concisely and thoroughly the various forms of treatment which have recently been brought forward with reference to Graves's disease. It is only a very few years ago that an edition of one of the most trusted books on the practice of medicine, by one of our most worthy clinicians, informed us that in the treatment of Graves's disease, iron is useful where anemia is present; strophanthus modifies the rapid action of the heart; no measures are so successful as rest in bed in the recumbent position, with an ice-bag or Leiter's coil applied occasionally over the heart. This is not a very encouraging picture of what could be done for a patient. But we have got beyond such a condition as that. Dr. Putnam discusses the use of the thyroid and thymus extracts, though with but moderate encouragement to be sure. He refers to the methods of surgical interference. Those are of several kinds, namely, the partial extirpation of the gland; the tying of the arteries — the whole or part of them — and the total extirpation of the gland. Then we have internally the administration of the phosphates — the phosphate of sodium, showing some results reported as good so far.

Whatever may be said as to the success of such measures, at any rate they show a certain courage and an inventiveness for combating the disease.

I have had some experience in the administration of the thyroid, though not of the thymus, and I must confess with Dr. Putnam that the results have not been encouraging. They do not agree with the flattering reports of some of the Continental clinicians, who seemingly have much better results. Theoretically one does not see why the thyroid extract should be useful in this disease. It is given in myxedema, a disease accompanied by atrophy of the thyroid; and now we give it in Graves's disease, where we have an hypertrophied thyroid gland.

If we give thyroid extract to cure both of these diseases it is because we say the secretion may be increased, diminished, or perhaps vitiated. Our only excuse can be that our measures are empirical and our reasoning hypothetical.

The treatment has to be continued for quite a long period, and the patient, as well as the doctor, must have hope, courage and patience. And there is again the difficulty referred to by Dr. Putnam, that in a great many of these cases the symptoms are aggravated by the administration of the thyroid extract; the action of the heart is increased just as it frequently is in the opposite condition — myxedema, and one often feels like giving up the treatment altogether.

The report of the proceedings of the German Surgical Congress held in Berlin in April is very interesting with regard to the surgical treatment of Graves's disease, and as I remember the accounts of the experiences given there by different Continental operators who have had, in addition to large series of thyroidectomies, a certain number of these operations for Graves's disease pure and simple, I should say that they reported their results as being rather more favorable than Dr. Putnam considers them to have been. Certainly several of the gentlemen at that time stated their strong belief in the efficacy of the operation for the relief and cure of Graves's disease, — they were certain they had seen some cures in their practice. Some recoveries, however, do occur without treatment.

As I said before, I wish that something a little more definite, a little more positive, could be offered us with reference to the knowledge of the cause of this disease, and that some more hopeful forms of treatment might be suggested. Perhaps we are on the threshold of an actual step forward.

Dr. Kocher's last series of one thousand cases, reported at the Surgical Congress at Berlin, gave a mortality of a fraction of one per cent. With such low mortality rate as that, I would not hesitate to recommend a patient to submit to an operation if one could give hope of considerable relief.

These operations were partial. Kocher has given up the total extirpation of the gland on account of the resulting cachexia.

DR. PUTNAM: In trying to present so large a subject in so short a time, it has been necessary to condense, to the great detriment of different portions of the topic.

I certainly do not feel at all pessimistic about our ultimately learning to know the nature of the disease or the best therapeutics. My more hopeful feeling perhaps communicates itself to my patients, for it certainly seems to me that I see better results than formerly, both in hospital and private practice, though an absolute cure is perhaps not to be looked for.

I believe that the electrical treatment referred to in my papers is useful. Phosphate of sodium we do not know much about. Rest should be made almost absolute for a time, and if possible out of doors. Thyroidectomies have been beneficial. The only reason we do not recommend them is that now and then an unexpected death results, and we do not care to subject our patients to this risk, though it is a slight one. You cannot tell which patient is going to die.

In answer to the question as to the effect of hypnotism on this disease, I would say that I regard hypnotism (as the word is commonly used) as the last term of a series of agencies which are well calculated to increase the personal influence of the physician, and to enlist the hidden forces of the patient's mind for his benefit. When properly used I think these means may be of great value.

THE DIAGNOSIS OF MALARIA FROM THE PRESENCE OF PARASITES IN THE BLOOD.¹

BY PHILIP KILROY, M.D., OF SPRINGFIELD, MASS.

IN the subject assigned to me, and as stated on the programme, the word bacillus was inadvertently used. The protozoon of malaria as described by Laveran is an animal parasite belonging to the protozoa, and cannot therefore be properly called a bacillus. It were needless for me to mention the practical interest there is for us in a subject like this. We have most of us had malarial chills occur in the first week of childbed, and fretted and curetted and drained and all that, and without any reason. I remember during the past winter being puzzled for a week in trying to decide whether a patient had typhoid or influenza, to find the disease subside on exhibition of quinine; and the annoying similarity between malaria and some cases of tuberculosis and various forms of sepsis needs but to be mentioned. In this paper I shall simply endeavor to give, and give briefly, the modern belief with regard to the parasites of malaria; and while for the opinions expressed I shall not give credit to whom credit is due, neither shall I claim any for myself.

The parasitic origin of malaria was accepted, and taught even, before the parasite was discovered, — a belief scientifically plausible in view of the endemic occurrence of the disease, the suddenness and regularity of its attacks, as well as the completeness with which it was controlled by drugs; and the rapid deterioration in blood quality which followed even one or two malarial chills suggested the presumption that in the blood would be found some evidence of that

which was responsible for the destruction of its corpuscles.

Back in the seventies observers (especially Italian) endeavored to isolate a bacillus from the Istrian marshes and the soil of Campagna, and two authorities succeeded in cultivating a rod-shaped structure, which they believed to be the cause of malaria and which they hastily named bacillus malarie. And in my days in the medical school — from 1885 to 1888 — the then text-books referred to this discovery approvingly, if not with acceptance. Later observations caused this bacillus to be completely abandoned, and the apparent malarial attacks which its inoculation on rabbits produced were probably ptomaine or surgical fever due to improper asepsis, especially as even to-day it is not certain that rabbits can have malaria. In 1880 Laveran first discovered one variety of a protozoon, which is to-day recognized as the determining cause of the disease, and which we call the polymorphous parasite of Laveran, — polymorphous, for it assumes different forms in different localities and in different types of the disease, and sometimes even in similar types in the same locality. And thus it was that we have had such contradictory testimony by competent authorities, some having observed one variety of the parasite, others a different one. There are four main types of the protozoon of malaria:

- (1) Spherical bodies.
- (2) Segmented bodies.
- (3) Flagellæ.
- (4) Transition bodies.

The spherical bodies — which are the most important because the most numerous and most frequently present — are small, movable structures of pale color, hyaline transparent, devoid of nuclei, sometimes showing, when free in the blood, two or three flagellæ or thread-like processes; but when they have invaded a corpuscle or attached themselves to it (and the latter is the more probable occurrence) they are devoid of these ciliary attachments. Having invaded or adhered to a corpuscle, the spherical body rapidly grows in size and frequently exhibits ameboid movements, which give it a constantly changing appearance. These ameboid structures are commonly called plasmodia. The spherical bodies contain granules of black pigment, — the greater the size of the body the greater the number of pigment spots. Sometimes the spots assume a circular arrangement inside the edge of the parasite; sometimes they are irregularly distributed and endowed with movements of very irregular character, sometimes fast, sometimes slow, and in various directions. It is very probable that the ameboid movements of the bodies are due to the movement of these spots, as they have been observed to be coincident.

As the spherical bodies grow in, or on, a corpuscle, the color of the latter disappears, from a destruction of its hemoglobin, the corpuscles gradually become transparent, while the parasitic body becomes a deeply pigmented mass which may now undergo segmentation, forming the second variety, or segmented bodies.

These are also spherical in form, but regularly segmented, with the melanin formed from hemoglobin destruction in the centre, the whole suggesting in appearance a full-blown rose or a marguerite. The segments gradually develop into independent spherical bodies, the decolorized corpuscles are disintegrated, and at the end of two or three days, according to the

¹ Read before the Massachusetts Medical Society June 11, 1895, and recommended for publication by the Society.

type of the disease, this new generation of spherical bodies results in a fresh attack.

The flagellæ, or third variety, are sometimes free in the blood, sometimes (as already mentioned) attached to the spherical bodies. They are long threads, endowed with a rapid, snake-like movement, a movement that frequently sets the neighboring corpuscles in vibration. They are found in about one case in five, but the difficulty of seeing them (it being probably impossible to see them when not in motion) may account for their apparent rarity. Their movements are best observed about twenty minutes after the blood has been taken from the patient. They have a life of their own, but which is quickly killed by quinine.

The transition bodies, which are said to be characteristic of the fall and winter Roman fever, as well as of all the various atypical malarial manifestations, are crescent-shaped bodies, transparent and colorless. They differ from the spherical bodies in that they have but little pigment and that only in the centre, and while the spherical bodies adhere firmly to a blood corpuscle, the transition bodies never do. If these should happen to be in contact with the corpuscle a blow on the slide will easily displace them. Their ends are either sharp or round, and frequently we can discern a fine line on the concave side of the crescentic body, joining the ends. The central pigment is changed hemoglobin. The general appearance and character of these bodies, their size and lack of any evidence of life or motion, has suggested the probability of their being semidestroyed and changed blood corpuscles, a belief which more modern investigation has disproved.

There is an essential difference in the appearance of the parasites of tertian and quartan malaria. In tertian, the ameboid movements of the spherical bodies are more active than in quartan. In tertian the decolorization of the corpuscles is rapid, while in quartan the color remains almost until the corpuscle is disintegrated. The spherical bodies are smaller in tertian, and with smaller pigment spots, than in quartan; but the most striking and most reliable difference is in the process of segmentation; in tertian there being almost twice as many segments formed from one parasite, the segments being naturally smaller. If, then, during a malarial attack we examine the blood, and find decolorized red corpuscles in which a parasite is undergoing segmentation into fourteen to sixteen parts, we can say with positiveness that the fever is tertian; while if there are but seven or eight segments we can diagnose with equal positiveness quartan fever. Quotidian fever is probably not a type, being either double tertian or triple quartan, resulting from the segmentation process maturing on successive days.

At the onset of an attack, or in the fever period, we are more apt to find the spherical bodies. The segmented bodies occur chiefly during the cold stage or in the intervals, while the transition bodies are mostly observed in the chronic forms of malaria, malarial cachexia, and malarial neuralgias, and also in those who have acquired a tolerance for the poison. While, with a good oil immersion lens, we can usually detect the parasites in the natural blood; still, for the sake of precision and to guard against confounding plasmodia with the red corpuscle of poikilocytosis, the blood should be stained. The best results are probably obtained from the dried specimens. A drop of blood is squeezed between two cover-glasses, by means of

pincettes rather than the fingers, as the vapor from the latter may change the hemoglobin; when the blood has dried in the air it is heated in the usual way, and then treated with a staining solution. For practical purposes a cover-glass heated for a few minutes in an alcohol flame is dried sufficiently, although an exposure to a temperature of 100 to 120 degrees Celsius for a few hours gives better results. If over-heated, the parasite may become fixed, and not take any stain. In mounting preparations with Canada balsam, the latter should be dissolved in xylol rather than in chloroform or turpentine, as these latter decolorize the corpuscles. The parasites of malaria are best stained by methyl-blue, and a staining fluid consisting of one part of a concentrated aqueous solution of methyl-blue, and two parts of a one per cent. alcohol solution of eosin, gives beautiful results, in which the hemoglobin of the red corpuscles is stained an eosin red, the eosinophilous cells a deep strawberry red, and the ordinary leucocytes and the malarial parasites blue.

DISCUSSION.

DR. FREDERICK W. CHAPIN, of Springfield, referred to the hypodermic use of quinine in the treatment of malaria, as practised under his observation more than twenty years ago by Dr. Frederick D. Lente, of Cold Spring-on-the-Hudson, N. Y. Dr. Lente injected six grains under the skin, after the chill, and one injection was often enough to put an end to a severe attack.

DR. FRANCIS H. WILLIAMS, of Boston: Dr. Kilroy's valuable paper calls attention to a subject which is yearly becoming of more importance to many of us, as malaria is found more frequently now in certain portions of the State than it was a few years ago. The assistance which we may derive from the examination of the blood in these cases cannot be too often emphasized.

The characteristics which Dr. Kilroy points out as distinguishing the parasites of tertian from those of quartan fever are extremely interesting.

My own experience in making the diagnosis of malaria by finding the parasites in the blood has extended over some years, and I have found these blood examinations not only of great assistance in making a diagnosis in some otherwise obscure cases of malaria, but in excluding malaria in cases which simulated it. For example, I recall a patient who was sent into the Boston City Hospital with the diagnosis of meningitis, the head symptoms were marked, the morning and evening temperature chart showed no rise in temperature, and there was no chill. An enlarged spleen suggested to me the advisability of examining the blood, and on doing so I found numerous plasmodia. The patient was given quinine, and when he became rational we found that he had recently arrived from Central America, and that chills had begun when three days out of port.

As an illustration of the assistance in excluding malaria which examinations of the blood offer, I recall a patient who had a daily rise in temperature and a daily chill; he seemed in good general condition; quinine made but slight impression on the temperature and chills; no plasmodia were found in the blood. Later the diagnosis was made clear by signs in the lungs and by finding the bacilli of tuberculosis in the expectoration.

Dr. Kilroy speaks of the different varieties of parasite for the tertian and quartan form of malaria. As he says, the quotidian form may be due to a double tertian or a triple quartan. My experience suggests that the quotidians we have here are double tertians. During recent years I have used (*Boston Medical and Surgical Journal*, March 9, 1893, and November 15, 1894) Dock's method of giving quinine in treating malaria. In a few of two series of cases I have been obliged to give a second dose on the second day, as there was a rise of temperature on that day. All of these cases which had a second dose were quotidians; the first dose had probably acted upon one set

of the tertian parasites and the second dose on the second set. After the second day all of the symptoms disappeared.

Malaria fevers in Baltimore, to the number of 616, have been carefully studied during recent years by Drs. Thayer and Hewetson, and the results of their labors have been most attractively presented in the work which they have just published.

Clinical Department.

A CASE OF PANOPHTHALMITIS, WITH PERFORATION INTO THE ORBIT, AND SYMPTOMS SUGGESTING SEPTIC INFECTION.

BY FREDERICK E. CHENEY, M.D.,

Surgeon to the Massachusetts Charitable Eye and Ear Infirmary; Instructor in Ophthalmoscopy, Harvard Medical School.

THE case which I have to report is that of a young woman twenty-nine years of age, who was first seen January 26, 1894, in consultation with Dr. Charles F. Haynes of Brighton. The previous history, for which I am principally indebted to Dr. Haynes, is as follows: The eye trouble began in her fifteenth year, when the right eye became very much inflamed. It yielded readily to treatment, however, and gave no further trouble until three years later, when the inflammation is said to have been very severe, and she was under the care of an oculist for about one month. An operation was performed upon the eye: just what it was could not be ascertained. This second attack resulted in a complete loss of sight, and since then the eye has been frequently inflamed, it being especially irritable at her menstrual periods. She is of a decidedly neurotic temperament, and for a number of years has suffered from a mild form of rheumatism. On January 15, 1894, the eye became very red and painful; and although these symptoms rapidly increased in severity, she was not seen by a physician till about a week later.

At the time of my first visit, she was confined to the bed, and complained of such severe pain in and around the eye, that she was kept under the influence of opiates most of the time. An examination showed a typical case of panophthalmitis. The lids and surrounding tissue were greatly swollen and reddened, and the upper lid so much infiltrated, that it could not be raised with the fingers sufficiently to expose the upper third of the cornea. The eyeball appeared prominent, enlarged, and perfectly immovable. The ocular conjunctiva was swollen and injected, the iris greenish in color, and the pupil drawn upward. The left eye, with the exception of considerable photophobia and the slight injection of the conjunctival vessel, was perfectly normal. After two days poulticing, the lids became much less infiltrated, and the front of the eye could be exposed without difficulty. At the upper outer border of the cornea, there was a large grayish opacity, evidently the result of an old perforating ulcer, as there was an extensive incarceration of the iris. There was no bulging of the cornea in this region and no prominence of the sclera that suggested a possible point of spontaneous perforation. As the pain continued severe, an incision of the globe was thought advisable, and, under ether, a cut was made from the point of the old perforation, entirely across the cornea and extending backward into the vitreous. This operation was followed by the escape of a small amount of pus, not nearly as much, however, as was to have been expected. Poulticing was continued, and although the pain was decidedly less, and the

patient felt much better generally, the discharge from the wound was slight, and there was no decrease in the size of the globe.

On the evening of January 31st, Dr. Haynes telephoned me that she had had a number of chills, with rise of temperature, loss of appetite, and some nausea. There was very little pain in the eye or head and she seemed cheerful and bright. The next morning these symptoms had not subsided, and septic infection being feared, enucleation was performed under ether. Nothing unusual occurred in the course of the operation until the superior rectus was divided, when there was an escape of a considerable quantity of thick yellowish pus and a moderate collapse of the globe. After the eye was removed, an irregular opening was found in the sclera just behind the insertion of the superior rectus, large enough to admit the tip of the little finger. The orbit was cleansed as thoroughly as possible, and irrigated with a 1-5,000 corrosive-sublimate solution for a number of days. The healing process was normal in every respect. The morning and evening temperature and pulse for the next five days were as follows:

	Temp.	Pulse.
Feb. 1 (day of operation) evening,	104°	118
2, morning,	102°	100
2, evening,	104°	138
3, morning,	101°	118
3, evening,	105.5	136
4, morning,	102.5	115
4, evening,	104°	130
5, morning,	100.5°	112

There was no marked rise of temperature or increase of pulse after this latter date, and the patient seemed to be doing well in every respect until three or four weeks later, when a fluctuating tumor developed in the region of the pancreas. This tumor, Dr. Haynes writes me, persisted for a number of weeks and with its gradual disappearance there developed one of the severest cases of dermatitis exfoliata that he had ever seen. Whether or no these later symptoms were in any way dependent upon the ocular trouble I am unable to say.

This case is of unusual interest, not only as an example of perforation into the orbit during panophthalmitis, which is an extremely rare event, but also from the fact, that the condition resulted in a general disturbance, strongly suggesting septic infection. The reason for perforation taking place where it did, is most easily accounted for, it seems to me, by supposing that the sclera over this area was weakened as a result of previous inflammation, and that there was consequently less resistance offered, than in the more anterior portions of the globe where perforations usually take place. Such thinnings of the sclera, though rarely so far from the corneal margin, are not infrequently seen in connection with old peripheral corneal processes, and it is well to consider the possibility of perforation into the orbit, in cases of panophthalmitis secondary to ulcers, near the corneal border.

It has not been my custom to enucleate while the eye was in an active state of suppuration, for the reason that there have been a considerable number of cases of purulent meningitis reported as a result of such a procedure, and it seems safer to wait until the inflammatory process has subsided. This danger, owing to our knowledge and more general practice of antiseptics, is probably very much less at the present time than in the past, and many surgeons now advise enucleation as soon as no doubt exists as to the case

being one of panophthalmitis. In the case reported, there was no question as to the advisability of enucleation, and if the eye had been removed a few days earlier, it would probably have been better for the patient. The fact that the pus did not escape freely from the eye, after it had been incised, would certainly suggest that the perforation had taken place through the sclera at that time; that is, it was much easier for the pus to make its exit through the large irregular opening in the sclera, and infiltrate the orbital tissue, than it was to pass forward through the incised wound, whose edges were in good apposition.

Reports of Societies.

ANNUAL MEETING OF THE HARVARD MEDICAL ALUMNI ASSOCIATION.

THE Fifth Annual Meeting of the Harvard Medical Alumni Association was held at the Medical School Building, Boylston Street, at noon June 25, 1895, the President, Dr. GEORGE B. SHATTUCK, in the chair. About fifty members were present.

DR. WALTER ELA, the Treasurer, then read his report, showing a balance in the treasury of \$1,886.82.

The election of officers resulted in the choice of Drs. F. G. Morrill of Boston, G. S. Osborne of Peabody and Homer Gage of Worcester, to be Councillors for the term of four years. Drs. G. J. Engelmann and Theobald Smith were made honorary members.

The constitution was amended so as to allow members who are not Councillors to serve on the Committee on the Harvard Medical School.

The following resolutions offered by Dr. CHADWICK were unanimously adopted:

Resolved, That the Harvard Medical Alumni Association hereby petitions the Corporation and the Board of Overseers of Harvard College to allow the Alumni of the Medical School to share in the election for Overseers.

Resolved, That the Council of the Association be directed to make assiduous and persistent efforts to obtain this privilege.

Resolved, That the members of the Association who are also Alumni of the College be urged in the elections for Overseers to cast their votes for candidates favoring this extension of the franchise.

ANNUAL DINNER.

The Fifth Annual Dinner was at the Hotel Vendome at one o'clock, and there were present one hundred and sixty-seven members and five invited guests.

THE PRESIDENT'S ADDRESS.

DR. SHATTUCK reminded the members that the objects of the Association were defined in the constitution as the advancement of the cause of medical education in general, the promotion of the interest and increase of the usefulness of the Harvard Medical School in particular, and the promotion of acquaintance and good fellowship among the members of the Association. He congratulated the Association on the progress during the past year and predicted a long life of increasing activity.

Two hundred and thirty new members have been enrolled since your last Annual Meeting; eight new life-members have been registered; and you have to-day added to your list two new honorary members. A new bulletin and a new catalogue have been pub-

lished, and your publications are sought for in exchange by learned bodies at home and abroad.

Your treasury is overflowing in the sense that income is greater than outgo, and you are rich as is that individual whose expenditures are less than his receipts. Not only is the number of new members more than double what it was last year, but no less than twenty-one States are represented in this new membership, as well as foreign countries to the north and south of our own great republic. To the outsider the Harvard Medical School must stand for the Puritan foundation and the New England idea in its training, its methods and its products; and yet, I notice that among the new accessions to our Association the French invasion of this continent is represented by a practitioner in Quebec, a graduate of 1838; and the Spanish by a practitioner in the City of Mexico, a graduate of fifty years later.

The Association has, I regret to say, been deprived by death of two of its honorary members — Dr. Henry Willard Williams and Dr. George Tufton Moffatt. By the death of Dr. Williams we have lost one of our most distinguished members. He held for twenty-two years the Chair of Ophthalmology in the Harvard Medical School, and upon his retirement made handsome provision for its endowment. He was one of the originators of the Boston City Hospital, the creator and for twenty-six years the head of its Ophthalmological Department. He was President of the Massachusetts Medical Society; he was the promoter and one of the founders of the Massachusetts Medical Benevolent Society. He was a founder and President of the American Ophthalmological Society. To his skill and judgment as an ophthalmologist many among you can bear witness.

Among the names of deceased members you will mark those of Horace Kimball, a graduate of 1834; William Mack, of 1838; George James Townsend, of 1846; Frederick Augustus Sawyer, of 1856.

In speaking of the usefulness of the Association Dr. Shattuck said: Twice in its short life-time has this Association, represented by its Treasurer, rescued deserving graduates from that oblivion which envelops those unrecognized by the College and unheeded by the compiler of the quinquennial catalogue. I repeat, those who want to be successful in life and comfortable after death, must belong to the Association. Even a Bachelor of Science cannot die at the antipodes in Australia without this Association being instantly made aware of the sad event in order to transmit to the quinquennial catalogue the desired details.

Dr. Shattuck proceeded to introduce the speakers.

We are fortunate enough to have with us to-day the President of Harvard University. Unfortunately he can only be with us a short time. As President of a university, and not merely of a college, he is compelled to be ubiquitous. Our sister Association of the Law School which to-day celebrates the twenty-fifth anniversary of Professor Langdell's deanship, demands his presence; the Divinity School and Radcliffe College — which to-day holds its first commencement exercises as such — also make claims upon him. Under the circumstances your Committee on the Medical School, will, I am sure, forgive me if I postpone a little the reading of their report, and ask President Eliot immediately to say some words of encouragement to you. Perhaps the President will tell us what in his opinion the future has in store for

the eager student who desires both a four years' academic and a four years' professional degree, but who is driven by the wholesome stimulus of prospective want.

PRESIDENT ELIOT.

MR. PRESIDENT AND GENTLEMEN.—The problem which your President has just put before me is certainly a very grave one. The average age of admission to Harvard College at this moment is fully nineteen. The student who stays there four years to get his A. B. is twenty-three when he graduates. He then goes to our Medical School to stay there four years; so he is twenty-seven years of age before he even has his medical degree, and we all know that some years intervene between that achievement and competency to support a family. Now that highly educated young man ought to have been married at twenty-five.

The remedies for this state of things—which is really intolerable, gentlemen, and which particularly ought not to exist in a country so new as ours—are somewhat complex. They, in the first place, must include an improvement in the secondary schools of the country, whereby the boys may learn a great deal more and yet come out of them earlier. The proper age for secondary education in our country is between thirteen and eighteen, not higher. Then I must frankly say that for years I have been in favor of reducing the ordinary term of residence for the degree of Bachelor of Arts to three years—an out and out square reduction from four to three years.

I know that what the average student at Harvard College does in four years can be well done in three, with good results to the students and no harm whatever to scholarship. There is no worse practice for a young man than to work easily half his time, or a third of his time for four years. He had a great deal better work hard for three years; with hard work he will acquire both more information and more power in three years than he will with easy work in four. The college course in our country should be more strenuous and shorter. Let the boy come out at the age of eighteen from his secondary school and out of college at twenty-one, and then there may be some prospect of his beginning to fulfil his highest duties to the community by the time he is twenty-five. But, gentlemen, this problem is an extremely difficult one, which needs to be worked out patiently by the teachers of secondary schools, the faculties of colleges, and all those interested in the welfare of educated society. And we must not look for an immediate solution.

I want to use the few moments which I can enjoy here in saying some things about the future of the Medical School which you love and whose prosperity you wish to promote. Next year we have before us a good year's work in developing and carrying out for the first time the fourth year's course of instruction.

That is enough work for the year. We shall make a substantial addition to the instruction heretofore given in our schools in putting into practice the plans laid down some time ago for the fourth year of the school. But, then, during that year we may expect to make plans for further development.

On what lines are those plans to run? It seems to me that the next thing for our Medical School to do—I would not urge this on all medical schools—the next thing for our Medical School to do is to require for admission a first degree in arts, letters or science; that is, to enact that nobody shall be admissible to our

Medical School unless he is already the possessor of a first degree in arts, letters or science. This measure would perhaps in some degree diminish at first, for a short time, the resort to the school, but should not be declined by us on that account. Indeed, that very consideration should stimulate us to undertake this honorable task, rather than deter us from it.

The American universities have long been peculiar in that their professional schools were wide open to any passer-by in the street, whereas the colleges were guarded by rigid examinations. This peculiarity may have been expedient during the elementary stages of the development of our educational system; but now after a hundred years or more, it becomes us to imitate the example of the universities in older countries, and our leading professional schools should no longer be open to persons of no academic training whatever.

In Harvard University it should not be the case that the admission of young men to the Medical School should be perhaps one-third as difficult as the examination for admission to Harvard College. The real University quality of our Medical School will not be developed till it consists entirely of men whose preliminary education has been adequate and thorough. All that is needed to carry out this measure successfully from the pecuniary point of view is a long-enough notice. Already for some years our Divinity School has admitted as regular students none but graduates in arts; and next year, the Law School enters on a similar policy. It gave notice several years ago that after June, 1896, no persons would be admitted to the Law School as regular students unless they already held degree in arts, literature, philosophy or science, or were qualified to enter the Senior Class at Harvard College. It is that policy which I urge upon the Medical School with adequate notice; and I should think the even year, 1900, rather a fortunate time to put this new policy into effect. Five years' notice would be enough to prevent any serious diminution in the numbers of the school, for it is long enough to enable any ambitious boy to meet the requirement—any ambitious boy who is looking forward to a medical career. That, then, would be the first new policy which I would urge upon the school, and which I would ask you, the graduates and friends of the school, to support as you supported the revolution in the school of 1870–71, a much more difficult revolution.

The second step which I desire to urge is a decided enlargement of the instruction. The limit of instruction in most American medical schools has been an amount which the average student could himself absorb during the required residence, say three years. The school taught nothing beyond. Anything outside of this was held to be superfluous, unnecessary and almost illegitimate, because not conducting to the degree taught by the ordinary practitioners. There was practically a prescribed curriculum. There is today the prescribed curriculum for our Medical School except for the fourth year. Now no department of the university can be adequately extended and improved under such a restriction as that, namely, that it shall teach no more than a fair student can learn in three years. I believe that the instruction now given at Harvard College, for example, is more than any good student could take in sixty consecutive years, if he devoted himself exclusively to following the courses of the college. That is, the amplitude of instruction bears no relation whatever to the capacity of absorp-

tion of a single student in four years. Just so it ought to be in a University Medical School. There should be an extended instruction far beyond the limits of any one student's capacity. This involves, of course, an optional or elective system within the school itself, whereby the individual student should take what is for him the best four years' work, the Faculty supplying an amount of teaching which it would take a single student eight, twelve or twenty years to pursue. We must escape at our Medical School from this limitation of instruction to a prescribed curriculum suitable for any one student who follows it four years.

There would go with this enlargement an expansion of investigatory work, of what may be called scientific medical work, or laboratory research; and an increase of the staff, so that the professors of the scientific subjects might have a staff capable in itself of extending medical investigation. The graduate department of the school would simultaneously increase.

And now a third thing our Medical School needs, and should have in the near future, is a hospital of its own, wholly under the direction of the teachers of the school. I should like to explain to you from the point of view of the President of the University one aspect of that need. Of course, we all realize that additional clinical facilities are desirable in any medical school, but that is not the point that I desire now to bring to your notice. At present, we breed in and in too much in our Medical School, and we are too closely restricted in selecting our teachers among the medical men of this particular community right about us. What determines that restriction? It is the common necessity of offering a medical teacher clinical opportunities. But the hospitals, dispensaries and asylums are managed by independent boards of trustees, and in selecting their staffs these trustees have not primarily in view the necessities of medical instruction, willing though they be to co-operate with the Faculty with the purpose of improving medical instruction. The members of the staffs of the hospitals, dispensaries and asylums are selected for other qualities than a capacity to teach; but when the President and Fellows of Harvard College wish to get a medical teacher from without this immediate community, they are hindered by the fact that they cannot themselves provide the gentlemen whose services they seek with clinical opportunities. If there were a hospital within the control of the university, this serious difficulty in the way of bringing admirable men from without to the service of the school would be greatly diminished, and it is from that point of view that I desire to see a hospital connected with our Medical School.

These three points, gentlemen, are the ones which I wish to-day to have an opportunity to bring to your attention: the expediency of prescribing a degree in arts, science or letters for admission; the desirableness of greatly extending the instruction of the school; and the need of a hospital within the control of the university. I ask your support for these measures so far as they may in time commend themselves to your judgment; and I take this opportunity of thanking you once more for the extraordinarily cordial and effective support which has been given to the Medical School by this Association, and indeed by the medical profession of Massachusetts during the rapid growth and expansion of our Medical Department since 1880. . . .

(To be continued.)

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ANNUAL REPORT OF THE MASSACHUSETTS GENERAL HOSPITAL.

THE Eighty-first Annual Report of the Massachusetts General Hospital and McLean Hospital has been published later than usual this year. In the introductory report, the trustees announce the completion of the George A. Gardner ward for contagious diseases. This ward supplies a long-felt want in the hospital, affording a suitable place for the care of accidental and unavoidable cases of contagious disease. The need of improved laboratory facilities has been urgent, and a sufficient sum has been raised by subscription to construct and in a measure endow a new laboratory.

An attempt is being made to check the abuse of gratuitous hospital facilities by patients whose ability to pay is undoubted, by charging ten cents for each visit in the surgical out-patient department and a sum equal to the cost for splints, crutches, and other apparatus, to be repaid on return of the articles in good condition. The most important part of the trustees' report is that devoted to a consideration of the subject of Free Beds. From this we extract the following:

"The question of the expediency of limiting the number of free beds at the General Hospital, depends mainly for its solution upon the financial ability to maintain them. No trustee would incline to entertain the thought of restricting their use in the case of the deserving poor, did our means admit of unlimited service.

"The General Hospital is provided with funds for the maintenance of only 72 free beds, whereas the average number of free patients for the last ten years has been 171. The cost of this difference has been annually paid by the hospital out of its own resources for current expenses, with the hope that the public would heed the annual appeal for contributions. These contributions have not, however, kept pace with the steadily and rapidly growing demand for free beds, and, on the other hand, the annual deficit

of the General Hospital has been increasing every year. The deficit amounted in 1891 to \$12,410, in 1892 to \$17,474, in 1893 to \$35,060, and in 1894 to \$41,930.

"Moreover, the number of paying patients who contribute an amount equal to or in excess of the cost of their maintenance has steadily diminished — from 295 in 1888 to 144 in 1893, whereas the number of free patients has increased — from 150 in 1885 to 176 in 1894. The average cost per patient per week has increased from \$11.99 in 1885 to \$16.15 in 1894, and in the ten years just closed, the expenses of the General Hospital have exceeded its receipts by the sum of \$195,599.38.

"By reason of all these, and other facts adduced, the trustees find themselves constrained, with a sense of deep regret, to curtail the usefulness of the General Hospital in the direction of free beds by limiting their number, except in cases of emergency, to 125."

From the report of the resident physician we learn that the total number of patients treated during the year was 3,406; of these, 2,683 were free; 621 paid; 102 paid part of the time. Proportion of deaths to whole number of results, 9.04 per cent. Number of patients received on account of accidents, 566. The proportion of ward beds occupied by free patients was 80 per cent.; by paying patients, 20 per cent. About 9.95 per cent. of the paying patients occupied private rooms. The average number of patients was 213; males, 121; females, 92. The average number of paying patients was 37; Americans, 24; foreigners, 13. The average number of free patients was 176; Americans, 80; foreigners, 96. The average time of paying patients was 3.09 weeks; and that of free patients, 3.41 weeks.

For the first time in these reports we notice tables of medical and surgical statistics in addition to tables concerning finances and supplies. The preponderant devotion of this hospital to surgery is again indicated by such tables — those given to medical diseases occupying only 12 pages, whilst those detailing surgical diseases take 83 pages.

It is expected that the new buildings for the McLean Hospital at Waverly will be ready for occupancy in the summer or autumn of 1895. In regard to the approaching move from Somerville where the McLean Hospital has been so long, Dr. Edward Cowles, the superintendent, says:

"It is due to the greatness of the change, from the old to the new, that the preparations become somewhat formidable. But as some of these were begun long ago, and the major part of them are now well underway, or provided for, it is expected that all will come into effective coöperation at the right time. . . .

"It is with no spirit of permitting injustice to the good in the old, that the promises of the new hospital are allowed to fill our thoughts. The hospital home in the old Barrell mansion with its reminders of Bulfinch's architectural skill, and in the houses that have been built up around it, has its precious memories of those who lived and labored here, and those who suffered and were comforted in it. In the seventy-eight years since its foundation as the third hospital of its kind in America, it has known the presence of Wyman, Lee, Bell, Booth and Tyler, who

are no longer living. It was Bell whose tribute to Wyman bore testimony to his profound influence, in that formative period, in moulding the ideas of the American alienists upon the highest conceptions of the humane and rational treatment of the insane. It was Tyler whose fitting eulogy of Bell placed him high among the leaders in his guild. Tyler, the last of the line to go over to the majority — to know him was to love him. It is an honor to be simply a successor, to remember and to name them all, in grateful memory, as we pass out of the place where their noble work was done. And there was a host of other faithful laborers whose work these results have crowned.

"In the near breaking up of the home that has meant so much to the many who have dwelt in it, our unbidden thoughts of them obscure even the promises of the new scene of our hopes and interests. When we would turn away regretfully from these old associations, they follow us with the thought that the task is great to live up to the spirit of the past, and to work out its worthy succession.

"It is a time to think reverently of those who have gone before and of what they have wrought; and it is a time to speak out the fulness of our gratitude for every friendly and helpful word and act that has aided the doing of all that has been done here."

MICROBE FERMENTS OF THE SOIL.

It is known that there are useful as well as baneful microbes, and that all the putrid decompositions, as well as many reconstructive processes in nature, are carried on under the influence of bacteria. A writer in the *Revue des Deux Mondes*¹ has called our attention to a new useful function of certain microbes of the soil, namely, that of fixing atmospheric nitrogen in a way in which it can be utilized by plants.

It has long been known that the vegetable kingdom in the main obtains its carbon compounds from the air through the chlorophyll of green leaves, and its nitrogen from ammonia and nitrates in the soil. Soils poor in nitrates are known to produce weakly plants.

That this is true of barley, wheat, oats, rye and other cereals was long ago established by Boussingault and other chemists, by sowing these grains in soils devoid of nitrogen-compounds. Afterwards the surprising discovery was made by Hellriegel, Wilfarth and George Ville that the members of the Leguminosæ family (peas, beans, vetch, etc.) were able, in some way, to obtain nitrogen from the air, even acquiring a normal and sometimes exuberant development in soils entirely deprived of combined nitrogen. No explanation of this singular fact was possible till certain botanists, and notably Prilleux, proved the agency of the microbes of the soil in the fixation of nitrogen. It was observed that the roots of leguminous plants were covered with little nodosities, tubercles of pin-head size; if one of these little warty growths was crushed on a microscope-slide and examined with a high power, innumerable elongated, often bifurcated, corpuscles, almost motionless, were detected, which were bacteria. By careful observations it was discovered that it was to the presence of these bacteria that the healthy growth of the plants was due; if sown on sterilized soil, they speedily perished, or at least failed to take on vigorous development. It was also noticed that the peas, lupines, etc., would flourish in soil that had been sterilized provided that they

¹ Tome cxvii, p. 132.

were watered with a maceration of earth, containing living microbes from good arable land.

It would then seem that it was to the presence of these nodosities, and to the existence there of the microbes inhabiting them that was due the ability of the plant to live and thrive in a soil completely deprived of nitrogen compounds. The micro-organisms seem, then, to have been instrumental in the fixation of nitrogen by the plants.

This intervention seems, moreover, to have been demonstrated by an experiment performed by Bréal at the Laboratory of Vegetal Physiology of the Museum of Natural History. Instead of causing the appearance of the nodosities on the roots of the leguminosæ by sprinkling them with the maceration of earth, he pricked with a needle one of the nodules on a healthy plant and "vaccinated" with it the root of a germinating lupine; the young lupine was then planted in sterilized soil along with another embryonal plant whose root had not been vaccinated. The experiment was very startling. While the lupine that had been pricked grew, thrived and produced healthy pods and seeds, and while its roots were covered with nodosities teeming with bacteria, the lupine which was not pricked was very soon blighted in its growth. In the vaccinated lupine the nitrogen much exceeded that contained in the seed from which it came; in the blighted plant only the nitrogen contained in the seed was found.

The plant had been "vaccinated," and the introduction into tissues of the root of bacteria productive of the nodosities really determined their appearance and made the plant vigorous and able somehow to obtain the nitrogen it needed.

The explanation presented of this singular phenomena is as follows: "The tubercles of the roots are productions caused by the action of bacteria, thus resembling nutgalls on oak trees. The bacteria find in the juices of the root their proper pabulum and multiply indefinitely, after the death of the plant becoming diffused in the soil. The leguminous plant profits by the presence of the bacteria in this way: In the part of the nodosity nearest the root appear numerous septa which keep the bacteria prisoners. After a time these prisoners perish, their tissues are dissolved and are utilized by the plant. At the youngest part of the nodosity appear constantly new cells containing starch which becomes soluble and furnishes to the bacteria the carbon compounds essential to their development. The plant thus prepares for itself new food-substances; when the bacteria have appropriated the atmospheric nitrogen and formed in their own tissues azotized materials, the latter are absorbed by the plant and carried by its vessels to all parts of its structure. The anatomical constitution of the tubercle is thus admirably adapted to the conditions of this common life."

Finally, an admirable and very complicated experiment by Schloesing *filis* and Laurent has shown that the nitrogen utilized by the growing leguminous

plants under these conditions really comes from the surrounding air — hypothetically by the intervention of microbes, as above indicated. For the details of this experiment we must refer the reader to the magazine article above cited.

If these facts may be regarded as substantiated, we have at last a definite solution of what has long been a vexed question in biological science and we may consider as established the fixation of atmospheric nitrogen by microbic action.

MEDICAL NOTES.

BIRTH-RATE IN PARIS.—The number of births in Paris from July 7th to 13th was 1,070, of which 289 were illegitimate.

ST. THOMAS'S HOSPITAL.—The Corporation of the City of London has granted a donation of two hundred guineas to the special fund for the closed wards of this hospital.

THE LATE PROFESSOR TRAUBE OF BERLIN.—A bust of Ludwig Traube, the eminent Berlin clinician, who died nineteen years ago, has been placed in the garden of the Charité Hospital, Berlin.

CHOLERA IN JAPAN.—Cholera continues to spread in Japan. Returns now show that 27 places are infected. Up to the 7th of July the total number of cases had been 7,305, of which 4,376 had proved fatal.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: "Dr. Elias Rodriguez, Professor of Therapeutics and Forensic Medicine in Caracas; and Dr. José Maria Teixeira, Professor of Pharmacology and Therapeutics in the University of Rio de Janeiro.

MORE ANTI-VIVISECTION LOGIC.—The Electoral Anti-Vivisection League of England, issues the following as a leaflet: "Vote for no one who will not promise to insist on the total prohibition of vivisection — that means, experimenting on living animals — which always leads to experimenting on patients in hospitals."

PHYSICIANS IN CIVILIZED AND UNCIVILIZED COUNTRIES.—An interesting comparison has been made between the number of physicians practising in civilized and uncivilized countries. Thus New York City has 3,500 physicians for her 2,000,000. China has twelve hospitals, and twenty-five physicians for 400,000,000.

FOREIGN UNIVERSITY INTELLIGENCE.—Bohn: Professor Miculicz of Breslau, who was invited to succeed Professor Trendelenburg in the Chair of Surgery, having declined to migrate, the post has been offered to Dr. Schede, director of the surgical side of the Eppendorf General Hospital, Hamburg. Tubingen: Dr. Henke, Professor of Anatomy and Director of the Anatomical Institute, is retiring. Professor

Curtius of Kiel has been appointed to the Chair of Chemistry, in succession to Dr. Lothar von Meyer.

A LIBERAL BEQUEST.—The Emperor of Germany announces that he will contribute 10,000 marks toward the erection of a statue in Berlin to Helmholtz's memory. This is the first contribution by royalty or any distinguished functionary of State to commemorate the achievement of either doctor or scientist, so far as our memory serves us.—*Exchange.*

MODERN MEDICINE IN JAPAN.—Japan possesses one of the most brilliant and original of scientific medical investigators in Dr. Kitasato, whose services to the world at Berlin in connection with diphtheria and tetanus, and at Hong Kong with the plague, are too well known to need our eulogy. Dr. Kitasato is reported to have recently carried out the antitoxin treatment in thirty-four cases of diphtheria, with thirty-one recoveries. He is now engaged in the study of leprosy, with so far most satisfactory results. The Japanese government has voted a sum of money for the use of the laboratory of which he is in charge.

AN ARISTOCRATIC BABY SHOW.—At an aristocratic baby show, recently held in England at the house of Mrs. Robert Crawshay, the first prize for weight and general excellence for babies under one year of age was awarded to Dermot Browne, son of Lord and Lady Castlerosse, who, though but eleven months old weighed thirty-three and one-half pounds. The prize for weight and general excellence of development for babies over one year of age was awarded to Angela Mildred Baring, daughter of Lord and Lady Ashburton, who was eighteen months old, weighed twenty-eight pounds, and had fourteen teeth. Information as to the feeding of these children would have been interesting, as the *British Medical Journal* remarks; and we hope that in future instances of this kind full details of the management which succeeds in producing such noteworthy results will be published.

QUACKERY IN INDIA.—The *Lancet* states that the number of quack doctors in India has, of late, increased at an alarming rate. Formerly the species was unknown save in the larger towns, but nowadays the creature is to be met with everywhere, making money chiefly by the sale of medicine, but also extracting fees whenever he can induce his patients to disburse. Mr. Carstairs characterizes the Bengal quack as a "reproach and a hindrance to English medicine," and states that in one village of about two thousand inhabitants with which he is acquainted, there are no fewer than sixteen of these irregular practitioners.

NEW YORK.

APPOINTMENT.—Dr. George B. Fowler, who was recently made Health Commissioner in the place of Dr. Cyrus Edson, resigned, has been appointed a member of the State Board of Health, from which Dr. Edson also resigned.

THE NEW YORK BOTANICAL GARDENS.—The Commissioners of Parks have decided upon Bronx

Park as the site of the New York Botanical Gardens, and have called upon the Board of Estimate and Apportionment for the \$500,000 which was provided for in the act of incorporation as soon as \$250,000 should be secured by voluntary subscriptions. The management of the gardens is to be in the hands of a board composed of the President of Columbia College and its professors of botany, geology and chemistry, the President of the Torrey Botanical Club, the Mayor of New York City, the President of the Board of Education, the President of the Park Commission, and nine other members to be selected by the board.

GLANDERS IN BROOKLYN.—On account of the presence of a number of cases of glanders in Brooklyn, the Board of Health of that city at a meeting held July 27th, determined, at the suggestion of Dr. W. H. Wright, a veterinary surgeon, to temporarily shut off the water in the public drinking-troughs.

THE SURGEONS OF NEW JERSEY.—The military order of surgeons of New Jersey held their annual banquet at the club-house in the State Camp Grounds at Sea Girt on Wednesday, July 31st.

DEATH OF DR. JARVIS.—Dr. William C. Jarvis, the well-known specialist in diseases of the throat and nose, died, after a short illness, at the residence of his brother, Capt. N. S. Jarvis, post-surgeon at Willets Point, Long Island, on July 30th. Dr. Jarvis was a little over forty years old and a son of the late Dr. N. S. Jarvis, a surgeon in the United States Army. He was graduated from the Medical Department of the University of the City of New York. He early won distinction in his chosen specialty, and a number of years ago was appointed Clinical Professor of Laryngology and Rhinology in his alma mater. He was for many years a prominent member of the American Laryngological Society, and was a prolific contributor to medical literature. He possessed unusual inventive and mechanical aptitude, and devised many instruments and appliances which have proved of permanent value. Dr. Jarvis also had many fine social qualities, which endeared him to a large circle of friends, and his untimely death will be deeply regretted on account of these, no less than of his brilliant scientific attainments.

MORTALITY OF NEW YORK CITY.—The number of deaths reported in the city during the week ending August 3d was 893, a decrease of 49 from the preceding week. This represents an annual death-rate of 24.97 per thousand of the estimated population and it is unusually low for this period of the summer when the highest mortality of the entire year is almost invariably recorded. This favorable showing is, no doubt, due to the unusually cool weather, for the season, that has prevailed. There were but 181 deaths from diarrheal diseases, but of these no less than 163 were in children under five years of age, and of the whole 893 deaths, 492 were in children under five. Of the zymotic diseases diphtheria still continues the most prevalent, and 29 deaths were reported from it.

There was but a single death from scarlet fever, the smallest mortality from this disease reported for a long time.

Miscellany.

THE NEEDS AND SHORTCOMINGS OF WOMEN PHYSICIANS.

DR. MARY PUTNAM JACOBI, of New York, has recently expressed her ideas as to medical women as follows. To any one at all conversant with the facts her estimate must appeal as altogether just. Certainly few women are better able to judge of such a matter than she, herself so striking an exception to the deficiencies she characterizes:

"In woman, we find, on the whole, a less quantum of force, or surplus of vitality, over and above the needs of individual nutrition. This relative defect must be compensated by greater precision of technical training in order to diminish the friction of the mental working machine,—an instrument of precision may, under favorable circumstances, turn out work which is equivalent in value to that effected by sledge hammers. This need of strenuous drill and discipline—a sort of West Point system—is not recognized in the medical education of women at all at present. In fact, it is only just beginning to be accepted that a college education is a desirable preliminary to plunging into the extraordinary difficulties of medical study. It is still generally supposed that to offer a curriculum to be traversed is all that is necessary; whereas the real need is of practical exercises of considerable variety and severity in order to train faculty and develop new brain force where inherited and traditional basis for exact work was lacking. The absence of this and of great medical teachers in America—at all events, who are accessible to women—go far to explain the mediocre results so far achieved."

ON THE IMMUNIZING AND CURATIVE EFFECT OF ANTITOXIC BLOOD-SERUM OF THE SHEEP IN TYPHOID INTOXICATION.

PEIFER, of Greifswald, spoke on this subject at the German Congress of Internal Medicine. In conjunction with Beumer he had performed experiments on the immunizing effect of the blood-serum from sheep who had been treated for three months with sterilized cultures of the typhoid bacillus. Earlier experiments had shown these investigators that the toxine of typhoid cultures was contained in the bodies of the bacilli themselves. Cultures which had been passed through the Chamberland filter were shown to be less toxic than before filtration. The sterilization of the virulent cultures without affecting their toxic properties was obtained by keeping them for one hour at a temperature of 55–60° C.

The work of Behring and his collaborators on diphtheria and tetanus had led the writers to approach the question as to whether small amounts of virulent cultures of the typhoid bacillus produced in the blood of animals antitoxic substances which inhibited the toxic effect of repeated injections of the cultures. In numerous experiments on guinea-pigs this question was answered in the affirmative.

The effect of the antitoxic serum depended not in a

power to destroy the bacteria, but to neutralize the toxins. Experiments with large animals (sheep) showed that it was possible by previous or simultaneous injections of antitoxic serum to immunize guinea-pigs and mice against three times the fatal dose of the cultures. The writers also, on the ground of their observations, arrived at the conclusion that animals already suffering severely from the toxic effect of the cultures two to four hours after the administration of a fatal dose, could be cured by the injection of the antitoxic serum.

INTERNATIONAL CONFERENCE REGARDING THE SANITARY ADMINISTRATION OF RAILWAYS AND NAVIGATION.

THE Conference will meet at Amsterdam the 20th and 21st of September, 1895. The object of the meeting, in general, is to consider the methods adopted by various countries to insure the interests of travellers both by land and sea. To this end it has been thought wise to unite at a congress members of the medical profession who are especially interested in matters pertaining to sanitation in travel.

The work of the Conference is to be divided into three sections, as follows:

I. Guarantees of the capacity of officials.

II. Organization of the medical service.

III. Hygienic interests of employees and travellers.

In view of the international importance of many questions on the programme, the committee has invited delegates to be present from various countries and from railway and navigation corporations. Papers will be presented either in French, German or English.

The president of the Conference is to be Prof. H. Snellen, of the University of Utrecht, one of the foremost ophthalmologists of Europe. Dr. B. Joy Jeffries, whose admirable work on color-blindness is universally recognized, has been invited to represent America. All communications should be made to the Secretary, Dr. Pijnappel, Stadhouderskade, 60, Amsterdam.

DIPHTHERIA EPIDEMIC AT ASHTABULA.

DR. F. D. CASE, in the *Medical and Surgical Reporter* for July 13th, speaks of the epidemic as having peculiar interest from the fact that it is one of the few well-authenticated instances of an extensive epidemic due to infected milk; and, secondly, that it was the first epidemic in this country in which a general use was made of antitoxin.

All the cases up to December 10th were in families that procured milk from a certain milk-wagon. An inspection of the dairy showed the cows to be in good condition. On December 12th the health-officer reported that there were 49 cases of diphtheria, 45 of which were in families who used this particular milkman's milk. The report goes on to say that at no time were the bacilli of diphtheria found either in the suspected milk or in cultures taken from the throat of the milkman delivering the milk, who was at the time suffering from some sort of a sore throat. In spite of this fact, the circumstantial evidence was so strong, that the writer feels altogether justified in his conclusion that the milk was the source of infection.

The results of antitoxin treatment were, on the whole, satisfactory. The most frequent sequelæ in cases not treated with antitoxin were paralytic in character, another argument in favor of the now well-recognized toxemic origin of the various paralyses.

Hemiplegia, accompanied by aphasia, occurred in the case of one patient, a woman of eighteen. This complication, implying a central nerve lesion, must be regarded as extremely unusual, as shown by a careful study recently made by Dr. John J. Thomas, of Boston.

The serum employed was procured from the Pasteur Institute in New York.

THE HARVARD SUMMER SCHOOL OF PHYSICAL TRAINING.

THE school of physical training at Cambridge, under the direction of Dr. Dudley A. Sargent, has just closed the most successful session in its history. There have been in all ninety students, the greater number being women. At the close of the course a public exhibition was given in the Hemenway Gymnasium. The work which Dr. Sargent has done so much to advance in this country must lead to an ultimate physical improvement in those directly engaged in it, and so indirectly to constantly increasing numbers in the community at large. It should especially claim the support and encouragement of the medical profession.

Correspondence.

ANOTHER WORD CONCERNING VIVISECTION.

CAMBRIDGE, August 3, 1895.

MR. EDITOR:—A short time since, Professor Mosso of the University of Turin, sent me a manuscript copy of the tribute to Ludwig from which, copying from the *London Lancet*, you have given a brief quotation. One line of it has very greatly puzzled me. "It is an error," says Professor Mosso in the manuscript before me, "it is an error to think that one can experiment on animals that have not lost sensation," a statement which the *Lancet* refers to as "wisely" made. I have quoted from the author's manuscript. The *Lancet* translation says, "It is an error to believe that experiments can be performed on an animal which feels."

Upon the "wisdom" of making such a statement, I forbear comment, but *is it true?* Is it an example of that scientific accuracy which laboratory work tends to inculcate? In the *Archives Italiennes de Biologie*, Vol. VII, page 312, etc., may be found experiments of a certain Professor Mosso, in which he speaks of the "pain which the animals must have suffered as they struggled against the impetus which was carrying them against their will," and one of these experiments lasted for several hours. In the same collection of researches (Vol. XIII, page 478), a Professor Mosso records that "all the animals uttered cries during the last hours of their lives as if they were suffering intense pain." But it is needless to refer to anything but personal experience. Anybody with the least acquaintance with research in physiology or pathology knows that this statement is not true. One can experiment "on an animal which feels." I have done it myself.

All exaggeration is deplorable. I doubt if we shall ever convince anti-vivisectionists of their errors by evasions or misstatements. The true interests of science will never be advanced by anything but the exact truth.

ALBERT LEFFINGWELL, M.D.

METEOROLOGICAL RECORD.

For the week ending July 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter		Relative humidity.		Direction of wind.		Velocity of wind.		We'ather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...21	29.93	74	82	67	79	73	76	N.	W.	4	6	F.	F.	.17
M...22	29.89	76	83	69	82	81	82	N.	S.E.	7	6	O.	O.	
T...23	29.95	76	82	69	66	61	64	N.W.	N.W.	14	6	O.	O.	
W...24	29.98	72	82	62	46	58	52	N.W.	N.W.	7	10	O.	O.	
T...25	29.78	73	81	65	59	83	71	W.	S.W.	7	19	O.	O.	
F...26	29.86	71	80	62	62	58	60	N.W.	W.	10	8	O.	O.	
S...27	29.91	70	79	61	48	81	64	S.W.	S.	2	15	O.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 27, 1895.

Cities.	Estimated population.	Reported deaths		Percentage of deaths from				
		In each.	Deaths under five years.	Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Whooping-cough.
New York . .	1,956,000	1042	604	34.40	9.50	26.80	2.20	1.60
Chicago . . .	1,600,000	—	—	—	—	—	—	—
Philadelphia .	1,139,457	593	318	31.28	7.82	24.31	4.25	.51
Brooklyn . .	1,043,000	583	350	39.78	7.82	31.96	1.70	1.70
St. Louis . .	540,800	—	—	—	—	—	—	—
Boston . . .	501,107	197	94	29.58	8.16	22.95	4.59	—
Baltimore . .	500,000	—	—	—	—	—	—	—
Cincinnati . .	325,000	—	—	—	—	—	—	—
Cleveland . .	325,000	110	—	44.59	4.55	43.08	.91	.91
Washington .	285,000	—	—	—	—	—	—	—
Pittsburg . .	272,000	129	74	31.57	3.85	26.95	.77	.77
Milwaukee . .	265,000	—	—	—	—	—	—	—
Nashville . .	87,754	—	—	—	—	—	—	—
Charleston . .	65,165	—	—	—	—	—	—	—
Portland . . .	40,000	—	—	—	—	—	—	—
Worcester . .	100,410	57	30	40.25	5.00	36.75	—	1.75
Fall River . .	92,233	72	51	54.21	2.78	39.19	51.43	—
Lowell . . .	90,613	64	35	42.12	4.68	30.14	1.56	—
Cambridge . .	79,607	31	17	38.76	3.23	25.84	6.46	—
Lynn	65,123	24	8	8.32	20.80	8.32	—	—
Springfield .	50,284	13	6	46.14	7.69	46.14	—	—
Lawrence . .	49,900	24	16	41.70	4.17	41.70	—	—
New Bedford .	47,711	30	21	53.28	3.35	50.00	—	—
Holyoke . . .	43,348	—	—	—	—	—	—	—
Brookton . .	33,939	9	1	11.11	55.55	11.11	—	—
Salem	33,155	14	7	42.84	—	35.70	—	—
Haverhill . .	32,925	10	8	40.00	20.00	40.00	—	—
Malden . . .	30,209	10	3	20.00	20.00	20.00	—	—
Chelsea . . .	29,806	8	4	—	25.00	—	—	—
Fitchburg . .	29,383	—	—	—	—	—	—	—
Newton . . .	28,837	13	6	—	7.69	—	—	—
Gloucester . .	27,293	—	—	—	—	—	—	—
Taunton . . .	26,954	12	4	16.66	—	—	—	—
Waltham . . .	22,058	5	2	20.00	20.00	20.00	—	—
Quincy . . .	19,642	4	2	25.00	25.00	—	—	—
Pittsfield . .	18,802	2	0	50.00	—	—	—	—
Everett . . .	16,585	3	3	33.33	—	—	—	—
Northampton .	16,331	5	1	40.00	20.00	40.00	—	—
Newburyport .	14,073	—	—	—	—	—	—	—
Amesbury . .	10,920	3	1	—	—	—	—	—

Deaths reported 3,119; under five years of age 1,678; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 889, consumption 252, acute lung diseases 148, diarrheal diseases 889, diphtheria and croup 83, whooping-cough 30, typhoid fever 28, measles 27, scarlet fever 13, malarial fever 8, cerebro-spinal meningitis 6, erysipelas 3.

From typhoid fever New York and Philadelphia 7 each. Brooklyn 5, Boston and Fall River 2 each. Pittsburg, Nashville, Worcester, Quincy and Pittsfield 1 each. From measles New York 18, Philadelphia, Brooklyn and Pittsburg 3 each. From scarlet fever New York 5, Philadelphia 3, Boston 2, Brooklyn, Cambridge and Salem 1 each. From malarial fever Brooklyn 4, New York, Nashville, New Bedford and Everett 1 each. From cerebro-spinal meningitis New York 5, Taunton 1. From erysipelas New York 2, Cambridge 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending July 20th, the death-rate was 21.9. Deaths reported 4,446; acute lung diseases (London) 193, diarrhea 798, measles 138, whooping-cough 72, diphtheria 67, scarlet fever 39, fever 23.

The death-rates ranged from 10.5 in Brighton to 30.3 in Liverpool; Birmingham 17.7, Bradford 22.1, Croydon 10.9, Halifax 11.7, Hull 20.5, Leeds 26.2, London 23.7, Manchester 23.7, Newcastle-on-Tyne 19.6, Nottingham 15.0, Oldham 16.3, Portsmouth 14.0, Sheffield 24.8, Swansea 12.4, West Ham 22.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 27, 1895, TO AUGUST 2, 1895.

The leave of absence for seven days granted MAJOR C. K. WINNE, surgeon, U. S. A., is hereby extended twenty-three days.

CAPTAIN W. FITZHUGH CARTER, assistant surgeon, U. S. A., granted leave of absence for one month.

Leave of absence for one month, with permission to apply for an extension of one month, is hereby granted to CAPTAIN JUNIUS L. POWELL, assistant surgeon, U. S. A.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JULY 31, 1895.

HUTTON, W. H. H., surgeon. To proceed from Washington, D. C., to Pensacola, Fla., on special duty. July 18, 1895.

HAMILTON, J. B., surgeon. Granted leave of absence for three days. July 30, 1895.

WHEELER, W. A., surgeon. Detailed as chairman, Board for physical examination of candidates, Revenue Cutter Service. July 23, 1895.

CARMICHAEL, D. A., passed assistant surgeon. Detailed to make physical examination of candidates, Revenue Cutter Service. July 26, 1895.

WILLIAMS, L. L., passed assistant surgeon. Granted leave of absence for ten days. July 20, 1895.

MAGRUDER, G. M., passed assistant surgeon. To proceed from Galveston, Texas, to New Orleans, La., for temporary duty. July 27, 1895. Order to proceed to New Orleans suspended and directed to proceed to Eagle Pass, Texas, for special duty. July 31, 1895.

PERRY, J. C., passed assistant surgeon. Granted leave of absence for twenty days. July 16, 1895.

SPRAGUE, E. H., assistant surgeon. To proceed from Mobile, Ala., to Key West, Fla., for temporary duty, upon completion of which to rejoin station at Mobile. July 18, 1895.

THOMAS, A. R., assistant surgeon. To proceed from Buffalo, N. Y., to New Orleans, La., for temporary duty. July 20, 1895.

CUMMINGS, H. S., assistant surgeon. Detailed as recorder, Board for physical examination of candidate, Revenue Cutter Service. July 23, 1895.

GREENE, J. B., assistant surgeon. To report at Bureau for temporary duty. July 16, 1895.

BOOKS AND PAMPHLETS RECEIVED

Treatment of Asiatic Cholera. By Elmer Lee, A.M., M.D., Ph.B., Chicago. Reprint. 1895.

Leprosy in New South Wales. (Report for 1894 in administration of the Leprosy Act) with Appendix.

Medical Terminology; Its Etymology and Errors. By P. J. McCourt, M.D., New York. Reprint. 1895.

Fifteenth Annual Announcement of the School of Medicine of the University of Denver, Session of 1895-96. Denver, Col. 1895.

Fifty-fifth Annual Announcement of the Missouri Medical College, Session 1895-96, and Catalogue of Session 1894-95. St. Louis, Mo.

Diphtheria; Its Bacterial Diagnosis and Treatment with the Antitoxin. By Henry W. Bettmann, M.D., of Cincinnati, Ohio. Reprint. 1895.

De la Symphysiostomie à la Clinique Baudelocque Pendant l'Année 1894. Par le Dr. A. Pinard. G. Steinheil, éditeur. Reprint. 1895.

Careless and Unscientific Midwifery, with Special Reference to some Features of the Work of Midwives. By W. S. Smith, M.D. Reprint. 1895.

Report of Two Interesting Cases: Word-Blindness; Localized Muscular Spasms Illustrating Cerebral Localization. By J. M. Keniston, M.D. Reprint. 1895.

Some Points in the Technique of Kidney Operations. Phelps' Operation for Club-Foot. By Charles S. Briggs, A.M., M.D., Nashville, Tenn. Reprints. 1895.

Report of Cases of Brain Lesions: Abscesses, Meningitis and Sinus Thrombosis; Resulting from Disease of the Middle Ear. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1895.

Chronic Tuberculosis; A Study of Four Cases. A Clinical Lecture delivered at the Medical Department of the University of Denver, Col. By E. R. Axtell, M.D. Reprint. 1895.

A Second Attack of Papillitis Occurring in a Case of Post-Neuritic Atrophy of the Optic Nerves. By G. E. de Schweinitz, M.D., and A. G. Thomson, M.D., of Philadelphia. Reprint. 1895.

Circular on the Care and Disposition of Persons Found Unconscious on the Streets or Elsewhere. Prepared by a Special Committee of the Medical Society of the County of Kings, N. Y. Reprint. 1895.

Case of Double Pyosalpinx, Removal of Both Tubes and Ovaries without Rupture of the Sacs, Recovery. A Successful Case of Porro-Cæsarean Section (Modified). By Hunter Robb, M.D. Reprints. 1895.

Traumatic Cyst of the Brain from an Injury received Twenty-five Years Before. Epilepsy; Operation; Recovery. By J. T. Eskridge, M.D., Denver, Col., and F. F. McNaught, M.D., Denver, Col. Reprint. 1895.

Burns of the Cornea: Electric-Light Explosion causing Temporary Blindness; Traumatic Injuries to Eyes; Hypopyon. Evisceration of the Eyeball. By L. Webster Fox, M.D., Philadelphia. Reprints. 1895.

Exercise and Food for Pulmonary Invalids. By Charles Denison, A.M., M.D., Denver, Col., Professor of Diseases of the Chest and of Climatology, University of Denver, etc. Denver: The Chain and Hardy Co. 1895.

Twenty-seventh Annual Report Relating to the Registry and Return of Births, Marriages and Deaths in Michigan for the year 1893, by the Secretary of State of Michigan by authority. Lansing: Printed by the State. 1895.

Vierter Bericht über das unter dem Allerhöchsten Protectorat Ihrer Majestät der Kaiserin Friedrich stehende Kaiser und Kaiserin Friedrich-Kinder-Krankenhaus in Berlin. Für die Zeit vom 1. Januar bis 31. December 1894. Berlin, 1895.

Report of One Hundred and Forty-five Operations done for the Removal of Ovarian Tumors and Pathological Conditions Associated with the Ovaries and Uterine Appendages Only. By A. Vander Veer, M.D., Albany, N. Y. Reprint. 1895.

Association of the Alumni of the Albany Medical College, Medical Department, Union University. Proceedings of the Twenty-second Annual Meeting, held April 16, 1895, Dr. Theobald Smith's Lecture, Commencement Exercises and Alumni Dinner.

The Cell; Outlines of General Anatomy and Physiology. By Dr. Oscar Hertwig, translated by M. Campbell, and edited by Henry Johnstone Campbell, M.D. With 168 illustrations. London: Swan, Sonnenschein & Co. New York: Macmillan & Co. 1895.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Vol. III: Occupation, Diseases, Drug Habits and Poisons. New York: William Wood & Co. 1895.

Suggestions for a Portable Instrument-Bag; Operating Overalls; A Bandage for Suprapubic Dressings; A Blanket for Protection of Patients during Operations; A Table for the Trendelenburg Posture; The Sterilization of Sponges; An Antiseptic Soap Paste. By Aug. Schachner, M.D., of Louisville. Reprint. 1895.

Prof. Francesco Durante, Direttore Della Clinica Chirurgica Della R. Università di Roma. Trattato di Patologia e Terapia Chirurgica. Generale e Speciale. Opera illustrata da circa 500 figure originali intercalate nel testo e da tavole litografiche. Volume I. Puntata 1 (pag. 1 a 208) con tavola. Lire 5. Reprint. Roma, 1895.

The History of Prostitution; Its Extent, Causes and Effects throughout the World. By William W. Sauger, M.D., Resident Physician, Blackwell's Island, New York City; Member of the American Association for the Advancement of Science, etc. With numerous editorial notes and an Appendix. New York: American Medical Press. 1895.

The Medical Profession and the State; The Alumni Oration, by Hon. Mariott Brosius, Lancaster, Pa. Delivered in the Amphitheatre of the Medico-Chirurgical College of Philadelphia, Thursday, May 9, 1895. Alumni Banquet of Medico-Chirurgical College. Given by the Alumni Association of the Medico-Chirurgical College of Philadelphia at the Hotel Metropole, Thursday, May 9, 1895.

Original Articles.

THE TREATMENT OF ENLARGED PROSTATE.

BY ARTHUR T. CABOT, M.D., BOSTON.

THE NON-OPERATIVE TREATMENT OF HYPERTROPHIED PROSTATE.

WE intend to confine ourselves in this discussion to the treatment of cases of enlarged prostate. It is necessary, however, to briefly review the pathological changes involved in hypertrophy of the prostate, in order to properly understand the indications for treatment.

The increase in size is due in part to a hyperplasia and hypertrophy of the glandular portions of the organ, and in part, also, to a great increase of fibrous and muscular tissue throughout the prostate. Sometimes the fibrous tissue forms distinct tumors, similar in many respects to the fibroids so common in the uterus.

This overgrowth in the prostate may be circumscribed and mainly confined to certain parts of the organ, or it may be generally diffused. Its main interest to us lies in the question as to the extent to which it encroaches on the urethra and thus interferes with the outlet of the bladder. If one lateral lobe is especially enlarged it pushes the urethra to the opposite side, and the lateral pressure may so flatten out the canal as to greatly impede or to prevent the flow of urine through it.

The part of the gland more commonly concerned in the obstruction to urination, however, is the so-called third lobe, which lies between the ejaculatory ducts and the bladder, and which really forms no distinct lobe except when hypertrophied. Then it may project far back into the bladder as a rounded swelling, or may form an elevated ridge below the urethral orifice, and, in either case, is likely to act more or less as a valve to occlude this orifice.

It is not then the size of the prostate gland merely that causes the obstruction, and a very large prostate may not encroach on the urethra sufficiently to interfere with its functions, while, per contra, a moderate enlargement of the third lobe may entirely close the orifice of exit from the bladder.

According to Guyon there is a primary stage of congestion of the prostate which precedes the state of enlargement and to which the earlier symptoms are due. This is a condition which cannot be clearly recognized after death, and the existence of which is made probable by clinical evidence rather than proved by demonstration.

Associated with enlargement of the prostate, and to a great degree dependent upon it, are other serious pathological changes. The efforts of the bladder to overcome the obstruction in the prostate naturally lead to a hypertrophy of the muscular coat of that organ; and presently the failure of the bladder to completely free itself of the urine leads to its dilatation.

Sacculation is caused by the protrusion of the mucous coat, forced between the fibres of the muscular tunic by the efforts of the organ to empty itself. Extending further backward the obstruction gradually leads to dilatation of the ureters and the pelves of the kid-

neys. Associated with these changes we frequently have a slowly forming sclerosis of the kidney, due to hypertrophy of the interstitial tissue.

Inflammatory changes in the genito-urinary organs behind the prostate are also brought about, and, when once existent, are perpetuated by the obstruction in the prostate. Cystitis, which is usually the first inflammatory condition to appear in these cases, may be induced by a stone forming in the residual urine, may result from some exposure to cold or to some uncommonly irritating condition of the urine, but usually owes its inception either to the irritation of some instrumental interference or to micro-organisms introduced on urethral instruments.

Inflammation in these cases, starting in the prostatic urethra and about the neck of the bladder, may have a vesiculitis or epididymitis associated with it. Later it may extend backwards through the ureters to the pelves of the kidneys, to there set up a pyelitis, and, later, a pyelonephritis. This backward extension is greatly favored by the dilatation of the ureters which so often precedes the inflammation.

Such being briefly the course of the disease, what may be done in its various stages to stay its progress and to overcome its morbid tendencies?

So little is known of the cause of the enlargement that the physician can give but little advice as to prophylaxis, based on any generally recognized physiological data as to sexual habits. The clinical evidence, however, of the importance of congestion as one element at least, in the discomfort of the disease, makes this condition one which is worth consideration. This congestion is a passive one, and is most noticed when the patient is at rest or horizontal. In short, it is when the circulation is under least pressure that the venous sinuses of the prostatic plexus become loaded with blood.

Any measures which diminish passive congestion may therefore act in a more or less prophylactic way and considerably diminish much of the discomfort of an enlarged prostate. To this end a vigorous mode of life is to be recommended, and sedentary habits are to be avoided as far as possible. If the patient has been sitting or lying for a long time, it is often well to walk about vigorously for a few minutes before passing water, as the act under these circumstances is much more complete than if performed while the congestion is still somewhat occluding the urethra.

Horseback exercise has sometimes been held to be injurious, but it seems to me that it is often of use in these patients just as it is in patients who suffer from hemorrhoids, because it so stimulates the circulation as to diminish the tendency to passive congestion.

Any chill of the surface which throws the blood to the internal organs is also to be avoided, and it is well for the patient to seek an inland climate where such surface chills are less frequent than on the seashore. Warm clothing is especially to be recommended for this same reason. During the early stages of the disease, care in these ways, with the avoidance of alcoholic beverages and articles of food which make the urine irritating, is all that is usually required. If the urine becomes sharply acid, and consequently the call to urinate is greatly increased, an alkali should be administered. Sometimes, also, sandal-wood oil is very useful in diminishing the irritation about the neck of the bladder. The iodides and ergot have had some vogue in the treatment of these cases, but satisfactory

¹ Read before the Massachusetts Medical Society, Section on Surgery, June 11, 1895.

evidence that they accomplish any reduction of the gland is wanting.

During this early stage of the disease instrumentation is to be avoided. It may often be necessary to use the catheter once to determine the presence or absence of residual urine, but if it is found that there is no residuum, in short that the obstruction has not yet become established, it is usually well to abstain from the use of the catheter, which acts as an irritant upon the prostate, which is beginning to be sensitive.

As the disease progresses and presently offers considerable obstruction to the passage of urine and leads to the accumulation of a residuum, the catheter then becomes a necessity of treatment. If the residuum amounts to but two or three ounces it will probably be sufficient to use the catheter but once a day. Sometimes when the residuum is but small, the persistent use of the catheter for a number of weeks will enable the bladder to recover its power, and the catheter can be laid aside, to be resumed if the residual urine again appears.

If the catheter is thus used early, the later ill consequences of obstruction may, to a great extent, be avoided. The bladder which is emptied once or twice a day does not become dilated and suffer loss of power through over-distension. Thus are nipped in the bud also, those deeper changes of dilatation in the ureters and pelves of the kidneys that so soon associate themselves with an over-distended bladder and that lead to the secondary changes in the kidney, which are a menace to the lives of these patients.

Recognizing then the value, or rather the absolute need of the catheter in these cases, it behooves us to remember also that the use of this instrument is not without its own dangers and discomforts, which require care for their avoidance or treatment.

In the early stages of the disease, where the catheter is first used to settle the question as to the existence of residual urine, it is well to make this test in the evening at the patient's home, so that recumbency may be maintained for some hours after the instrumentation. Often the first use of the catheter is required for the relief of a sudden retention due to an acute exacerbation of swelling in a prostate that had been enlarging insidiously for some time. And here, too, horizontal rest after emptying the bladder is of great importance.

In the choice of instruments, those which pass with least irritation are to be preferred. The soft-rubber catheter, which finds its own way and has not sufficient stiffness to risk any harm, has the widest usefulness with these patients who are often unskilful and yet have to be entrusted with the care of their bladders.

When the canal is so closed that a stiffer instrument is necessary, the elbowed catheter of Mercier, or the English gum-elastic catheter, can be used. If a patient shows especial skill, the silver instrument, which is indestructible, may be found most serviceable.

The greatest cleanliness is to be enjoined, and in obtaining this the soft-rubber and silver instruments have a great advantage, in that they are not injured by hot water and may be boiled without injury.

In obtaining asepticism it is to be remembered that the urethra is very sensitive and resents contact with corrosive-sublimate or carbolic acid, and that many a urethritis is set up in these patients by the too lavish use of these disinfectants. In the early treatment of

these cases it is well to boil the catheter each time before use, but after the parts have become habituated to instrumentation the thorough immediate washing of instruments with hot water and soap before and after use is usually sufficient. The lubricant also should be clean vaseline,² which is unirritating and aseptic. Such are in brief the precautions which should be observed in approaching a case of prostatic enlargement in which obstruction is just developing.

Suppose, however, that a case presents itself in which retention behind such an obstruction has fully developed, and we find the bladder considerably distended by a pint or more of residual urine. Under such circumstances we may suspect that dilatation of the ureters and pelves has already commenced. If we find the urine abundant or over-abundant in quantity, but of low specific gravity, we have reason to believe that interstitial changes have already begun in the kidneys, and if the patient has a dry mouth and a lack of appetite, with occasional attacks of nausea, this will indicate that already the elimination of urea is insufficient. It is worthy of note that in this condition of renal disability, even when so far advanced that the breath has a strong urinous odor, the examination of the urine may give no indication of trouble in the kidneys beyond the low specific gravity above noted.

An examination of the heart at this time may show the secondary changes due to the increased tension of an arterio-sclerosis. With a patient in such a condition, the surgeon is face to face with a serious problem.

The choice must be made between allowing things to take their course along a steadily downward road, or making an effort by the use of the catheter to relieve the distension of the bladder and so remove the back pressure upon the kidneys. The latter course would be unhesitatingly adopted were it not for the dangers that beset it. In these over-distended bladders it is a matter of the greatest difficulty to institute the use of the catheter without setting up an inflammation of the bladder, which extends up the dilated ureters to the kidneys.

Besides the usual chances of inflammation being set up by the irritation of the catheter, or by germs introduced on it, there is in these cases the added danger from the congestion of the bladder walls, which is likely to result from a too sudden relief of the internal pressure. The hemorrhagic tendency may be so great as to lead to a profuse and troublesome hematuria if the bladder is too quickly emptied. The injurious effects of the sudden diminution of the pressure in the urinary passages may make themselves felt at once upon the kidneys, and a sudden increase of the nausea and other commencing uremic symptoms, together with a rapid diminution in the amount of urine excreted, is often noticed.

With these possibilities of immediate serious consequences from the use of the catheter in these cases it may well be believed that such a course is not always wise, and it is a matter of nice judgment to distinguish the patients who will probably bear the institution of the catheter life from those who will not. In doubtful cases the question may well be left for the decision of the patient and friends, as would be done in the matter of a serious operation of somewhat questionable propriety.

² That which is contained in tubes has great advantages of portability and cleanliness.

If the use of the catheter be decided upon, the dangers above outlined should be borne in mind. The patient should be put to bed, the urine should be made as unirritating as possible by the regulation of diet and by medication if necessary. The general condition of the patient should be taken into account and treated; as, for instance, if the circulation is disturbed, heart tonics may be required. The catheter should at first be used but once a day with the patient in a horizontal position, and but a portion of the urine should be drawn at a time. A good rule to commence with is to hold the catheter so that the stream is projected from its orifice, and to stop its flow when the urine begins to drop perpendicularly from its end. In this way the over-distension is removed and the stretching of the bladder wall is relieved each time without entirely removing the internal pressure.

After this has been done once a day for a time it may be repeated and gradually carried from twice to three times in the twenty-four hours, and as it becomes evident that the bladder tolerates the interference, a larger and larger quantity may be removed until finally the bladder is emptied each time.

I remember one extreme case in which the bladder formed a rounded tumor above the umbilicus, and in which on several occasions when a little too much urine had been drawn the patient had serious uremic symptoms. After this patient had been under treatment for nearly a month the urethra had become habituated to the use of the catheter, but little had been accomplished in really reducing the size of the bladder. He then returned to his home in Canada with directions to continue drawing a measured quantity of water two or three times each day in the manner that had been practised here. I saw him a year and a half later in much better condition, drawing his water completely three or four times a day, but he told me that it was a long time before the catheter finally emptied the bladder.

This case shows what may be accomplished in this way in a patient who is constantly on the verge of uremia. Mr. Reginald Harrison has suggested that in these patients with distended bladders it may sometimes be well to use the aspirating needle to partially empty the bladder rather than add the irritation of a catheter to that caused by drawing off the urine.

An aspirating needle may be used for a number of days in these cases without any local ill effects, as has been repeatedly shown in cases of impermeable urethra, and Mr. Harrison's suggestion to begin the relief of the bladder by a route which can easily be kept aseptic may be decidedly practical in some of these cases, especially those in which, while the urine is still clear and limpid, the bladder is greatly distended and prostate very large.

Dr. Keyes, in his paper on "Nephritis in its Surgical Aspects," read at the third Congress of American Physicians and Surgeons, suggests a somewhat different method of treating these cases. He uses a rubber catheter which is kept in a bichloride solution, 1 to 4,000, and which is rinsed in hot water immediately before and immediately after each use. For a lubricant he uses glycerine. As he introduces the catheter he lets a stream of 1 to 4,000 bichloride solution flow through the instrument, and thus irrigates the whole urethra. He draws the urine entirely, but slowly, with the patient in a recumbent position. He then at once washes the bladder with a solution of nitrate of

silver, 1 to 1,500 or 2,000. He then washes the bladder with a 6-per-cent. salt solution, and finishes up with a 1½-per-cent. salt solution, of which he leaves what he judges to be a proper quantity in the bladder.

These manœuvres are repeated each time that the catheter is passed, except that the irrigation with nitrate of silver may be used only every second or third day if that seems best. Finally, when the tissues become hardened, a non-disinfected catheter may be safely used if simply kept clean.

I cannot speak of this method from personal experience of it, as since Dr. Keyes read his paper I have not happened to have one of these cases of distended bladder under my care, except such as were already affected with cystitis. I confess, however, that in a case of extreme distension of bladder and pelves of kidneys, I should approach with misgivings any plan which should contemplate any considerable change of the tension under which the kidneys were doing their work.

Under Dr. Keyes's plan, with good judgment in the matter of the amount of salt solution which should be left in the bladder, this danger may be avoided, and, with his high authority, the method is certainly worthy of serious consideration and careful trial.

We lastly come to speak of the complications or secondary conditions which arise in the course of prostatic cases, and which require modifications of treatment. Acute attacks of inflammation in or about the prostate require such treatment as is appropriate to the care of acute prostatitis under other circumstances. The need, however, of catheterization under these conditions introduces a disturbing element, and one which may make recovery without operation difficult if not impossible.

The commonest complication in prostatic patients is cystitis, affecting usually the prostatic urethra as well as the bladder, and readily extending, as we have seen, to the kidneys. Besides the treatment of these cases by rest and appropriate medication, we must remember that the disease is largely due to and perpetuated by the retention of fermenting urine and mucus behind the obstructing prostate, and must recognize that it is in these cases that irrigation is therefore especially needful.

For this purpose dilute solutions of boracic acid, permanganate of potash or nitrate of silver may be used. If the bladder is sensitive, great care is necessary not to abruptly distend it, as roughness in this way will often start a troublesome tenesmus.

From one to three ounces is usually sufficient to introduce at one time. When, as is often the case, the bladder contains much tenacious mucus it is sometimes of advantage to throw the fluid in with considerable force in order to detach the mucus from the bladder wall, but even in this case, a small quantity of the fluid should be used at each time.

When the bladder is much sacculated it may occasionally be wise to use more fluid, and to somewhat distend the viscus in order that the side pockets may be washed out. Sometimes, in spite of all care, the cystitis persists in an aggravated form, and the sensitiveness of the prostatic urethra is extreme.

In a patient who cannot void his own urine the frequent use of the catheter furnishes an added irritation, and the bladder is presently in a condition of almost constant spasm. Something must be done to

give the bladder a rest, and this can be accomplished by establishing constant drainage.

Of the operative measures applicable to this condition you will hear later, but it is often possible to afford these patients great, if not complete, relief by fastening in a catheter. It is surprising often to see the immediate benefit obtained by this measure, and not only are the painful symptoms relieved, but the serious evidences of kidney disability when present, will also in many cases disappear. With a catheter in the bladder affording an easy escape for the urine, we can give these patients large quantities of water and flush out their urinary passages in a way that is impossible with a bladder in a spasmodic condition, which must rid itself of its contents either by painful efforts of urination or by the frequent irritating introduction of an instrument. And many a patient threatened with suppression may owe his recovery to the possibility of supplying him with this natural diuresis. I have seen the twenty-four hours' amount of urine jump almost at once from sixteen to sixty ounces when relief was thus offered.

Such is a brief outline of the care which, when faithfully carried out, will enable the majority of these patients to lead a reasonably comfortable existence often for a long series of years.

CASTRATION FOR HYPERTROPHIED PROSTATE.

We come now, gentlemen, to speak of the subject of castration for the reduction of an enlarged prostate. This subject has a great interest for all practitioners dealing with this class of cases and, especially, for surgeons interested in this branch of surgery.

In 1893, before the American Surgical Association, Dr. J. William White, of Philadelphia, suggested the removal of the testes as a means of bringing about the shrinkage of an enlarged prostate, and, in support of this suggestion, adduced many facts showing the intimate relations between the functions of the testes and the size of the prostate. The non-development of the prostate in eunuchs and in animals that have been castrated early in life has long been known; also the fact that in animals which have a distinct rutting period, the prostate is often an insignificant organ except at this time when it reaches enormous development.

Dr. White argued that if the absence of the testes produced so much effect in preventing the development of the prostate, that, possibly, their removal might bring about the shrinkage of a gland already fully formed or even hypertrophied. In support of this suggestion he reported experiments upon dogs in which he was able to show that after the removal of the testes in fully developed dogs, the prostate did indeed undergo shrinkage.

The microscope showed that this diminution in the size of the prostate of the dog operated upon was brought about by the disappearance of glandular elements and also of muscular fibres.

Dr. White also, in connection with his argument, called attention to the morphological similarities between the prostate and the uterus, and to the fact that they both had so intimate an association with sexual life that there was ground for the hope that the prostate after castration might act as a uterus with commencing fibroids often does after oöphorectomy.

Since the appearance of this suggestion and these arguments of Dr. White, the subject has been advanced by operating surgeons beyond the experimental stage

and many cases have been castrated, in accordance with Dr. White's suggestion, for the cure of hypertrophied prostate.

In a paper read recently before the American Surgical Association, and, later, before the American Association of Genito-Urinary Surgeons, Dr. White has recited the results obtained by him from the study of the statistics obtainable up to this time. I am able to give his figures with a close approximation to accuracy. He has collected 111 cases with 20 deaths, which would give a mortality of 18 per cent. Analysis of the cases, however, showed that 13 of the 20 deaths could not be considered as really due to the operation; that is, the patients died in spite of the operation but not in consequence of it.

Eliminating these cases from the statistics we have 97 cases with 7 deaths, or a mortality of a little over 7 per cent. I would say that I heard Dr. White read his paper and entirely concurred with him in considering the cases thrown out as ones in which the patients were so desperately sick that their final demise could hardly be laid at the door of the operation. In a private letter Dr. White says, "Some of these seven cases were almost equally desperate, and I have no doubt that the mortality is less." He further writes me, that of the cases that survived, apparent failures, that is, those in which no improvement was noticed or distinctly stated in the report, amounted to something less than ten per cent. This would give us a percentage of about 83 as the measure of success attending these first 100 operations.

I think that to most surgeons these figures were rather a surprise. The operation was at first looked upon as a trivial one, which might be regarded as having little or no mortality, instead of which we find it has a very decided risk, almost as great as that of a litholapaxy performed at the same time of life.

It is difficult to compare these statistics with the commonly accepted figures which give us the mortality of the various forms of prostatectomy. Many of the fatal cases following a prostatectomy occur in patients with the same serious conditions as were those which Dr. White, I think properly, eliminated from his table, and the statistics of prostatectomy would have to be similarly revised in order to afford a fair comparison.

It seems difficult at first sight to believe that there can be any comparison between the mortality of so slight an operation as castration, and so serious a mutilation of delicate parts as is involved in a completed prostatectomy. It is to be remembered, however, that the condition after a prostatectomy is one which affords a very important drainage of the bladder, and, therefore, leaves the kidneys in much better condition to withstand the stress of convalescence than is the case after castration, where the relief of obstruction may be considerably deferred.

It is possible, too, that we may find that we have another element of danger to reckon with in these operations. I refer to the shock and deterioration which the nervous system may suffer from the loss of the testes. The decidedly bracing and stimulating effect which the testes exert on the whole system is generally recognized, and the inferiority in vigor of an emasculated animal is notorious. It may well be questioned whether this influence ceases when the full growth of the individual is attained. If it does not so cease; if, as Brown-Séquard believed, the testes furnish the system with tonic and stimulating substances,

then in this fact we have a partial explanation of the unexpected rate of mortality reported up to this time.

If we give any weight to these considerations we must feel, as I certainly do, that the patients who have experienced relief from the operation must be watched for a longer time before the exact measure of success in their cases can be estimated; and until time has elapsed for the accumulation of facts in regard to the subsequent vigor and nervous balance of these men, we must be cautious in assuring these old patients that there are no reasons except sentimental ones against castration at their time of life.

* Of possible significance in this connection is the fact that in the cases collected by Dr. White, mania followed the operation in at least two instances. I have had one experience worth noting here.

In December, 1894, I saw James W., a strong man of seventy-five, who had been troubled for five years with considerable difficulty in connection with urination. At the time that I saw him the catheter was being used regularly as he was unable to pass any water without it. He was then suffering from an acute attack of inflammation. This subsided somewhat after rest in bed, but during his treatment the catheter touched a stone and an operation was decided upon.

On January 2, 1895, the stone was easily crushed and pumped out. The patient being in a good condition at the end of this operation the testes were removed. Previous to the operation the patient was for the most part clear mentally, but occasionally had slight confusion of ideas. He tore off the dressing after recovery from ether, and was in a distinctly bad mental condition the following day. From this time he continued in a mildly maniacal condition, which persisted through the month of January, and presented the typical form of confusional insanity, with occasional exacerbations when he was quite maniacal and noisy. For some days after the operation he had considerable pain and increased resistance over the right kidney.

During this time the wound in the scrotum healed kindly, and the prostate diminished considerably in size, making the passage of the catheter much easier than it had previously been. On February 14th, he passed some water voluntarily. On February 19th, he was as much confused as ever, his mind occupied with delusions and often much depressed, referring constantly in his talk to the loss of his testes and to his business troubles. It was now decided to try the effect of the injection of testiculin.

On February 28th, when he had been for eight days receiving from 30 to 45 minims daily, the record was made: "The injections are very painful and are hurting him much. His mental condition has changed decidedly since they were started. His friends, who do not know the character of the treatment, are much pleased with the change which they began to notice two days after the first injection. He is less restless, sleeps better and worries less."

On March 6th, we have the record: "For the past four days the testiculin has been omitted, and there is a decided change for the worse, his condition having become much as it was two weeks ago. March 16th, testiculin is being used every day. Mental condition constantly improving."

After this, the injections having been very painful, they were omitted, and the mental condition continued steadily to improve. He was able to use a silver catheter himself, and finally left the hospital March 30th.

I heard later from his physician, Dr. C. D. Sawin, of Charlestown, that Mr. W. did quite well and went about with some degree of enjoyment and comfort. Some time toward the end of May, after a long ride in a carriage, he was again taken down with acute symptoms with considerable pain referred both to the bladder and the region of the right kidney. This was accompanied by high fever and delirium; and he gradually failed and died.

Dr. Sawin was able to get a partial examination, and found the prostate about the size of a hen's egg. The third lobe was enlarged to the size of a pullet's egg, and projected upwards and backward into the bladder. On its apex was a calcareous deposit firmly adherent. Posterior to this, extending forward in the body of the prostate was a cavity with smooth walls which contained about a teaspoonful of gravel. The bladder wall was thickened and injected, and showed on its surfaces a few hemorrhagic spots. The kidneys were in a state of acute pyelonephritis, and the right was about one-third larger than normal.

These cases may all of them have been examples of simple post-operative mania, which is not very rare in old persons, but I would say that in my experience of perhaps between two and three hundred operations upon the bladders of old men, I do not remember a single other instance of similar maniacal condition. So that I am inclined to reserve my judgment in regard to the remote nervous effects of these operations.

The time put at my disposal was so short that I have felt obliged to confine myself to the portions of the subject in which I feel an especial interest, and I know that Dr. White in his excellent papers upon the subject has presented more cogently than I can his strong reasons in support of the operation. So well and so convincingly has he put the case that practitioners throughout the country have adopted the operation, which is so simple that it may be readily performed by those of but slight surgical training to whom a prostatectomy would be an impossibility. It is on this account that my remarks have assumed somewhat the character of a note of warning, and I do not wish them to appear in any way to detract from the merit of Dr. White's brilliant suggestion and important experimental work.

I certainly believe that the operation has a legitimate, perhaps a large field of applicability, and in order to determine what this is, it is important that the cases should be observed and recorded with great care both before and after operation.

What we wish to know is whether castration relieves obstruction due to enlargement of the lateral lobes, or whether the third lobe is equally affected. Dr. White thinks that as he has found the third lobe rich in glandular structure, this might be expected especially to shrink. In my case reported above, the castration reduced the size of the prostate very markedly, but did not enable the patient to dispense with the catheter. At the autopsy the third lobe was found to be of large size, projecting back into the bladder.

A second question is as to the effect of castration on the fibroid tumors which are found in some prostates.

Thirdly, what rôle does a diminished congestion play in the reduction in size? The occasionally very rapid effect produced would suggest the possible importance of this.

Fourthly, may it not sometimes be well to combine drainage with castration, thus affording immediate relief to the cystitis and pyelitis while the prostate has time to shrink at its leisure?

Fifthly, is the removal of the testes followed by any profound nervous shock, or is any deterioration or loss of balance of the nervous system likely to follow it?

In the above hasty remarks I have taken it for granted that, for the present at least, the operation would be confined to cases so seriously affected that some operation is imperatively demanded. It is conceivable that, if subsequent experience proves castration to be free from remote disadvantages, patients may sometimes elect to have it done early in the disease, before the bladder and kidneys have suffered secondary changes, and when it might be more efficacious in arresting subsequent morbid growth than afterwards in removing it.

Such possibilities are so alluring that we should approach them with cautious and careful scrutiny.

THE OPERATIVE TREATMENT OF PROSTATIC HYPERTROPHY.¹

BY FRANCIS S. WATSON, M.D., BOSTON.

IN the paper which we have just heard from Dr. Cabot, that part of the subject which deals with the palliative measures has been discussed; they suffice in the majority of cases to avert or postpone the dangers of the disease, and to make the patient wholly or tolerably comfortable. It remains to be considered in what way we are to deal with that unfortunate minority of sufferers who, in spite of them, go on from bad to worse. For them there are, fortunately, other means which may relieve. These are the operative ones.

They may be divided into two classes: (1) Palliative, (2) Radical. The former consist of the various ways of draining the bladder, and are equally applicable to temporary, or to long continued, or permanent drainage. The two ways of securing bladder drainage are through the perineum by a perineal urethrotomy, and from above the symphysis pubis by a suprapubic cystotomy.

The technique of these operations is so familiar that I will only refer to some of its more important points when speaking of drainage.

When drainage is conducted through the perineum, it is desirable to provide for it in a manner which will thoroughly drain the bladder, and, if the treatment is to be continued for a long time, will allow the patient to move about comfortably. The arrangement which I think best fulfils these indications is that which I devised some three years ago. It consists of a hard-rubber button with a hole in the centre through which a catheter is passed, and four smaller holes, two on the upper and two on the lower margin, to which are attached four stout round rubber cords, which, when fixed to a waistband properly adjusted, hold the button firmly against the perineum.

The central hole in the button is to be one size smaller than the catheter it carries; if the catheter is stretched its calibre is of course diminished, and the button can then slide along it, but becomes fixed at whatever point may be desired by letting the catheter take its natural shape.

Dr. Tilden Browne of New York has contrived a similar arrangement, of which he speaks as follows: "The holder is of light construction except the two steel springs; these have sharp teeth which hold but do not puncture the rubber tube. The springs release the tube by turning the screw collar. The cylinder has a calibre of thirty-five, French, and the spring teeth have play sufficient to hold any tube of from thirty-five to twenty-two, French. Tapes or narrow bandages slipped under the horns of the plate, then brought up radiating and secured to a waistband in front and behind hold the apparatus in place. A con-

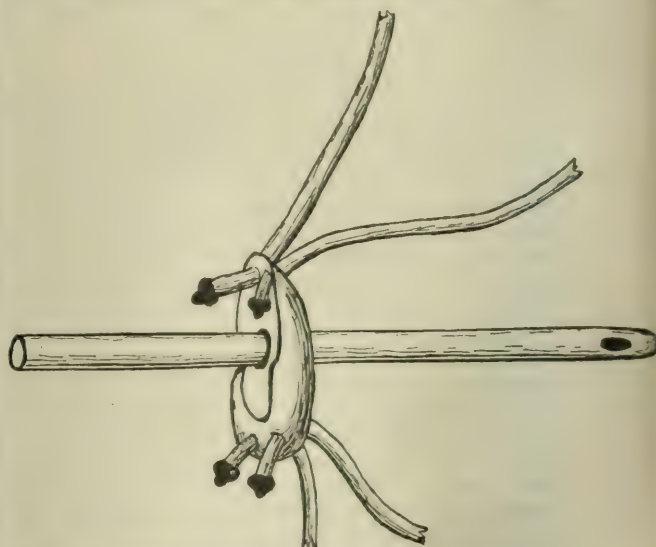


FIG. 1. The author's perineal drainage-tube, and hard-rubber button.

tinuous tape for each side is preferable, as it permits the plate to remain stationary while they play through or under the horns, as the changed position of the body in sitting or reclining may necessitate. The plate is narrow enough not to meet the opposing surfaces of the thighs. Nor does it interfere with defecation. I have the patient wear a fresh pad of iodoform gauze between the perineal opening and the plate after each movement of the bowels." (Fig. 2.)

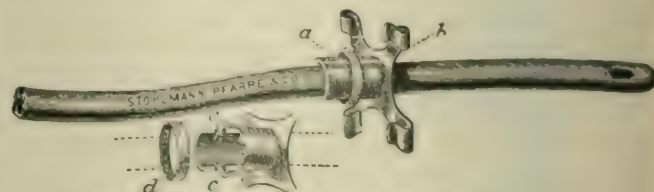


FIG. 2. F. Tilden Browne's perineal tube-holder.

Two catheters should be provided, one for the day and one for the night, the one not in use being kept in a weak solution of carbolic acid.

With regard to suprapubic cystotomy, I think the practice of puncturing above the symphysis with a large trocar and leaving in the canula is a dangerous one, and should be condemned. It is much safer to do a true cystotomy. The incision into the bladder, when made for drainage alone, should be a short one.

Several modifications of the suprapubic operation for drainage have been introduced, the most notable being that of Hunter McGuire, who several years ago devised a method for making an artificial suprapubic

¹ Read before the Massachusetts Medical Society, June 11, 1895, and recommended for publication by the Society.

urethra, which he does as follows: The opening into the bladder is made at the lowest available point, and only the upper end of the abdominal wound is left open, the rest of it being sutured. This leaves a fistulous tract about three inches long, the walls of which are held together by pressure of the abdominal viscera and the action of the recti muscles. It is claimed that in this way the patients are given voluntary control of the bladder. Morris of New York has modified the operation by turning skin flaps down into the channel.

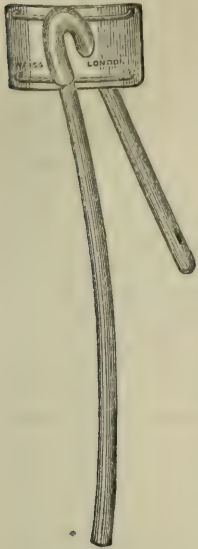


FIG. 3.
Buckstone Browne's
suprapubic drainage-
tube.

A variety of contrivances for carrying out suprapubic drainage have been introduced; one of them will suffice as an illustration of those which are suitable for permanent drainage; it is that of Mr. Buckstone Browne (Fig. 3). While the patient is still confined to bed, the double tubes of Perier, led through the dressing, I have found to be the most useful of those that have been proposed. They are shown in Fig. 4. If properly applied, the patient is kept perfectly dry. Dr. Fowler, of Brooklyn, and Dr. Farrar Cobb, of Boston, have suggested capillary drainage, the latter by means of an iodoform wick led through a glass tube. This method, also, is applicable only while the patient remains in bed.

The relative merits of the high and low operations as performed

for drainage alone are as follows: The perineal is safer, is more rapidly done—an important point in these cases in which the danger is greatly increased by the effect of prolonged etherization on the lungs and kidneys. In performing it the urethra can be laid open with one cut of the knife under primary anesthesia, and as soon as this is done the ether can be removed. The disadvantages of the low operation are that some patients cannot support the presence of a catheter in the deep urethra, and that it sometimes causes epididymitis. The high operation avoids these



FIG. 4.

drawbacks, and offers the special advantage of allowing exploration of the bladder; the tube also is generally worn more comfortably above the symphysis than through the perineum; on the other hand, the high operation is rather more serious, takes more time, and if there is a small, contracted bladder, or if the patient has a large belly, the high cut may be very difficult to execute. Occasionally the perineal operation is embarrassed by ankylosis of the hip. From which it will be seen that the choice will be deter-

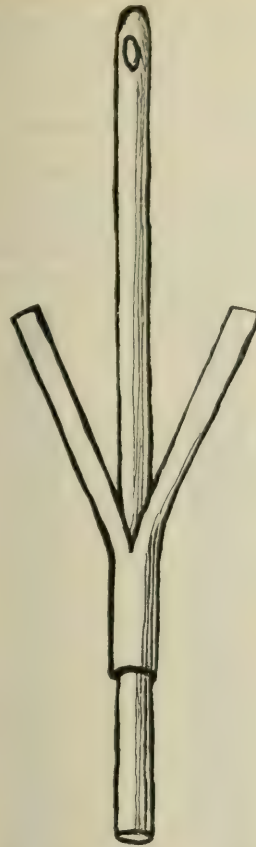


FIG. 5.
The author's method for tying
in a soft-rubber catheter
into the bladder.



FIG. 6.

mined by the condition of the patient, the degree of irritability of the deep urethra, etc. If, for example, the patient has chronic bronchitis, threatening uremia, and is exhausted, one would naturally drain his bladder in the easiest and quickest manner possible, and that would be through the perineum; or if it is thought best to avoid even the slight shock of that operation, a catheter can at least be tied in through the urethra. A very simple and satisfactory way of doing this occurred to me while operating one day on a case of stricture; it is that shown in Fig. 5, and consists in slipping over the outer end of the soft-rubber catheter that is to be passed into the bladder a piece of drainage-tube about five inches long, which has been cut in halves longitudinally, except for an inch and a half, through which the catheter passes, and by which it is firmly held so that it cannot slip in or out; all that remains to be done is to lay one of these halves along either side of the penis, and to retain them there by two circular strips of sticking plaster surrounding the organ. The catheter should be a little larger than the inner calibre of the drainage-tube, so that the latter will bind it sufficiently to prevent its slipping in or out.

The benefit of permanent drainage is twofold; it relieves cystitis, and what is more important it often averts or lessens the dangers of pyelonephritis, which is so frequent an accompaniment of this disease. I do not think that sufficient attention has been given to this method of treating the pyelonephritis in this

class of cases. Reginald Harrison advocated it several years since, and I have found it give strikingly beneficial results in a number of cases. The surest sign of improvement of the renal condition is an increase in the specific gravity of the urine; with it there is usually a marked gain in the general condition of the patient.

Whatever may be the manner of securing bladder drainage, its essential feature is, I believe, that it be maintained, or at the least that the channel for drainage shall be kept open, so that it may be resumed at any time, without a subsequent operation to re-establish it.

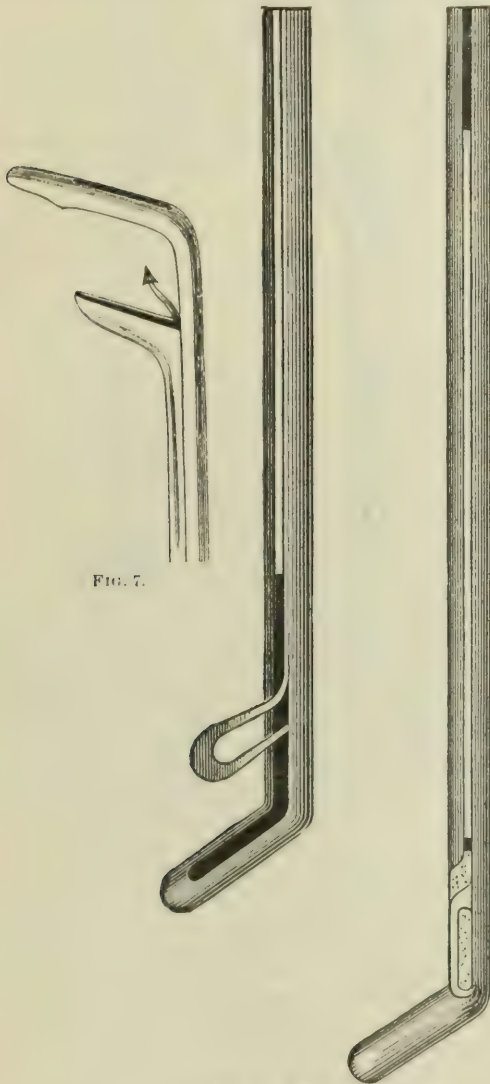


FIG. 7.

FIG. 8. Bottini's instrument.

lish it. This, because the conditions for which drainage was originally undertaken, even if temporarily relieved, are, practically speaking, sure to return in this class of cases, if drainage is wholly suspended and the channel allowed to close.

RADICAL OPERATIONS.

The defect of the operations for drainage alone is that they do not remove the cause of the trouble. It is not surprising, therefore, that surgeons should have tried to do this; and dating from the time of John

Hunter we find records of various methods by which removal of the obstructing portions of the gland was attempted. But the first systematic effort was made by Mercier, in 1857, who divided small median enlargements by means of specially constructed instruments, which he passed through the urethra (Figs. 6 and 7), and reported successful results. Mercier had no followers, however, until Gouley in New York and Bottini in Italy revived his operations about twenty years later; the latter performing them with a galvano-cautery instrument of the same form as that of Mercier's (Fig. 8); the former making the first step in advance by doing them through an external perineal urethrotomy.

In 1884 Harrison reported successful results from tunnelling the prostate with a trocar, and instituting drainage by leaving the canula in the channel so made; then in 1886 we have the introduction of the suprapubic method by Belfield of Chicago, and its establishment a little later through the successful cases and advocacy of McGill and Atkinson of Leeds in England, under the name of suprapubic prostatectomy. This was in 1886 and 1887. I did my first suprapubic prostatectomy in December, 1886, and my first perineal prostatotomy in the spring of 1887, but these cases were not published until 1888, when they were reported at the annual meeting of this Society, in June.

At that time the subject was in a very chaotic state; there was no agreement among the few surgeons who had done the radical operations as to the best methods to employ, and all such operations had recently been condemned by the authoritative statements of Sir Henry Thompson, Guyon and Socin.

The monograph which I published in 1888 had for its objects, to disprove the conclusions of Sir Henry Thompson and the others, to formulate the subject, and to place it upon a rational basis. In short, to show that these radical operations were feasible, in what class of cases they were appropriate, to demonstrate what the conditions were that should determine the choice of method, how they were to be best performed, and finally what prospect of success they offered. The conclusions were based upon anatomical investigations that had extended over a number of years, and upon such clinical data as were then available; the latter consisting of 21 cases of prostatotomy and 26 of prostatectomy. The conclusion reached was that a majority of cases could be successfully operated upon through the perineal route. It must be remembered that the subject was in its infancy then, and that in spite of the improvements in the high operation recently introduced, it was still a much more serious one than at present; my opinions have been since greatly modified in favor of the high operation, and still more recent methods to be mentioned presently.

From this time there was a rapid advance, and the number of cases reported multiplied fast. Opposition arose, however, especially from the French school, and was expressed in an interesting essay by one of Guyon's former pupils, Vignard, who in 1890 tried to prove that the loss of expulsive power of the bladder must be in the great majority of cases a factor fatal to the success of radical operations, even though, as had been demonstrated, the obstructing portions of the gland could be removed with moderate safety. He was met by Belfield and others with a mass of clinical

observations which had within a short time afterward accumulated to the number of 150 cases of radical operations, in which it appeared that two-thirds of the patients who survived had regained most of or the entire power of natural evacuation of their bladders after the operations, and were in good general condition. Since 1892 the operations have been modified and their scope extended, and to-day the operative treatment of prostatic hypertrophy is a well recognized and established procedure.

Such is, in outline, a sketch of the evolution of this part of the treatment of the disease, up to the most recent steps in advance. The latter I will describe, so far as the very short time at my disposal permits, when speaking of the technique of the radical operations, which I will now take up in sequence, as follows:

(1) Perineal prostatotomy. (2) Perineal prostatectomy. (3) Dittel's operation. (4) Tunnelling the prostate. (5) Zuckerlandl's operation for total extirpation of the prostate.

(1) Perineal prostatotomy consists, as you know, in a division of a median enlargement through an external perineal urethrotomy; it is efficient in but a limited number of cases, those in which there is a bar at the neck of the bladder, and being but little less dangerous than (2) a perineal prostatectomy, which is more thorough, it has given place to that operation for the most part; the latter is applicable to such cases as have but little or no lateral enlargement, and in which the median enlargement is a bar simply or a small lobe. The condition of the prostate can ordinarily be determined beforehand by rectal examination, and exploration of the bladder with a short beaked sound, more or less accurately, and the method of operation selected accordingly. If there is a small pedunculated middle lobe it can sometimes be surrounded by a wire snare passed beside the left index finger and held in position by it while the wire is drawn tight by an assistant; if there is a bar at the neck of the bladder, the excision of a V- or U-shaped piece from its central part will usually open a clear road into the bladder; these incisions can be made with a probe pointed bistoury, or with a galvano-cautery, or with instruments of special forms called prostatectatomes, of which there are a variety; the after-treatment consists in drainage and cleansing of the bladder.

Next comes Dittel's operation (proposed by him and executed by Küster). It consists in the excision of a wedge-shaped piece from each lateral lobe, at their anterior ends, after exposing the prostate and separating it from the rectum through an incision beginning at the tip of the coccyx, embracing the sphincter ani in the form of an ellipse and terminating in the middle of the perineum, the object of the excision of these portions of the gland being to cause widening of the prostatic urethra by the subsequent cicatrization of these wounds in a lateral direction, with the idea that the part of the lateral enlargement bordering the urethra would thus be drawn outward to either side. Küster's cases were not sufficiently successful to encourage further trial of this method, nor does it seem to me to be founded on a sound principle, and finally, there are other means at our disposal which promise better results.

Tunnelling the median lobe through a median perineal urethrotomy, as practised by Reginald Harrison, has already been spoken of when discussing

drainage. I do not think that this surgeon now employs it, and there is no difficulty in draining the bladder satisfactorily through the posterior urethra. The distance to be traversed by a trocar in tunnelling is often long, and the opening up of the tissues is by no means free from danger; the operation therefore does not seem to me to be a good one.

The last of the perineal operations is that proposed by Zuckerlandl for total extirpation of the prostate; he suggests that this be done by separating it from the rectum, and then dissecting it from the bladder through a long transverse crescentic incision extending across the perineum from the tuberosity of the ischium on one side to that on the other; this operation has not, so far as I know, been actually performed.

SUPRAPUBIC PROSTATECTOMY.

In the first place let us glance at the history of suprapubic cystotomy apart from its application to the prostatic removals. It is a time-honored one, and has passed through many vicissitudes. The suprapubic operation, properly speaking, had its origin in the hands of Pierre Franco, who performed it at Lausanne in 1560, for the removal of stone; we find already with him the suggestion of one of the modern steps of the operation, that of lifting the bladder upward, and making it more accessible by raising it by pressure from the rectum; this Franco did by two fingers of the left hand pushed well within the rectum. The case of Jean Doot of Amsterdam, a bootmaker, who, assisted by an apprentice, cut a stone out of his own bladder with a cobbler's knife from above the symphysis, and lived to tell the tale for many years afterwards, is one of the most interesting of the early ones. Another of the modern steps was forestalled by more than three centuries by Rousset (1581), who tried to raise the bladder by filling it with water, and about one hundred years later (1685) Piétre accomplished the same end by introducing into the bladder a long beaked sound armed with an arrow-like point, which could be projected from its tip. After the preliminary incisions, the tip of the instrument pushed up the anterior wall of the bladder above the symphysis and pierced it with the dart, which then acted as a guide to the incision into the organ.

The operation was frequently practised by laymen, as were the perineal cuts for stone, especially by priests. These men were known as "cutters for stone," and if we may believe the records, some of them had as wide an experience and almost as great a success as the surgeons of to-day. The operation was not much heard of between 1650 and 1750, at about which time it was revived by Douglas and Cheselden in England, after which it became relatively popular and extended to France and Germany, being practised in the former most successfully by the priest Frère Cosme, who in 1799 had performed the operation 100 times with but 19 deaths, not a bad record when we reckon with the absence of asepsis. In our own century, we find it in the hands of numerous surgeons: Dupuytren, Souberbielle, Sir Everard Home, Leroy d'Etiolles, Nelaton, Civiale, etc., etc. But between 1840 and 1880 the operation steadily lost ground on account of the introduction of lithotripsy by Civiale, and of the much smaller mortality attending this and the perineal operations for stone.

In 1880 it was once more resuscitated by Petersen, who proposed to avoid wounding of the peritoneal fold

covering the anterior surface of the bladder, which injury had been one of the chief dangers of the operation, by lifting the bladder well above the symphysis by means of the combination of filling the organ with water, and distending a rubber bag previously inserted into the rectum. This manœuvre, when practised in connection with the modern aseptic methods, lowered the mortality so much that the suprapubic operation once more took its place among the favorite surgical procedures, and its use was very soon further extended by its application to cases of bladder tumors and prostatic hypertrophy.

In Petersen's method about ten ounces of fluid were injected into both the bladder and the rectal bag. Presently reports of cases in which the bladder had been ruptured or the rectum injured were published, the procedure was thus shown not to be free from danger. This accident, however, has happened very rarely, and if in the adult not more than eight ounces are used for each injection it practically never will happen. Many surgeons have discarded Petersen's method, employing instead the Trendelenburg position, (Fig. 9), which was introduced by that surgeon

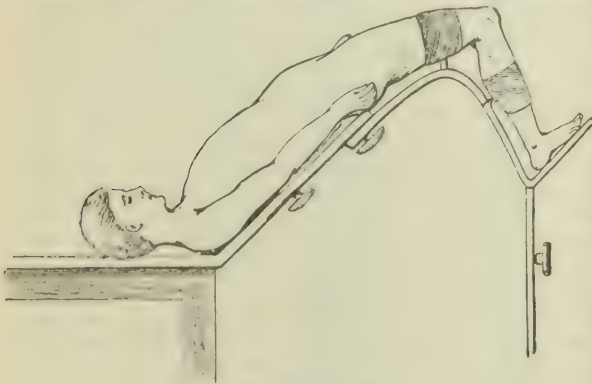


FIG. 9. Trendelenburg's position.

about this time, and which has become since so familiar to all. The elevation of the pelvis in this position lets the abdominal viscera fall toward the diaphragm, in doing which they draw the bladder after them out of the pelvis above the symphysis.

Trendelenburg's position is of much service, but the patient should be kept in it for as short a time as possible, especially if he is old and enfeebled. On this account I prefer to make the preliminary incisions before so placing the patient.

As to the incisions themselves we have the choice between the old vertical one and the transverse; the former extends upward from the middle of the upper margin of the symphysis for about three inches, and is carried down to the prevesical space through the linea alba and between the pyramidales muscles. These first cuts can be made rapidly until the prevesical space is exposed. This is easily recognized by the fat tissue which fills it. Immediately beneath the fat lies the bladder and within the fat layer the peritoneal reflection of its anterior surface. The bladder is now exposed in one of two ways. The fat tissue can be raised up by the tip of the finger inserted below the symphysis, or it can be divided cautiously with blunt-pointed scissors. I do not like the former method, because there is necessarily more or less disturbance of the prevesical tissues. When the fat is abundant a great quantity of it has to be drawn up before the

bladder surface is laid bare. A considerable cavity is formed in consequence, which gives lodgment to the urine, and may be the starting point of serious suppuration, even in our aseptic days, while the only objection to dividing the fat with scissors is the chance of wounding the peritoneal fold, which lies in it, but with ordinary care this is easily avoided. The bladder presents itself as soon as the fat is divided. It is readily recognized by its bluish red color and by the large veins upon its surface. I think it best to place the patient in the Trendelenburg posture when the prevesical fat is reached and before it is divided. In doing this as the pelvis is raised, if the tip of the finger is laid in the wound the bladder can often be felt as it emerges from the pelvis. With Trendelenburg's as with Petersen's method the peritoneal attachment is usually carried far enough above the symphysis to readily escape being wounded. If using the former it is well before opening the bladder to protect the peritoneal cavity from the urine by packing sterilized pads around the part of the bladder to be incised. If the patient is not in the Trendelenburg position a tenaculum should be passed through the bladder wall below the peritoneal attachment and held by an assistant in order to keep the bladder raised after it has been opened. The same result may be obtained by passing a suture through the bladder wall on either side of the proposed incision and through the margins of the abdominal wound; this can be done with a short curved needle. The tip of a long beaked catheter which has been previously passed into the bladder and pressed against its anterior wall above the symphysis, though not necessary, serves as a good guide in opening it. The transverse cut gives more room, and the bladder can be exposed more rapidly by it. Its defects are the risk of hernia and more or less impairment of function of the muscles. It is made in the form of a crescent, with its centre opposite and a little above the middle of the symphysis, the deeper cuts being in the same line, and dividing the whole or a part of the recti and pyramidales. On turning up this flap the prevesical space and its contents are freely opened to view. Personally I make a compromise between the two, dividing the skin by the transverse cut, and turning back a good-sized flap. The underlying fascia and muscles are thus fully exposed, and it is very easy to pick out the line of division between them, which I then lay open by the vertical cut, and if more room is needed later in the operation it can readily be gained by snipping with scissors the inner borders of the muscles on either side. It is very rare that more room will be required than is given by this means.

In opening the bladder the vertical or the transverse cut can be used. I see no advantage to be gained by the latter. The vertical cut into the bladder is to be made between the two sutures already described, with one stroke of the knife, avoiding the veins on the surface of the bladder, if convenient; no harm of consequence is done if they are wounded, for the congestion of the vessels is so much diminished when the organ is opened that hemorrhage ceases spontaneously as a rule. Up to this point the steps are alike for intravesical operations of whatever nature. In attacking the prostate there are special measures to be taken.

In the first place, much help may sometimes be gained by inspection as well as palpation of the gland within the bladder; to effect this several contrivances

are used. Hurry Fenwick has introduced an instrument, which he terms a caisson. Figs. 10, 11 and 12 show this device. By it is sought the opportunity to work at the bottom of a dry well, so to speak, on a diminutive scale, as is done on a large one in laying the foundations for the piers of bridges, etc. I have never used it and so cannot speak of it from experience.

Perhaps because of the partiality of the inventor for his own inventions, I like my own instrument best for this purpose; it requires a little practice before it

project within the bladder. This was at first done by splitting the mucous membrane and capsule over these parts, and shelling out the obstructing lateral portions, if, as often happens, they consist of distinct enucleable masses (fibro-adenomata); if not, by removing them with curette, or biting them off piecemeal with suitable instruments. Later, the same end was accomplished better by the combined operation, which will be described presently. If there is a salient middle lobe, it can be taken away with scissors, or galvano-cautery, or by the snare.

The combined operation offers greater facility in effecting the removal of the lateral parts of the prostate than either the perineal or suprapubic, alone; it consists in doing first the perineal, and then the supra-

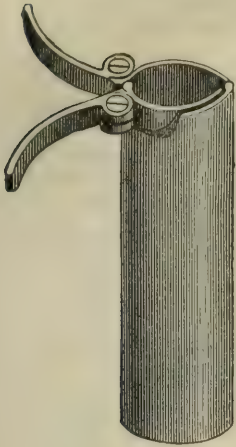


FIG. 10.

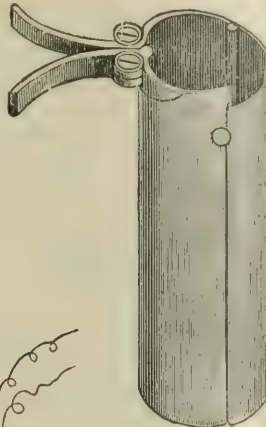


FIG. 11.

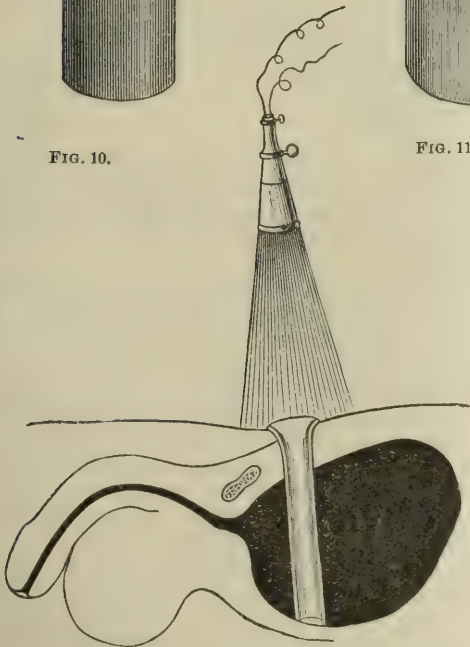


FIG. 12. Hurry Fenwick's "Caisson" for inspecting the interior of the bladder.

can be used with advantage, and I think it is rather more suited to cases of bladder tumors than to the prostatic ones, but it may be equally serviceable in many of the latter. It is represented in Fig. 13.

The removal of the obstructing portions is effected according to their form and size; formerly, only the parts projecting into the bladder were removed, but it was found that it was necessary to do more if a clear road for the exit of the urine was to be re-established; a prolongation of the middle lobe into the prostatic urethra is, for instance, pretty constant, and this when present should always be removed as well as the salient part of that enlargement within the bladder. Again it is often requisite to take away more of the lateral lobes than is represented by those parts which

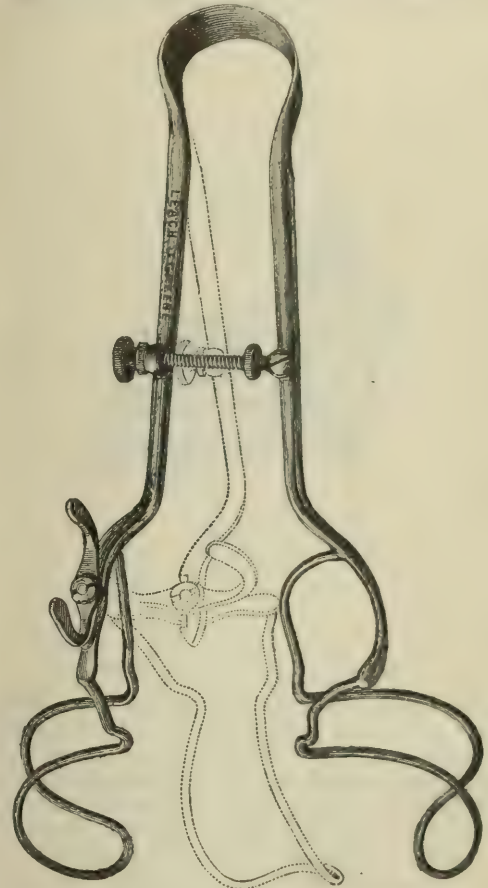


FIG. 13. The author's bladder speculum.

pubic, or vice versa, according to the conditions presented by the individual case. The mucous membrane and capsule of the gland are then incised over the portions projecting into the bladder, the finger of the left hand pushes the prostate up from below while the enucleation of one or both lateral lobes, in turn, is accomplished by the index finger or a blunt periosteum elevator; in doing this there is sometimes very free hemorrhage. The removal will have to be accomplished in some cases with a curette, in others it is not difficult to shell out the growth whole.

Nicoll has modified, and as it seems to me very advantageously, this operation, by not opening either the mucous membrane of the urethra, or of the bladder over the prostate. By his method a sound is passed into the deep urethra to act as a guide, an incision is

made into the perineum down to the apex of the prostate, but avoiding the urethra, the capsule of the prostate is then incised sufficiently to admit the tip of the index finger easily. In doing this, some part of the prostatic plexus of veins is apt to be cut and a more or less severe hemorrhage to result; this may be controlled by packing, while the operator proceeds to open the bladder by the suprapubic cut. Through the latter incision, the prostate is pressed firmly downward by the finger from above, and as much of the lateral enlargements as may be required to give a free exit from the bladder are removed through the lower wound in the manner already described. Hemorrhage is not usually severe; when it is, it is best controlled by means of the tampon of Keyes as modified by Cabot (Fig. 14). The tampon consists of a long bit

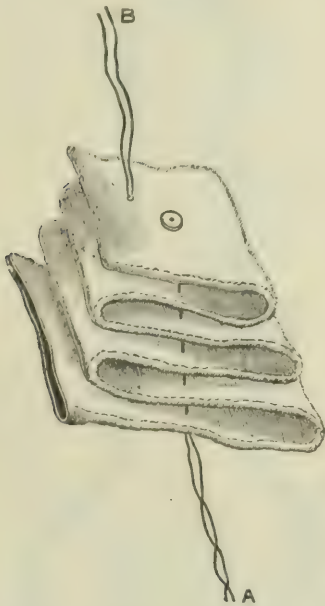


FIG. 14. Cabot's hemostatic tampon.

of sterilized gauze folded in squares upon itself, as shown in the accompanying figure. It is placed in the bladder and the thread which runs through all its layers (A) is carried out through the perineal wound, and upon being drawn tight and secured outside the perineal wound presses upon the bleeding area within the bladder. The second thread (B) is fastened to the upper layer only of the gauze and is led out through the suprapubic wound. When it is desired to withdraw the tampon the lower thread is cut, and the upper one being pulled the gauze is unwound layer by layer without difficulty. This may be done usually at the end of forty-eight hours.

In cases in which there is great enlargement of the gland it might on rare occasions be desirable to use Helferich's modification of the suprapubic operation; this consists in resecting the middle portion of the upper margin of the symphysis pubis, the intention of the operation being to give more room to carry out the subsequent steps.

There is finally one other method of entering the bladder, which I think is especially interesting. It is that proposed by Rydygier, and performed in three instances in my own knowledge, once by Dr. Frank Harrington and twice by Dr. Abner Post, of Boston.

I refer to making the bladder incision through its peritoneal investment instead of avoiding it. In the three cases referred to above the result was entirely satisfactory, and no harm whatever resulted. The advantages, of course, are that no time is lost in trying to avoid the peritoneum, that more room is afforded, and finally, that when it is desired, there is much better chance of securing first intention of the wound by suture. The bladder should be carefully irrigated beforehand, and a catheter *à demeure* is to be worn for about two weeks afterward.

Two questions remain to be answered. What determines the choice of operation, and what is the chance of success.

To answer them we must first know what has been done, and this is set forth approximately in the first table below, together with the mortality attending each method; and next, what is the percentage of cases in which there is restoration of the function of the bladder. This appears in the second table.

	Cases.	Mortality.
Suprapubic prostatectomy, and the combined operation	109	20%
Perineal prostatotomy	29	10%
Perineal prostatectomy	16	20%
Dittel's operation	3	00%

The percentage of restoration of the bladder function after different operations is as follows:

Suprapubic prostatectomy	nearly 80%
Perineal prostatotomy	" 50%
Perineal prostatectomy	" 50% plus.
Combined operation	50%
Dittel's operation	30%

From the above it will be seen that the suprapubic and the perineal prostatectomies have the highest mortality, but that the former has 30 per cent. more of recoveries of bladder function than any of the other methods.

This is what we should expect, since the suprapubic and the combined operations are more thorough and more serious than the perineal ones. This too must be remembered when reckoning the mortality.

Then again, as Mansell Moullin points out in his last work upon the subject (*Enlargement of the Prostate*), published in 1894, the mortality of the first half of this series of suprapubic operations was 25 per cent., whereas that of the last half was but 15 per cent.; and Mr. Mayo Robson, in 1894, published twelve consecutive cases with but one death.

It must be further remembered that this is the least favorable view of the operative results that will be shown at any time in their history, should the practice be extended in the future, because this series includes all the operations performed in what may be called the experimental stage of the undertaking, in which it must be remembered they have been applied to those cases only which have already passed into the worst forms of the disease.

Could we collect an equal number in which this operation had been performed earlier, in anticipation of the graver stages, we should no doubt find a greatly lessened mortality.

Then too, what of the dangers of not operating! We know very well that they are grave, but how great as compared with the operative risk, we know not at all. No one has ever, so far as I know, formulated any extensive observations as to the number of cases of prostatic hypertrophy which had already reached the graver stages of the malady (in which condition, be it remembered, almost all the patients

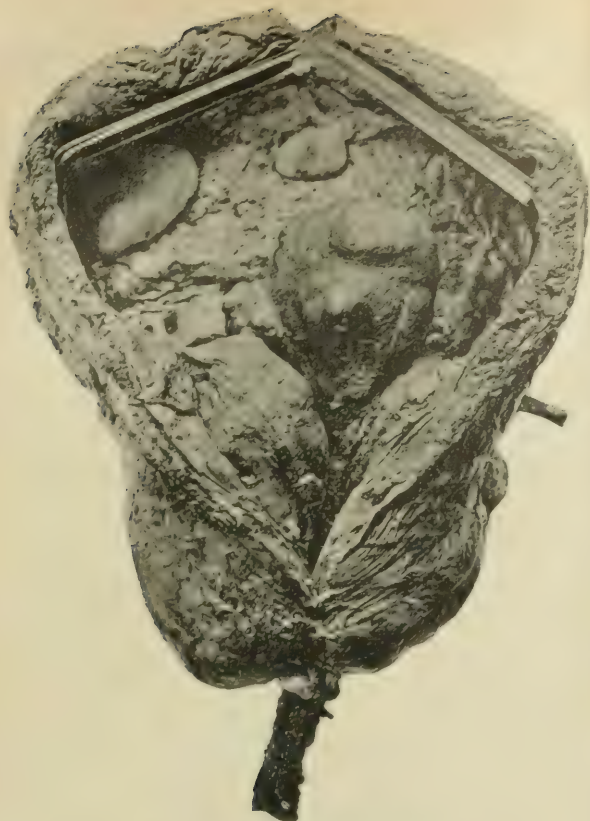


FIG. 15. From the author's operative treatment of the hypertrophied prostate, 1888.



FIG. 16. From the author's operative treatment of the hypertrophied prostate.

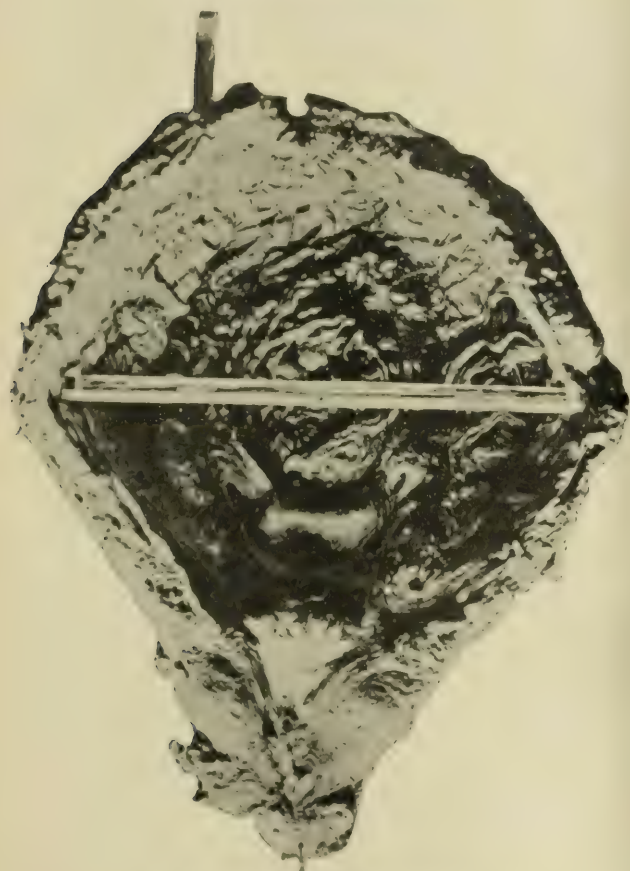


FIG. 17. From the author's operative treatment of the hypertrophied prostate.

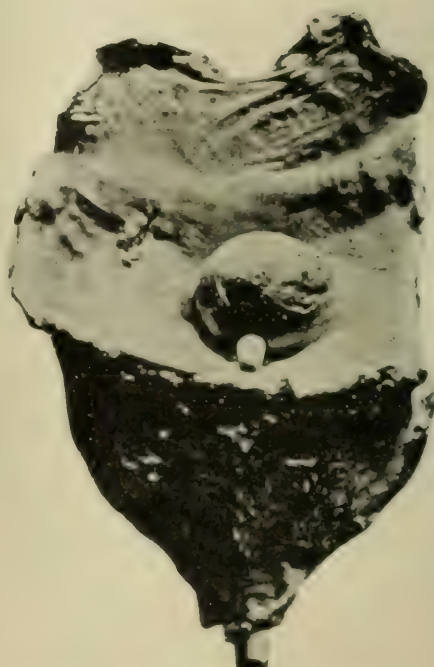


FIG. 18. From the author's operative treatment of the hypertrophied prostate.

have been, upon whom the radical operations have been performed), and shown the results in the absence of operative, and while continuing under palliative treatment. If such compilation were made, it is my own impression that the comparison would prove favorable to the operative measures, in that particular class of cases.

The choice of operation depends, I think, upon the following factors. First, the age and general condition of the patient. Thus, if we have to do with a very feeble or a very old man, whose term of life is in all probability but a short one at best, we should naturally prefer to operate for drainage of the bladder alone, as described in the first part of this paper.

If the patient, on the other hand, is in good general condition, has not yet shown evidence of serious renal trouble, and might, if radically relieved of the obstructing prostate, live for a good many years, then it is right to try the more radical measures; and of these, for the reasons already given, I prefer the combined operation as modified by Nicoll for all cases in which it is necessary to remove considerable portions of the lateral lobes, as in Fig. 15, and the simple suprapubic method, where the median portion alone is involved, and is large (Fig. 16). When there is a bar at the neck of the bladder, or a small median enlargement (Figs. 17 and 18), I think perineal prostatectomy is to be preferred. It will usually be successful, and is a safer operation than the high one. This is the view of the operative treatment of prostatic hypertrophy that I should have given one year ago.

In the last year three new methods have come upon the scene.

The first is that of ligature of the internal iliac arteries for the purpose of producing atrophy of the prostate by limiting the blood supply. Of this I have only to say that it seems to me a thoroughly irrational procedure.

The second, suggested by Dr. Mears, of Philadelphia, is ligature of the spermatic cords, with the hope of producing atrophy of the prostate, by a similar effect to that of castration, but by a lesser operation. Of this method there is not sufficient experience to base a judgment upon at present.

The third seems likely to revolutionize the treatment, and may perhaps replace and make obsolete all the operations which I have been describing to you. It is that of double castration, proposed by Prof. William White, of Philadelphia, in June, 1893. This part of the subject will be presented by Dr. Cabot, and I will therefore not enter upon it.

STATISTICS CONCERNING INSANITY.¹

BY EDWARD B. LANE, M.D.

THOSE of us who are working in hospitals for the insane are asked daily by some one, What is the cause of insanity? or perhaps more often of late, What is the cause of the terrible increase of insanity, as shown by the census?

Strictly speaking, we who see the insane in hospitals cannot answer this question, which is one of the problems of social statics, with the authority that is expected of us. Questioning the patient will not give us the truth as to the cause of his trouble. The friends

are very loth to admit certain causes that would injure their family pride, and they deceive themselves into believing that overwork was the cause or ill health, whereas the family physician, if we perchance meet him, lets a flood of light upon the subject. He tells us perhaps of dissipation or of questionable habits which no one likes to confess of himself or his brother.

But for all this, asylum physicians think more upon this subject than do others, and people have a right to ask of us, What is the cause of insanity? and, What cause or causes are operating to make our hospitals so crowded faster than liberal States and cities can build new and expensive hospitals?

Many, years ago it occurred to some former commissioner of lunacy, perhaps of the Roman Empire, to demonstrate the causes of insanity. Commissions of lunacy ever since have not ventured to depart from the time-honored custom, namely, to request the superintendents of hospitals to forward to such commission or publish in his annual report the causes of insanity. If a superintendent reports 847 admissions, he is to fill out the table of causes; and he is forced by unalterable custom to report 847 causes, no more, no less.

A few men try conscientiously to make this table as near the truth as possible. But the request is an absurd one. Even more absurd than when as physicians we are expected to give the one cause of death in the return to the board of health when the pathologist reports no less than twenty lesions discovered at the autopsy. I confess I have been embarrassed more than once to select from the pathologist's list of from twelve to fifteen lesions the one cause to be put on the death-certificate. Who of us will not be influenced, unconsciously perhaps, to consider appearances and professional pride in selecting the "principal cause," for official record? How much more are friends or family physicians influenced in filing the cause of insanity to go on the commitment papers to be filed in the Probate Court!

It is the exception, I believe, that there should be a single cause for an outbreak of insanity; and I would respectfully suggest that our statisticians at the State-houses revise their method of getting at the causes. This has been attempted in one point the past few years in Massachusetts. I think all asylum men who have given this subject consideration are thoroughly dissatisfied with the cause-table in our reports. I have long felt that the compiling of it was not only a waste of time but that the result was a scientific lie.

As in so many things in our human life there are exciting causes and predisposing causes; and what we want to see tabulated is, In how many of the 847 cases was there evidence of heredity? in how many cases evidence of excess? in how many marital or family trouble? Such tables should be the result of careful study and not compilations from the commitment papers, the authority of which is generally grossly unreliable in the matter of cause — and I know many tables of causes in our hospitals are merely such compilations.

But if, then, our tables of causes are so unreliable, fortunately most of our other tables are not so, and one who will study them can learn much. Knowing that much time has been given to the compilation of these facts, and that in Massachusetts especially they are far above the average in accuracy and fulness, I have

¹ Read before the Boston Society for Medical Improvement, April 29, 1895.

thought it might be worth while to spend a quarter of an hour in considering what our statistics can tell us.

Birth. — After getting the patient's name the first question asked is, Where was he born? This question is usually answered correctly and it is now common knowledge that the foreign born give a much larger percentage of insanity than the native born.

This has been for years a special subject of research in compiling the United States Census, and the fact is repeatedly pointed out by those writing on the subject. The figures, as given in the Census of 1880, are as follows: Of the native population 1,509 to a million are insane; of the foreign population 3,881 to a million, or more than double proportionately. This excess is striking, and may well cause us to ask if immigration ought to go on unrestricted.

But it has been pointed out that the foreign-born population is composed more largely of adults than the native population, and it is, of course, from the adults that the most insane come.

It will be evidently more fair to contrast those portions of the native and foreign born of the same ages.

If we consider the population who are above fifteen, Mr. Wines has pointed out that of this portion 1 in 354 of the natives are insane, of the foreign white 1 in 235, of colored 1 in 612. In other words, the foreign born really show an excess of 50 per cent. among the insane instead of over 100 per cent. It is probable that this proportion would be reduced even more were we to disregard on the other hand all those over seventy years of age.

Age. — In taking our history, having noted the place of birth, we ask the age. And upon this point the statistics are very ample and fairly accurate. The ages at which insanity begins have been tabulated for the entire United States for ten years in the Census of 1880. This shows that insanity is most likely to occur between thirty and forty; that is, a larger proportion become insane; absolutely more become insane between twenty and thirty. Dividing the entire population into eleven groups, with reference to their age, by decades and then dividing the insane population into a similar series, classifying them by the age at which they were attacked, we find the following interesting table.

Let us assume arbitrarily that all mental trouble beginning before the age of ten is idiocy and not insanity (for statistical purposes). It is found that 10,115 of the 91,959 insane living in 1880 became so between the ages of ten and twenty. Dividing the entire population who in 1880 were between ten and twenty years of age by the number of insane who became so in that decade we get a ratio of 1 to 1,060. The same ratio for

20 to 30	18	.	.	.	.	.	.	.	.	1 to 314
30 to 40	18	.	.	.	.	.	.	.	.	1 to 266
40 to 50	18	.	.	.	.	.	.	.	.	1 to 302
50 to 60	18	.	.	.	.	.	.	.	.	1 to 408
60 to 70	18	.	.	.	.	.	.	.	.	1 to 473
70 to 79	18	.	.	.	.	.	.	.	.	1 to 476
80 to 89	18	.	.	.	.	.	.	.	.	1 to 496
90 to 99	18	.	.	.	.	.	.	.	.	1 to 632
100 and over		.	.	.	.	.	.	.	.	1 1,338

It will be noticed that the ratios for 60 to 70 and 70 to 79 are practically the same.

The total average ratio excluding the population under ten years is 1 to 399.

That is, not until we reach the age of one hundred does the ratio become as small as between ten to twenty, and the ratio increases slowly from the age of thirty to ninety.

This ratio is probably not the accurate one; but, so far as I can learn, is the only available one, since the census is taken only once in ten years, and we must depend on institutions for our statistics regarding the insane. If we should add to the number of insane the idiots, we would find the ratio of the two classes to the entire population, instead of 1 to 399, larger; namely, 1 to 296.

It is interesting to note in passing, what the compilers of the census have pointed out, that the bulk of the defective classes meet with their misfortunes at an early age.

Insanity is largely a disease of middle life; 42.5 per cent. of all insanity begins between the ages of thirty and fifty, while only 20 per cent. of the population are between thirty and fifty. I should state here that absolutely more people became insane in the decade twenty to thirty than in any other.

Sex. — In the matter of sex our statistics are unquestionably more accurate than in any other point. Some years ago, in examining this item in the statistics of Massachusetts, I was struck with an apparent paradox — every lunatic hospital in the State reported receiving more male than female patients, every hospital reported having on hand at the end of the year more females than males. How could this be? If true, what is the explanation?

Investigating this question on a larger scale I have been surprised at the result.

Turning to the statistics for the United States, I find that in 1880 there were in the country, both in and outside of hospitals, 44,391 insane men and 47,568 insane women, or 1,071 women to every 1,000 men.

We also find, in the official census returns, that the insane are in the ratio of 1,833 to a million inhabitants; the insane males are 1,739 to a million male inhabitants; and the insane women are as 1,931 to a million female inhabitants.

This excessive proportion of insanity among women has been apparent in our own State for a long time.

Taking the figures of our State Board of Lunacy and Charity, which I believe to be extremely accurate, I find in 1892 there were in hospitals 1,069 women to every 1,000 men; in 1893, 1,149 women to every 1,000 men; in 1894, 1,169 to every 1,000 men. In 1894 the Board made a more complete tabular report of the insane, giving all those in almshouses, etc.; and in this total number the excess of women is even greater still, being 1,208 to 1,000.

To a superficial critic it would appear to be proved that insanity is more prevalent among women, and the inference would be made, as indeed it often is, that women are more apt to become insane than men. According to the United States Census, in the nine years, 1880 to 1889, in every State of the Union (with but three exceptions, namely, Alabama, Mississippi and Tennessee) more men were committed to hospitals for the insane than women — not only absolutely but relatively more in proportion to the population of the two sexes. In the three States, Alabama, Mississippi and Tennessee, where it happened according to the census returns that relatively more women than men were committed to a hospital, this difference was so slight as to make the proportion between the two sexes practically even. But I think that in this point as in many others of our statistics the figures for the State of Massachusetts are so much more accurate that deductions from them are even more trustworthy

than those from the much larger ones of the whole country.

In studying reported admissions there is a frequent source of error owing to transfers from one hospital to another being counted as admissions. If a new hospital or ward for chronic cases is opened statistics show an apparent increase. In Massachusetts our State Board has avoided this error by tabulating seven hospitals separately — excluding the Worcester Asylum and the wards at Tewksbury and Bridgewater, where insane patients are admitted only by an order from the Board of Lunacy and Charity.

During the past fifteen years 25,328 cases were admitted to the seven public hospitals of Massachusetts. In 24,639 the sexes tabulated — 12,632 males and 12,007 females, or only 950 females to 1,000 males. And yet we have just seen that at the end of this period in the entire insane population of the State in public institutions, or under the care of the State Board, there were 1,208 insane women to every 1,000 insane men. These include those who have been transferred to the Worcester Asylum and the wards at Tewksbury and Bridgewater. So that we find in Massachusetts, what is probably true in other communities, that the males are more susceptible to insanity. To put it another way, Massachusetts, with an excess of females over males of 5.8 per cent., receives in her hospitals for the insane 5 per cent. less women than men. Régis states, in his "Manual of Mental Medicine," that in the general statistics of alienation the male sex figures more largely than the female: the proportion being 114 to 129 males to 100 females. Reversing the proportion to conform with that in this paper, 775 to 887 females to 1,000 males.

It appears to be clearly demonstrated that more men than women become insane. It is in evidence that there are many more women now insane (in our institutions, at least) than men. It remains to be inferred that women stay in the hospitals longer than the men.

But can this inference be verified?

Fortunately, we have not far to seek for proof of this matter; our Massachusetts Board publishes a carefully prepared table showing the hospital residence, in months, of cases died and recovered. In a series of 5,307 recovered cases reported from the seven public hospitals during the past fifteen years the average hospital residence of the women was exactly one-fifth larger than that of the men — or at 7.68 months for women to 6.4 months for the men. In a series of 4,922 deaths in the same hospitals for the same period, the hospital residence of the females was 16.3 per cent., or one-sixth longer than that of the men, or 33.93 months for women to 29.19 months for men.

That death comes sooner to the men is in accord with what observing medical men have repeatedly noticed. Women are usually more enduring of illness than men, and succumb less promptly than the "stronger sex." It would seem that they recover from insanity less quickly; but the statistics in this same table show that while the *hospital residence* for recovered women is longer, the whole duration of the illness is actually one-sixteenth longer in men. But as it is the hospital residence that affects our statistics, the apparent paradox is explained.

There are other reasons to explain shorter residence for recovered men that cannot be found in statistics. The man is more often the wage-earner, and his

services are more imperative for the family, and the physicians are urged to let him return home as soon as possible. Male patients, again, are more often alcoholic; and as soon as the alcohol is eliminated, recovery is rapid.

Régis states that the pure insanities are more frequent among women; that is, if we take out the cases of alcoholism and general paralysis, the excess of males among the insane disappears, and it is the women who are in excess.

Residence. — The place of residence appears to have an effect upon the causation of insanity; and it is generally believed that city life is a factor in causing insanity. Our State Board does not furnish statistics on this point; but through the courtesy of the officers of that board I am able to present some figures on this subject. I am indebted to Dr. Arthur C. Jelly, for collecting with great care and pains the data for this point.

During the years 1892, 1893 and 1894, there were admitted to the seven public hospitals in this State 5,812 cases assigned as follows:

1,850 from Boston.
2,114 from 19 other cities having in 1890 over 20,000 population.
908 from 52 cities and towns having in 1890 less than 20,000 and more than 5,000.
940 from 279 towns having in 1890 less than 5,000.

Estimating the population of these various groups of towns for the year 1893, the middle of the three years covered in this count, we find the annual rate of commitments, per thousand of the population, to be as follows:

For the State	. . . . .	.794
City of Boston	. . . . .	1.265
Cities over 20,000	. . . . .	.778
Cities and towns, 5,000 to 20,000	. . . . .	.605
Other towns less than 5,000	. . . . .	.571

Thus we see in Massachusetts, that in Boston the annual occurrence of insanity is twice as great as in towns of less than 20,000; that the rates for country regions and small towns are practically the same.

May it not be that this difference is due to the foreign population in the cities? While this undoubtedly has some effect, it probably is not altogether responsible for it, as statistics in Europe show a marked increase of insanity in urban districts over rural. It is probably true that the cities contain a larger proportion of middle-aged people than the towns, who, as we have already found, are especially liable to become insane.

But when we remember that in the United States nearly 30 per cent. of our population are now urban against only 3 per cent. a century ago, we must realize that a great social change has taken place. The sudden changes in the habits of our people amount to a social upheaval; and the increase of insanity is merely one of the incidents of this state of affairs, and is a very interesting social problem, the discussion of which in this brief statistical paper is out of place.

My aim has been to put in a few words the few facts relative to insanity that statistics can show — matters that are so elaborately prepared and so seldom available for the busy man.

TESTIMONIAL TO SIR JOSEPH LISTER. — Sir Joseph Lister was presented on July 30th with his portrait, painted by Mr. J. H. Lorimer. The presentation was made at a meeting held at King's College Hospital by Sir John E. Erichsen, President of University College.

Clinical Department.

THREE UNUSUAL SURGICAL CASES.¹

BY JOHN HOMANS, M.D.

I. STONE IN BLADDER IN A GIRL OF FIVE.

NUCLEUS, a very sharp-pointed pin, removed by lithotomy through the base of the bladder. Cure.

I saw on the 1st of March, 1894, in consultation with Dr. Hazelton, at Wellesley Hills, L. L., a stout, healthy girl, who had been suffering for some weeks from frequent and painful micturition. On examination with a catheter, a stone was felt in the bladder, and soon afterwards the patient entered the Massachusetts General Hospital. Urination was very frequent and agonizing, and was accompanied by screams. The urine contained pus, a large trace of albumin, uric acid, urate of ammonia and triple phosphate crystals. On March 23d the child was etherized and an attempt made to dilate the urethra and crush the stone with the lithotrite; but the stone was large, the bladder small, and it seemed to me more intelligent and more surgical to cut through the base of the bladder and remove the stone entire. I was very glad that I did so, for the pin that was the nucleus of the stone, might have been a difficult thing to have pumped out in the evacuator, and if it had not been removed, another calculus would have formed. The vagina was only large enough to admit my little finger, and using the finger as a guide, I cut upwards through the base of the bladder with a curved sharp-pointed bistoury upon the stone, and removed it with forceps through the opening. I washed out the bladder, and tried to sew up the vesical opening; but the vagina was so small that I could not pass the sutures intelligently, and I contented myself with placing a Sims self-retaining catheter in the bladder. The stone was ovoid in shape, one and a half inches long by one quarter of an inch in width, and weighed one hundred grains.

I should not have troubled the Society with the report of the case except for the very remarkable nucleus that the stone presented, and which accounted for the very frequent and painful attempts at micturition. From the smaller end of the stone projects the very sharp and polished point of a brass pin, and it was the pain caused by the pricking of the bladder, particularly when it contracted, that had given rise to the suffering and screaming. How the pin got into the bladder is a mystery, but probably the child herself inserted it in some way. In the course of a few months the opening spontaneously closed, and the child is now (April, 1895) robust and well.

II. REMOVAL OF A BRASS SAFETY-PIN FROM THE RIGHT PRIMARY BRONCHUS.

W. H., three years old, entered the Massachusetts General Hospital May 28, 1894. A week before, while lying on his back with a closed safety-pin in his hand above his face, he suddenly dropped the pin into his mouth. He choked, and his mother tried to remove the pin with her finger. He coughed somewhat, and his breathing became wheezy. His parents brought the child to the hospital, but would not leave him. On May 28th he entered the hospital, with rapid respiration and breathing with difficulty.

Attempts were made in the laryngological department to remove the pin which was seen in the larynx, but these attempts were unsuccessful. The child was etherized and an incision was made into the larynx, but the pin had gone downward. After considerable search the pin was extracted by means of long, curved forceps from the right primary bronchus. A tube was put in the trachea and the breathing became quiet. Convalescence was slow, but at the end of a month the child was discharged well.

III. LAPAROTOMY FOR ONE HUNDRED AND TWENTY CHERRY-STONES AND SEVENTY PRUNE STONES IN THE SIGMOID FLEXURE.

In the spring of 1893, Dr. Norris, of Cambridge, sent to the hospital a man, twenty-seven years old, suffering from frequent attacks of constipation and pain in the abdomen, which no treatment had relieved. He stated that ten years before, while in Denmark, he had eaten a great number of cherries and prunes and had swallowed the stones, and that none of them had passed through his bowels. He had consulted many physicians, but his statement about the stones had never been credited. On etherization a tumor was found in the right iliac region; and on succussion the rattling of small, hard bodies was heard. The abdomen was opened over the tumor, and the greatly distended sigmoid flexure came into view. Its walls were greatly hypertrophied, and the stones were plainly felt and heard within it.

In the left and central pelvic cavity was a hard and flattened tumor, surrounding and involving the lower part of the sigmoid flexure and the upper part of the rectum, estimated to be about seven inches long, by three inches wide, and two inches thick, and was considered by me to be a malignant growth involving the sigmoid flexure and its surroundings. It was impossible to make a resection. The bowel was brought out through the wound, a glass rod was passed beneath it, and the external wound closed above and below the gut. On the third day, that is, forty-eight hours later, the gut was opened and several stones came out. Much fecal matter and some stones were found at every dressing of the wound, and in the course of four days one hundred and twenty cherry-stones and seventy prune-stones were found. They were very black in color, but were otherwise unaltered.

I saw the patient in December, 1894, twenty months after the operation. He had gained flesh and strength, and was working every day. He uses a contrivance of his own to retain his feces.

I will not report the case more at length to-night, as it has been already published in the *Annals of Surgery* for 1894, Vol. XIX, p. 672.

Medical Progress.

REPORT ON RECENT CASES AT THE INFANTS' HOSPITAL, BOSTON.

BY T. M. ROTCH, M.D. AND A. H. WENTWORTH, M.D.

A DESCRIPTION of a few of the cases which have been treated at the Infants' Hospital during the past winter, with their autopsies, cannot fail to be of some interest.

CASE I. K. C., female, five days' old. Said to have been premature at eight months.

¹ Read before the Boston Society for Medical Improvement, April 29, 1895.

Clinical Diagnosis.—Not made.

History.—No history could be obtained from the person who brought the infant to the hospital, relative to the family, or the child, except that the latter was premature and had not been able to nurse well.

Physical Examination.—Ill nourished. Marked icterus, otherwise skin negative. Extremities cool. Color cyanotic. Considerable apathy. Extreme weakness. Umbilical cord still adherent, without evidence of inflammation about it. Temperature subnormal, pulse 144, respirations 50. No contractures, or rigidity of extremities. Lungs, heart and abdomen negative.

Clinical History.—Vomiting occurred a few hours after entrance, and persisted at intervals until the infant's death. The vomitus was of a brown color and resembled "coffee grounds." Microscopical examination failed to detect blood corpuscles and Teichmann's test for hemin crystals was negative. Gmellin's test for bile pigment was unsatisfactory. Heaters were placed about the infant, and he was given a weak, modified milk, by dropper, with brandy. Death occurred about twenty-four hours after entrance, no definite diagnosis having been made. There were no convulsions at any time, and no other symptoms than collapse, stupor and vomiting. The temperature remained subnormal, and the respiration just before death became slow and irregular. The child died quietly.

Autopsy.—Diagnosis, cerebral hemorrhage. Skin icteric. Lungs normal. Thymus gland normal. Heart imperfectly contracted and filled with semi-fluid blood. Liver about normal size and congested. Spleen small, normal structure. Kidneys contained uric acid infarcts. Stomach capacity 50 c. c., partly filled with thick fluid of a greenish tinge which gave the reaction for bile with nitric acid. Intestines normal. Umbilical arteries and vein collapsed and not abnormal. Mesenteric and bronchial glands normal. Brain convolutions somewhat flattened. On under surface of cerebellum and pons there was considerable clotted blood. The right lateral ventricle and third and fourth ventricles were filled with freshly coagulated blood, and the choroid plexus was involved in the middle of the clot. There was no pigmentation of the brain substance and no evidence of trauma on the scalp or skull.

Aside from the etiology of the hemorrhage, which could not be determined, the case is of interest from the absence of marked cerebral symptoms. That such an extensive hemorrhage into the brain could occur without convulsions, or even unconsciousness, appears remarkable and is of diagnostic value. As for the etiology, there were no evidences of infection, or syphilis, or other disease and the cause of the hemorrhage could not be determined.

CASE II. S. L., male, five and one-half months old. Entered hospital February 25th, and died ten weeks later.

Clinical Diagnosis.—Congenital malformation of heart.

Family and Previous History.—Father and mother were Polish Jews, and no history obtainable except that the infant had always been cyanotic and weak.

Physical Examination.—Undeveloped and fairly nourished. Tongue and lips cyanotic, and skin of a dusky color. Pulse and respiration rapid.

Veins of neck somewhat distended. Cry fairly strong. The heart impulse was scarcely palpable in fourth space, mammary line, on left side. Dulness began in second space on the left of the sternum and extended downwards to the fourth rib. Horizontal dulness at the level of the fourth rib extended to the right of the sternum and was lost in the liver dulness below. A blowing systolic murmur was heard loudest in the third space and over the fourth rib on the left of the sternum near its border. First sound audible with the murmur. Second sound sharp and louder than the first. At the base the sounds were louder over the pulmonary area than over the aortic. In the second space on the left of the sternum, between the mammary line and axilla, the systolic murmur replaced the first sound. Murmur not transmitted to the back. Heart's action rapid but regular. The lungs were negative. Liver dulness began in the fourth space, para-sternal line, and continued downwards to below the border of the ribs and outwards to the axilla. Edge of the liver palpable one and one-half inches below the border of the ribs, in the mammary line. Spleen not palpable. Abdomen negative. Weight 4.430 kilogrammes.

Clinical History.—The infant's condition improved during the following two months. His appetite was fairly good. The average daily quantity of modified milk taken was 700 c. c. The dejections were well digested, with a tendency to constipation. The temperature remained normal the greater part of the time. The color varied from time to time, but always retained its 'dusky' hue. The pulse varied between 120 and 200 beats in the minute, the respirations between 30 and 80. He gained in weight slightly (about one pound). Aside from an acute inflammation of the middle ear, which occurred about a month after entrance, there were no noteworthy symptoms until just before his death which occurred suddenly and unexpectedly on May 3d. For two days previously he had been fretful and had taken his food poorly, with some vomiting but no other symptoms.

Autopsy.—Diagnosis, single ventricle and transposition of the arteries. Considerable congestion and edema of the brain, otherwise negative. Liver, spleen and kidneys showed moderate passive congestion. Atelectasis of the lungs here and there, especially of right lower lobe. Small quantity of serous fluid in pleural and peritoneal cavities. Thymus gland normal. Stomach capacity 220 c. c.

The heart was two or three times its normal size. The measurements were as follows: longest diameter of the ventricle, from above downwards, externally, 6.5 cm.; from the auriculo-ventricular groove of one side to that of the other around the apex, 13 cm.; horizontal circumference of the ventricle, near the middle, 16.6 cm. The larger part of the heart lay to the right of and behind the sternum, the apex on the right side. On section, there was a single, large ventricular cavity, with hypertrophied walls. Both the aorta and pulmonary artery led from this, lying one behind the other. The vessels were transposed so that the aorta was uppermost, and both vessels were directed upwards and to the left. At the upper part of the ventricle there was a fibrous septum 2 cm. by 3 cm. in size, which was attached above, between the orifices of the aorta and pulmonary artery, and on either side to the heart muscle, leaving its lower border free in the ventricular cavity. This septum

served to divide the blood as it was pumped out of the heart during systole, so that part flowed underneath into the pulmonary artery and part flowed above into the aorta. The upper surface of this septum formed the floor of a small space, bounded by the heart muscle, which communicated with the right auricle, so that the blood from the right auricle flowed across this septum and then downwards into the ventricle. The left auricle led directly into the ventricle at the lower part. Thus the blood from both sides of the heart became mixed in the single large ventricle, and with each systolic contraction was pumped alike into both vessels. The foramen ovale and the ductus arteriosus were not patent.

Notwithstanding the complete admixture of arterial and venous blood the clinical symptoms were not so marked as one might have expected. There was never any dyspnea, simply the variation in color, pulse and respiration at times, and those were not noticeable in the child's condition. Probably the marked cardiac hypertrophy and the absolute quiet were sufficient for compensation.

CASE III. Male, nine weeks old. Entered hospital March 4th, and died three days later.

Clinical Diagnosis.—Infantile atrophy.

Previous History.—Breast-fed for three weeks, and then had milk and lime-water. One week before entrance he was said to have had diarrhea and vomiting.

Physical Examination.—Ill developed and very marked atrophy. Skin livid. Face and extremities cool. Throat and mouth negative, excepting anemia of mucous membrane. No enlargement of lymph glands. Heart, lungs and abdomen negative. Spleen not enlarged by percussion and not palpable. Edge of liver palpable just below border of ribs in the mammary line on the right; dullness began in the fifth space above, in the same line. No evidences of syphilis or rhachitis. Weight 3.300 kilogrammes.

Clinical History.—The infant was given modified milk and brandy every two hours, and heaters were placed about him. He took nourishment poorly, and as the heaters seemed insufficient to warm him, he was put in an incubator. The dejections were constipated. The temperature remained subnormal (36° C.). He died suddenly and quietly on the third day.

Autopsy.—Diagnosis, infantile atrophy. Body extremely emaciated. All the organs were normal. Thymus gland extended from just below the larynx, lying on the trachea and bronchi at their bifurcation, downwards over the right auricle. The mesenteric glands were not as large as they ordinarily appear in these cases. The bronchial glands were not discernable without searching for them.

CASE IV. Female, eighteen months old. Entered hospital March 18th, and died three days later.

Clinical Diagnosis.—Pulmonary, glandular and miliary tuberculosis.

History.—Father died of tuberculosis. This child was a twin, and was smaller and weaker than the other one. Breast-fed until fifteen months. Said to have been well and plump until she was weaned, except that she never sat up well. Was able to stand with the aid of a chair, but never walked. During the last four months she showed progressive loss of flesh and increasing pallor. Her appetite was poor, and she was constipated.

Physical Examination.—Ill developed and ex-

remely emaciated. Scarcely audible cry. Puffiness of eyelids. The alæ nasi moved with respiration, and she breathed with her mouth open. Tongue and lips dry. There were two upper and lower middle incisors and four molar teeth. Frontal and parietal eminences prominent. Anterior fontanelle on same plane as the bones, two-and-one-half inches in diameter antero-posteriorly and two inches laterally. General glandular enlargement in the neck and under the lower jaw. Skin mottled and extremities cool. No evidences of rhachitis in the epiphyses or ribs. Tonsils hypertrophied. Percussion over both backs of the lungs less resonant than normal in most places. Below the spines of the scapulæ, toward the inner borders, were areas of dullness, with bronchial breathing and increased voice sounds. These signs of consolidation were more marked on the right side. There was a small area of broncho-vesicular breathing in front on the right side over the fifth rib, in the mammary line. The heart sounds were feeble. Cardiac dullness obscured by tympanic tone. Liver dullness began at sixth rib, mammary line, and gave place to tympanic tone below. Edge was not palpable. Spleen not palpable. Abdomen distended and tympanic everywhere, palpation negative. Percussion over the upper part of sternum and in second space on either side was resonant. Weight 4.950 kilogrammes. Temperature 38.8 C., respiration 60, pulse 140.

Clinical History.—The child took nourishment poorly; breathed with some difficulty; was extremely weak and died on the third day without other symptoms. The temperature varied from 38.8° to 39.0° C. until death.

Autopsy.—Diagnosis, "cheesy," tubercular pneumonia, glandular tuberculosis, miliary tuberculosis. Marked emaciation. There was a chronic tuberculous pneumonia of both lungs in the vicinity of the entrance of the main bronchi, showing on the posterior and inner surfaces of the lungs as yellow, homogeneous, dry, "cheesy" areas about two inches in diameter. The bronchial glands formed a large packet around each bronchus, many of them "cheesy" on section. There was a subacute miliary tuberculosis of both lungs, the individual tubercles being about the size of two millet-seeds, and more opaque than usual. The lungs felt as if filled with small shot. A few tubercles were found in the walls of the pulmonary veins. Miliary tuberculosis of the liver, spleen and kidneys. Mesenteric glands enlarged but not "cheesy." Lutescines normal.

It is interesting to compare these last two cases. Both were extremely emaciated, and were not unlike in their clinical symptoms, and might well have passed for infantile atrophy. The age of the latter, the glandular enlargement, the elevation of temperature and the physical signs in the lungs enabled us to make a correct diagnosis. In uncomplicated infantile atrophy the temperature is almost always inclined to be subnormal and the lymph-glands are rarely enlarged. The physical examination of the organs, as a rule, is negative.

CASE V. Female, three months old. Entered hospital April 4th, and died six days after entrance.

Clinical Diagnosis.—Tubercular meningitis.

History.—Child brought by a friend, with no history except that she was said to have fallen out of bed three weeks before and to have struck her head. Since then she had slept a great deal and cried when

moved. Said not to have moved the left leg and arm as much as the right.

Physical Examination.—Fairly developed, ill nourished. Extremities cool. Considerable stupor. Some retraction of head. No pain on pressure in the back of the neck. Fontanelles and sutures open. The sagittal suture one and one-half cubic centimetres wide, and the coronal and lambdoid sutures open their entire length. The dura was felt to be tense and resistant but without pulsation. The head was broad below the parietal eminences. Pupils were equal and reacted slowly to light, followed by dilatation of the left one. There was a slight purulent discharge from the right ear. Tongue coated; throat normal. No glandular enlargement. The left arm and right leg were slightly flexed, and showed some resistance to passive movements. Moderate ephiphyseal enlargement at the wrists and slight "rosary" on the ribs. The abdomen was slightly retracted, and there was a well-marked *tâche cérébrale*. Lungs negative. Slightly diminished resonance behind upper part of sternum. First heart sound not clear, but without a distinct murmur. Spleen not palpable. Temperature normal, pulse 125, respiration 40. Weight 5.450 kilogrammes.

Clinical History.—The bowels were moved with calomel, and the child was given modified milk and brandy. Nourishment was taken with difficulty, and at times she was fed with a tube. The symptoms of cerebral compression increased. The pupils became dilated and there was marked stupor. The temperature remained between 36.6° and 38° C. until the day of her death, when it rose rapidly to 42.5° C. The pulse increased in rate, with the rise in temperature, reaching 250; and there was Cheyne-Stokes respiration. Convulsions did not occur until the last day and persisted until death, when not relieved by ether.

Autopsy.—Diagnosis, tubercular lepto-meningitis; tuberculosis of the brain, of the glands and of the spleen, liver and kidneys. Covering the base of the brain, over the right hemisphere, was a marked fibrino-purulent exudation; and in the meshes of the pia corresponding to this were numerous gray, slightly opaque granulations. The right side of the brain was pale and extremely softened, as well as could be made out. In the area of the optic tract was a "cheesy," yellow, opaque mass the size of the end of the finger. The left lung was normal. The right lung was adherent to the chest wall, just outside the nipple; and beneath this was a small, consolidated area of opaque, "cheesy" material, more or less granular and softened. The bronchial glands were much enlarged and filled with opaque, "cheesy" foci. The heart was normal. Spleen, liver and kidneys contained a few scattered, opaque, yellowish points. The mesenteric glands were enlarged in the same way as the bronchial glands. Stomach capacity 240 c. c.

It is interesting to note the occurrence of tubercular meningitis at such an early age. The tuberculous glands must have existed for some time.

AN INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY will be held in Paris next year. A preliminary programme of the sections has been drawn up for consideration. They are to be ten in number and will cover the entire field of industrial chemistry.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR MEETING, April 29, 1895, the President, DR. CLARENCE J. BLAKE, in the chair.

DR. JOHN HOMANS reported

THREE INTERESTING SURGICAL CASES.¹

DR. E. B. LANE read a paper on

STATISTICS CONCERNING INSANITY.²

DR. P. C. KNAPP: I have listened with very great interest to Dr. Lane's paper. He seems to me to have extracted out of the muddle of statistics a good deal of very useful and valuable information. However, one of the fundamental weaknesses of all of the statistics that are tabulated is that they regard insanity as one general disease, and the statistics which are to be gathered concerning insanity when treated in that way are as full of fallacy as statistics would be if we should group together pneumonia, pulmonary tuberculosis, bronchitis and pleurisy and try to deduce statistics from the whole lot of them together. The idea that they are dealing with different diseases has not dawned yet upon the minds of our most intelligent public boards who regulate the affairs of the asylums. In regard, for example, to the greater amount of insanity among the urban population in distinction from the rural, there are two very important factors, namely, alcohol and syphilis, which are very much more frequent in the cities than in the country. In cases, for example, of general paralysis, we know the extreme importance of syphilis in the causation, but, of course, in no tables of statistics that are collected on any of the schemes which are laid down by the State boards, can the important facts in regard to general paralysis be shown. The modern ideas with regard to acute hallucinatory confusional insanity show that age and acute infectious diseases have a distinct influence in the causation; there, again, the tables of statistics give us absolutely no help.

Then, in regard to the question of heredity which Dr. Lane in his paper has barely touched upon, we know by the collection of individual cases that heredity is a very much greater factor in certain forms than it is in others. Not knowing just what line Dr. Lane would take in his paper, I was glancing to-night at some of Mendel's statistics. I noticed that in insanity in general he found that heredity was a factor in the causation in about 56.5 per cent.; in paranoia it was almost 60 per cent.; while in general paralysis it was 34.8 per cent. Such points as those show how fallacious are the tables which the State Board of Lunacy and Charity compel the superintendents to fill out; and I was very glad to hear Dr. Lane's criticism of the board's table of the causes of insanity. Of course, there are some of the tables published in the reports of the asylum which are of distinct value. There are others which seem to me to be entirely a waste of time as they are at present conducted.

There are very many other questions suggested by this subject; as the influence of heredity in general insanity, and the question as to the increase in insanity

¹ See page 164 of the Journal.

² See page 161 of the Journal.

in this country and in other countries in the last few years; but they are perhaps a little foreign to the present paper.

DR. TUTTLE: The statistical tables thus far considered by Dr. Lane are no doubt sufficiently accurate, and the conclusions deduced therefrom reliable, since the sex, age, birth-place, and residence of most patients can be ascertained with approximate certainty. But some of the remaining tables published by the Massachusetts hospitals for the insane are not accurate, because of the nature of the circumstances considered; and any conclusions drawn from them would be of little value. Take, for instance, the table of causes: It is often extremely difficult to determine the causes of insanity in any given case, and nearly always almost impossible to express them so briefly as to admit of their tabulation. It is usually a very complex matter. There must be a certain mental inheritance, a predisposition which renders it possible for ordinary causes to be effective. I do not mean by this a direct inheritance of insanity in every case, but rather the possession of such a nervous organization as renders one liable to be insane. Most people cannot become insane from any cause; while some will lose their mental balance under the ordinary conditions of life. Beside such a predisposition, a great many circumstances may have contributed, and should be included as causes. It would be nearly impossible to express the truth, even if one could ascertain it, in the form of a table.

I think that ordinary insanity is about as frequent in one sex as the other, and the reason why more women than men are in our hospitals is that the men either die or get well sooner. Leaving out cases of general paralysis, which is much more common in men, the numbers are nearly equal.

The influence of change of surroundings and circumstances is well shown by the fact that people of foreign birth furnish, in proportion to their number, 50 per cent. more cases of insanity than the native born. The removal to another country and the struggle for existence under new conditions no doubt have much to do with the causation of their insanity. This is also the case with the negro. In the days of slavery the percentage of insanity was much greater among the free negroes of the North than among the slaves. Since emancipation, insanity has greatly increased among the negroes of the South. With liberty have come cares and anxieties incident thereto, and in some cases license, which may be responsible for the increase of general paralysis among them. The vices of civilization are responsible for much of the degeneration of man. Insanity is a degeneration, and, as a rule, is a matter of slow growth. Occasionally people suddenly become insane from shock; but usually it is the culmination of a long process, extending over months or years.

DR. STEDMAN: Dr. Lane has taken just the subjects to which statistics lend themselves best in studying the causes of insanity. This matter of the tables of the causes of insanity has, by the way, been brought up more or less often for the last twenty-five years, and yet we find the same tables published regularly. In England the causes are assigned by the physicians themselves after inquiry from the relatives, and are not taken from the commitment papers. Although the mass of statistical tables on insanity is generally of little value, I think Dr. Lane will agree that he has

got considerable help from those of Massachusetts. We nowadays turn to the tables of statistics of our State with some satisfaction, whereas we get little aid from those of any other State or country, with the exception perhaps of England and Scotland. But, of course, even ours are faulty; and after one has worked in an asylum over the preparation of these tables for the annual report he is apt to get rather disgusted with them, but they are, nevertheless, very valuable in certain directions. I have often been asked regarding syphilis as a cause of insanity, particularly by physicians; and it does not seem to be generally recognized that as a cause of pure, functional insanities of psychoses, syphilis itself is very rare, while on the other hand, it often prepares the way for general paralysis and other *structural* forms of mental disorder.

I was a little surprised at Dr. Knapp's statement that 33 per cent. of the cases of general paralysis were found by Mendel to be hereditary. Years ago I examined many patients at Danvers with that in view, have seen a large number of opinions and statistics bearing upon it since, and should place the proportion of hereditary cases a great deal lower. Age is an extremely important cause in insanity, especially that most critical time of life, adolescence. It is unfortunate that all our statistics as to ages are invariably drawn up in the regular decades of ten to twenty, twenty to thirty, thirty to forty years, etc.; for it is impossible by this means to ascertain the facts regarding this important period (between fifteen and twenty-five) of puberty and adolescence. If we eliminate the cases of complicated mental disorders of all times of life, such as the toxic and focal insanities and the puerperal state, in which age as a cause has no direct bearing, it will be found, and Dr. Take has referred to this, that quite a large proportion — half, it is safe to say — of all such cases of insanity occur in adolescence for the first time. A great deal, on the other hand, is made of the menopause as a cause of insanity; while a close inquiry into the matter will, I think, show that actual insanity caused by the change of life alone is comparatively rare, whereas a host of purely *nervous* states may accompany this change.

DR. KNAPP: If I might be permitted to add one more word in answer to what Dr. Stedman has said: the figures I gave were merely for the purpose of comparison, as showing the alleged influence of heredity in two or three different forms of disease, namely, paranoia, insanity in general and general paralysis. Those were Mendel's figures published in his work on general paralysis in 1880. The earlier writers on general paralysis put the percentage of cases in which there was some nervous or mental heredity as very great, 60 per cent. to 65 per cent. It has been steadily declining, so that Meckel's figures give about 20 per cent., and that is, I imagine, a good deal nearer the truth. In this whole question of heredity there are some very important features which have not been discussed at all. In the first place, as many gentlemen know, the work of Mr. Galton and Weismann cast considerable doubt on the whole question of heredity. In the second place, comparatively few statistics have as yet been collected to show the amount of abnormal nervous heredity in so-called healthy people. A recent paper by Koller, in the *Archiv für Psychiatrie* (xxvii, 268), gave statistics seeming to indicate that there is almost as large a percentage of so-called neuropathic taint

among healthy people as among the insane. Another factor, which bears out what I said before, is that when we speak of an insane heredity we entirely ignore the form of insanity in the relatives; and we are very apt to ignore the closeness of the relation. We must bear in mind that in the case where insanity occurs in a grandparent, for example, the individual in question has in his veins, on an average, only one-fourth of the blood of that grandparent. Then, again, if we find a case of insanity in the relatives of our patient, it makes a very great difference whether that insanity is general paralysis, which, in all probability was due to syphilis acquired by that relative at some period in his life, or whether it was a traumatic insanity due to some injury he had received, or alcoholic insanity, or some form of insanity which pointed more clearly to degeneration such as paranoia. The figures which I cited, which Dr. Stedman has criticized, were figures of old date and given simply as an illustration.

DR. LANE: The gentlemen who have discussed the paper seem to be aware of the obstacles I met in compiling this paper. I spent several hours in digesting statistics that I did not dare to bring before you because they were unreliable, and the means of studying the subject further were so imperfect, I found I could not bring anything of value.

The matter of diagnosis of insanity is our most urgent need for the further study of the subject. Scarcely two men in this State would agree on a table of diagnosis of insanity. Until our State Board of Lunacy and Charity has a preponderance of men interested in the subject, I do not think we can get correct statistics. The State board is the only authority which can compel the asylums to classify their cases according to a fixed nosology.

Speaking of the faulty statistics and decades, it is a point I ran across in getting hold of these figures, and getting the ages of the insane. It is curious the irregularity with which the ages are given. In giving the ages it seems to be a custom to approximate the even numbers, and the even numbers are one-fourth to one-fifth larger than the odd numbers, so that the only way to do is to take a decade. The statistics of 1890 show 73 per cent. more insane in our institutions than in 1880. The more hospital accommodations there are, the more willingly do people send their insane into the hospital.

SPECIMENS.

DR. HOMANS showed a beautiful specimen of adeno-carcinoma of the uterus, removed by vaginal hysterectomy; an ovarian tumor; and also a hairy mole, or birth-mark, about two and one-half inches in diameter, removed from the face of a girl of eight. The mother was said to have been frightened by a dog while pregnant, and this spot with a reddish-brown base and covered with black hair resembling fur was found on the region between the malar bone and the left ear, and a portion of it was hypertrophied and filled with sebaceous glands. The affected skin was dissected out and so much of the cavity as could not be covered by approximation was covered with a Thiersch graft taken from the thigh.

THE American Academy of Railway Surgeons will meet in Chicago on September 25th, 26th and 27th.

Recent Literature.

A Monograph on Diseases of the Breast, their Pathology and Treatment, with Special Reference to Cancer. By W. ROGER WILLIAMS, F.R.C.S., late Surgeon Western General Dispensary, and Surgical Registrar, Middlesex Hospital. With 76 figures. London: John Bale & Sons. 1894.

This book is essentially a scholarly one. The first chapters of the monograph are devoted to the Ontogeny, Phylogeny, Morphology, Anomalies and Histology of the Breast. Then the author takes up the various conditions governing the growth, disseminations and life-history of cancer in the male and female. The differential diagnosis is carefully considered, and the treatment of cancer is also fully set forth.

The author evidently believes in a thorough operation, and strongly emphasizes the necessity for the complete removal of all cancerous growth. We personally believe that Halsted's method of operating for cancers of the breast, while extreme, is preferable to that advocated by the author. The author is evidently a believer in antiseptic surgery. The growing custom among American surgeons is to do this class of surgery aseptically and not antiseptically, and the results attained are eminently satisfactory.

The work ends with a reference to axillary tumors, inflammation and suppuration, tuberculosis and syphilis of the breast. The latest statistics as to whether life is prolonged or not by operation are not included in this work, Gross's statistics of March, 1888, being the last reported. In many respects this is a book that we can recommend as a careful analysis of the facts relating to diseases of the breast. The strictly scientific part of the work is extremely well done. The practical conclusions, including treatment, are commonplace. The book is well written, printed and bound, and fairly well illustrated.

The Dynamics of Life. An Address delivered before the Medical Society of Manchester, October 3, 1894. By W. R. GOWERS, M.D., F.R.S. 12mo, pp. 70. Philadelphia: P. Blakiston, Son & Co. 1894.

Dr. Gowers's address, reprinted in this convenient form, is, like everything he writes, full of interest and of stimulating thought. He puts before his hearers the problem "Whence and how is motion produced by the muscles, and whence is the mysterious nerve force derived that excites the muscles to contraction?" He discusses the problems of latent chemical energy, and in the energy of the universe he sees nothing but perpetual motion, and that all stimuli are but forms of motion. This motion can be clearly demonstrated in muscular energy, but the nature of nerve force is still unknown. One fact only is certain, it is capable of propagation along a nerve fibre. The hypothesis that the source of nerve force is latent chemical energy, conceived as minute motion liberated and released by added motion is not improbable. Of the relation of this energy to life itself, however, nothing is to be said, nothing is to be discerned, and he can see no promise that the future has anything in store for us. In his whole address he points out the relation of the doctrine of the conservation of force to the problems of the dynamics of life, in a way that is full of suggestion to every thoughtful mind.

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A JUDICIOUS VALEDICTORY ADDRESS.

AN address by Prof. H. C. Wood¹ to the graduating class of the Medical Department, University of Pennsylvania, abounds in excellent advice, for men of wider experience as well as for those just entering upon their professional careers.

He urges upon them distinct plans of work and the necessity of bringing to a satisfactory conclusion whatever is begun. "Each day, each week, each month finish something; or at least finish the laying of some bricks in the structure which you are struggling to erect. . . . Circumstances in my youth led me of necessity into botanical work, away from and outside of my profession. I knew that the chapter would be but a comparatively short one in my life; that the work done would be at best but a foundation; but I determined to do something that should be in itself complete; and so I wrote one large elaborate botanical monograph, putting four years of work into it. I knew that it could not bring me direct professional preferment; but I knew that it would bring the reputation of doing work successfully; and that in its doing would be formed the habit of successful effort; and to-day nothing that I have accomplished gives me more satisfaction in the retrospect than does that bit of natural history work."

The secret of professional success is technical fitness, which is twofold in its nature, since it has to do with purely technical skill, and also with the management of the human animal.

The crowning stone of all and the only real excuse for the existence of the medical profession is therapeutics, or the art of healing. In attempting to combat disease, "it is essential that you use your scientific knowledge, but it is equally essential that you strengthen the weak places in the science of medicine by every possible gleanings from empiricism."

The study of individual characteristics should go hand in hand with the study of disease; and, above

all, "tact" should be cultivated and perfect self-control. "As Professor Osler said once upon this platform, the medical man needs to have his finger always on his vaso-motor centres; but let me tell you this is but a half truth; the doctor wants his finger at all times and forever on every one of his nerve-centres. Do not dance because your heels want to fly up; do not act because the impulse is upon you; do not talk because your tongue is loose and restless. I have often thought that if there be any portion of the human anatomy which the devil especially inhabits, it is Broca's convolution of the brain, as it is devoted to human speech. Certainly upon this centre put not your finger, but your biggest thumb; for your very life hold it down if you can; sit upon it; do your best, too often it will blow off like a safety-valve."

In conclusion, Professor Wood lays down the code of medical ethics, as follows:

"(1) To consider the doctor as a member of your own family, having an inherent right to your medical services; but to remember yourself not to abuse this right.

"(2) To consider any discovery or any invention you may make as belonging not to yourselves but to the general profession.

"(3) Never in any way to laud your own medical skill or to attempt to supplant in public or private estimation one of the medical household.

"(4) To join yourself as soon as may be to the incorporated companies of your fellows for scientific and social intercourse, and for the cultivation of that professional conscience which often binds men more closely than their personal sense of right and wrong.

"(5) Through good and ill report to stand by members of your own profession, unless they be guilty of moral evil."

THE ACTION OF SMALL-BORE PROJECTILES
 OF HIGH VELOCITY ON THE HUMAN BODY.

DURING the recent Chitral expedition Surgeon-Lieutenant Jay Gould, of the Indian Medical Service, made important observations on the new projectile, known as the Lee-Metford bullet, which represents the modern tendency toward small-bore projectiles of high velocity. With considerable difficulty he succeeded in collecting some twenty-five or thirty cases, of which he reports the most interesting in a recent number of the *British Medical Journal*. Owing to the custom of the natives of carrying off their dead from the field of action and burying them immediately, he was able to observe the effect of the bullet only in case of the slightly wounded. In the cases which were studied, the range at which the patients were shot was also unknown. The value of the observations is lessened from both these causes. Nevertheless, he was able to draw important deductions, which will, at least, serve as a nucleus for further observations. In general, the conclusions reached are as follows:

¹ University Medical Magazine, August, 1895.

That from a humanitarian point of view the Lee-Metford rifle is a perfect weapon.

That the bullet obviously inflicts very little damage on the soft tissues, and that on bones its action is not severe, preferring rather to go through a bone than to badly fracture it.

The writer goes on to say :

From the little experience I have had in injury to bone tissue by the Lee-Metford bullet, I certainly think it causes but slight shock, and doubt its capacity of putting a man out of action. Instead of badly fracturing and comminuting the bone, it appears only to drill the bone and slightly splinter the edges. A hard bone like the shaft of femur it in all probability would fracture if it hit it fair, otherwise it would groove and glance off it. It apparently has little comminuting action even on the skull bones. How is it that this bullet does, or apparently does, so little harm? Is it that the small diameter, comparatively sharp apex and very hard thimble, combined with enormous spin and velocity, enable it to act as a rapidly working drill, and, consequently, simply bore a hole in the bone?

Very marked indeed is the action of the service bullet compared with Tweedie's, which is used for sporting purposes. In the latter the apex of the thimble is filed off, and its destructive effect on bone is enormous. On several occasions after shooting black buck and chinbara with a Lee-Metford sporting carbine, using Tweedie's bullet, I have dissected the wound, and found that the bones touched by the bullet were literally smashed in all directions.

On the strength of the few cases I have quoted and others still under observation, I infer that the Lee-Metford rifle is an excellent weapon in every respect but one, that is, would it stop a rush?

Another fatal case of gunshot wound with the Lee-Metford bullet is reported by H. Knaggs, M.B., in the same number of the *British Medical Journal*. In this case a careful post-mortem examination was made, the substance of which, with the inferences to be drawn, the writer gives in the following remarks :

The rifle was discharged at a distance of about ten yards, and the cartridge was loaded with black powder. The course of the bullet was inwards, backwards and downwards. From recent experience one would expect that the discharge of a small-bore projectile with high velocity and at such close proximity would produce effects much more severe and with greater comminution of hard parts than was found in this case. The wound in the spleen, though of small extent, was distinctly "explosive" in character, but the injury to the bone was limited and well defined. Though a considerable portion of the body of the vertebra was destroyed, the wound of exit was hardly larger than the wound of entrance, which is unusual in such cases, especially at short ranges, where the exit of a bullet is often marked by a wound of great extent. The case goes to demonstrate the fact pointed out lately by Professor Horsley, in a lecture given before the Royal Institution, that the destructive effects of bullets with high velocity vary directly as the viscosity of the body.

Commenting editorially upon the value of the small-bore rifle in warfare with savage tribes, the *Journal* pertinently brings forward the question whether the shock caused by even an ultimately fatal wound is sufficient to stop a charge, before the attack has been partially or wholly successful. From the experience thus far, and especially from the results of Surgeon-Lieutenant Gould's observations, it would seem that this was not the case. Every one of his (Gould's) cases recovered quickly, whereas with other projectiles there would doubtless have been a considerable mortality.

The editor concludes that "The facts at present

collected are insufficient to justify any want of confidence in this weapon for fighting at close quarters against fanatics, but, at the same time, they clearly indicate a possible disadvantage in its use, and further emphasize the need of close observation of all wounded, and the casualties caused by these small-bore rifles at all ranges by medical officers. Their interpretation cannot fail to be of value to those whose duty it is to advise the War Department upon ordnance questions."

MEDICAL NOTES.

PROSTATIC HYPERTROPHY.—The interesting discussion of the two papers on Prostatic Hypertrophy read before the Massachusetts Medical Society, which appear this week, is necessarily deferred to next week's issue.

BEQUEST TO A HOSPITAL.—By the will of the late Henry D. Polhemus, of Brooklyn, N. Y., the Long Island College Hospital will receive a dispensary building at a cost of \$250,000.

DEATHS UNDER CHLOROFORM.—Two deaths from chloroform anesthesia have recently occurred in Berlin, in both of which there were heart lesions which might have been recognized during life.

AWARD OF THE WILLIAM F. JENKS MEMORIAL PRIZE.—This prize of \$500 has been awarded to A. Brothers, M.D., of New York, for the best essay on "Infant Mortality during Labor, and its Prevention."

THE FRENCH ACADEMY OF SURGERY.—Professor Guyon has been elected president of this society in place of the late Professor Verneuil, and Professor Lannelongue as vice-president in place of Professor Guyon, named as president.

A WOMAN FOR HEALTH COMMISSIONER.—Dr. Emma Johnston Lucas has been appointed health commissioner of Peoria, Ill. She is the first woman in the city to hold any public office. The medical men of Peoria, as well as the women's club, strongly endorse her candidacy.

A PATHOLOGIST TO THE LONDON ASYLUMS.—Dr. F. W. Mott, assistant physician to Charing Cross Hospital has been appointed pathologist to the London County asylums. He is to study the pathology of insanity in all its bearings, and is expected to give up his entire time to the duties of his office.

WOMEN AT THE UNIVERSITY OF BUDA-PESTH.—The University of Buda-Pesth, in response to an inquiry addressed to it by the Minister of Instruction, has expressed the opinion that women should be admitted to the classes in the medical and pharmaceutical faculties, and should be eligible for degrees in those subjects.

TEXAS FEVER IN THE SOUTHERN STATES.—A telegram from Louisville states that a proclamation has been issued by the Kentucky State Board of Health quarantining against cattle from Virginia,

North and South Carolina, Mississippi, Indian Territory, Alabama, Texas, Louisiana, Arkansas, Georgia and Florida, giving as a reason for this action that Texas fever has been introduced into these States recently and a number of cattle have died of it. The quarantine is to be maintained during all the year except December, January and February.

THE SOCIETY OF MEDICAL PHONOGRAPHERS.—The first general meeting of the Society of Medical Phonographers will be held on Tuesday, July 30th, at 4 P. M., at the house of the Royal Medical and Chirurgical Society. Dr. Gowers, the President of the Society, will deliver an inaugural address. The meeting will be open to all members of the medical profession. The Secretary of the Society is Dr. James Neil, Warneford Asylum, Oxford.

SMALL-POX AMONG THE REFUGEES FROM MEXICO.—It is stated that there are 125 cases of small-pox among the negro refugee colonists who are held in strict quarantine at Eagle Pass, Texas. There are from five to ten deaths a day. The health officers are using every precaution to prevent the disease from spreading. The negroes are quarantined, and all fresh arrivals from Mexico are vaccinated. Not one case has appeared in Eagle Pass.

THE SCHOOL OF MEDICINE FOR WOMEN IN ST. PETERSBURG is now (says the *Medical Record*), thanks to private liberality, on a firm foundation financially and will soon be ready for work. The curriculum, which is to extend over five years, will be the same as that of the medical faculty in the university, and will be open to single women over twenty-one years of age. Single women of younger age and married women must be supplied with a written permission from their parents and husbands respectively. All students must know a certain amount of Greek and Latin. A clause provides that a woman holding the school's diploma will not be eligible as director of a general hospital.

ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.—The British Medical Association has recently (July 30th and following days) held its sixty-third annual meeting at London. Sir J. Russell Reynolds, the newly elected President, delivered the opening address on the evening of July 30th. The evening was further enlivened by orchestral music from the band of the West London Rifles and the Strauss orchestra. The Association was divided into a large number of Sections for convenience of discussion. The section in Pharmacology and Therapeutics was from the first extremely well attended, due to a discussion on Sero-Therapeutics. Prof. H. P. Bowditch was present at the meeting of the Physiological Section, and took part in a discussion concerning the yellow spot of the retina. Addresses in Medicine and Surgery were delivered by Sir William Broadbent and Mr. Jonathan Hutchinson respectively. The last London meeting of the Association was in 1873, in that year presided over by Sir William Fergusson.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, August 14, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 54, scarlet fever 13, measles 10, typhoid fever 42.

HOSPITAL BEQUESTS.—The will of the late Aaron W. Spencer, of the Boston Stock Exchange, among many other charitable donations, leaves to the Boston Children's Hospital, \$2,000; to the New England Hospital for Women and Children, \$2,000; to the Carney Hospital, \$5,000; to the Massachusetts Eye and Ear Infirmary, \$2,000, and to the Boston Dispensary, \$1,000.

A CHANGE IN THE BOSTON INSTITUTIONS DEPARTMENT.—Dr. Heath has recently made an important change in our public institutions, whereby Austin and Pierce Farms will no longer be under one head. Dr. Fisher will retain charge of Pierce Farm and Dr. Lane will manage Austin Farm. The plan is to effect a better classification of the insane than has heretofore been possible. It is extremely desirable that this should be done, so that the acute and chronic insane may be treated in separate institutions. The acute cases will be at Pierce Farm, the chronic at Austin Farm.

NEW YORK.

SCARLET FEVER AND DIPHTHERIA IN HOBOKEN, N. J.—In consequence of the prevalence of late of scarlet fever and diphtheria (about 150 cases having been reported during the past few weeks), the Board of Health of Hoboken, N. J., held a special meeting on August 5th, for the purpose of adopting more efficient measures for the checking of these disorders. There is a large tenement-house population in Hoboken, who live to a great extent in old buildings which are quite inadequately furnished with sanitary appliances. The sewerage system, particularly in the tenement sections, it is stated, is bad, and the Board of Health is handicapped by a lack of funds and the absence of a hospital for contagious diseases.

DEATH OF DR. E. J. WHITNEY.—Dr. Edward J. Whitney, a well-known Brooklyn physician, died at his residence in that city, of gastritis, on August 7th. Dr. Whitney was born in New York in 1839, and was graduated from the Medical Department of the New York University. He entered the United States service as a surgeon in 1861 and served with distinction throughout the war. After its conclusion he remained in the army for some time. For a considerable period he was stationed on the frontier in Arizona, and he was medical director of the expedition which escorted the first Governor of Arizona to his duty during the troubles in that territory.

DEATH OF DR. W. A. BETTS.—Dr. William A. Betts, a highly esteemed practitioner at Red Bank, New Jersey, died at his residence in that place, of cardiac disease, on August 5th, at the age of sixty-two.

Dr. Betts was a graduate of the College of Physicians and Surgeons, New York, and had practised in Red Bank for thirty-four years.

AN INFANT COLOSSUS.—A male child, fifteen months old, which is said to have weighed 92 pounds, died at Coney Island on August 10th. It had been of phenomenal size from early infancy, and was exhibited at several museums during the past year.

Miscellany.

NEEDS OF THE BOSTON FLOATING HOSPITAL.

THE work of the Floating Hospital has thus far been entirely satisfactory.

A much larger number of sick babies has been cared for than last summer, and the rules governing admissions have been carefully enforced. Besides additional physicians and nurses, two trained nurses visit the children between the trips, which entails an additional expense.

In view of these facts, \$500 more is needed to complete successfully the work of the season, which it is hoped will be forthcoming.

Contributions should be sent to Rufus B. Tobey, Berkeley Temple, South End, "A," or to Dr. Francis H. Brown, 4 Exchange Place.

HEMORRHAGE AFTER TOOTH EXTRACTION.

DR. JAMES McNAUGHT reports, in the *British Medical Journal*, the following simple method of checking hemorrhage after the extraction of teeth:

"It consists in passing a double silk thread through both sides of the torn gum, either with an ordinary curved needle or a handled needle, and then tying firmly over the alveolar border. In none of the cases in which this method has been employed has it failed to stop the bleeding immediately and permanently. The stitch may be removed at the end of forty-eight hours."

The temporary success or complete failure of the usual methods in this stubborn form of hemorrhage, make one of such apparent certainty exceedingly welcome.

SULPHONAL POISONING.

AN interesting case is reported in the *Lancet*, in which a dipsomaniac, after taking a large amount of alcohol in various forms, swallowed 265 grains of sulphonal.

The first symptoms were stupor, flexion of the knees, contracted pupils and absence of light reflex. The following day the legs were extended, and the soles of the feet arched in extreme flexion.

She slept from 5 P. M. on June 1st till 5 A. M. on the 4th—sixty hours—and did not regain speech till the 7th and the power of locomotion till the 9th.

This case is interesting as showing the irritation produced to the plantar branches of the post-tibial nerve—presumably by the sulphonal—and the long period that elapsed before the toxic flexion of the soles made itself manifest, thus showing the slowness of the action of the drug.

LENGTHENING OF THE MEDICAL COURSE.

THE constantly growing tendency of the last few years to increase the requirements for the degree in medicine is apparently reaching every section of the country. The two-years' course, so long a disgrace to American medical education, will no doubt soon be a thing of the past. Such limited instruction as a two-years' course implies must be ultimately self-destructive, even without legal enactment requiring a more prolonged period of study. The *Cincinnati Lancet-Clinic* speaks of the advantage which Cincinnati will derive from the lengthened curriculum adopted by the American Medical College Association, in the fact, everywhere true, that better prepared students will more than make up for any lessening in the number of new matriculants. Were medical schools more adequately endowed, the good work would doubtless proceed much more rapidly than it has in the past.

COMPARATIVE STANDING OF THE AMERICAN MEDICAL PROFESSION.

THE *Philadelphia Medical News* of July 27th comments at considerable length, editorially, on the relative standing of physicians in different countries, with conclusions by no means derogatory to America. The writer speaks of the shortness of our medical courses, the lowness of our examination requirements, the number of our charlatans and the popularity of the patent medicine. But in all this he finds America not essentially worse than the European countries, the apparent difference being due to our peculiar surroundings and conditions of life.

The fact that America has a physician to every 500 inhabitants, when England has a quarter, France a sixth, and Germany an eighth as many, finds its explanation in the character of our population, thinly scattered, especially in the West, over large areas of country, and therefore requiring a physician for a much smaller number of people, than would be the case in populous towns and cities.

The "rapid process" doctor, it is maintained, fills a much-needed want in those scattered communities where a well-trained physician would not be content to stay, hence a justification for our two-year courses. Considerable stress is laid upon the value of our post-graduate courses, as a means of supplying early deficiencies in education, a system of instruction scarcely known in England.

The ethical tone of the American physician the writer does not hesitate to put above that of our foreign neighbors, as exemplified, for example, by the court-physician's treatment of Morell Mackenzie in case of the Emperor Frederick. Quackery, also, is by no means limited to America, as the popular idea maintains, nor do patent medicines find here their securest home, in spite of the greater publicity of their advertisement.

In conclusion, the writer aptly sums up the state of affairs in the following paragraph:

"In short, all professions, as all nations, have their shortcomings, and while we have many things to be heartily ashamed of, both as individuals and as a class, and should slacken our struggle for self-improvement not a whit, yet we think it only fair at times to take stock of our virtues as well as our vices, and to cheer

ourselves with the thought that with all our shortcomings our intentions are good, our hearts in the right place, and our rate of progress distinctly appreciable."

Correspondence.

MODERN FEMALE INVALIDISM.

IN the course of the preparation of the Shattuck Lecture for 1895, on "The New England Invalid," recently published in the JOURNAL, its author, Dr. R. T. Edes, obtained a letter from Dr. Mary Putnam Jacobi, which by his and her permission we print. The letter was not originally prepared for publication. Criticisms might perhaps be made upon it as to its details, but as a whole it is very interesting and suggestive, and we commend it to our readers.

HOTEL SAN MARKO, ST. AUGUSTINE, FLA.

DR. ROBERT T. EDES. *Dear Sir:*—Dr. Morton handed me your letter to her some two or three weeks ago, asking me to comment on it. I do not know that my comments will be of any use; still, as Dr. Morton asked me to do so, I will offer a few suggestions.

In the first place, it seems to me that this entire question needs to be dealt with on a much larger scale, and from a more anthropologic standpoint than is usually the case. Impairment of reproductive function through disease, or imperfect development of the reproductive organs, is a race fact of the greatest importance; and much evidently depends on quite a combination of conditions. To assume, as good old Miss Beecher did, that all the troubles connected with reproductive organs can be explained by the habit of wearing many petticoats, is to rely upon a most superficial and inadequate explanation. Miss Beecher suggested, as a remedy for the evil, a hoop skirt, which actually and by independent agency came into fashion a few years later; but I doubt if it greatly changed the conditions Miss Beecher was considering.

In the most general sense, and apart from specific infections and mechanical injury, utero-ovarian disease is evidently traceable to imperfect development; and it cannot be denied that this is alarmingly prevalent among American, and especially among New England girls. But I think it is putting the cart before the horse to assert that this imperfect development of the reproductive organs and corresponding nerve centres, is due to over-stimulus, over-education of the intellectual centres.

The first question to ask is, Why are the latter centres in such a state of activity, that they spontaneously demand opportunities for greater exercise, or eagerly respond to the systematic education, which for the first time in the history of the world, is offered to masses of girls?

My own answer would be complex. In the first place, it seems to me that reproductive failure, or rather the relative degree of it which is observed, and which is shown in amenorrhea, dysmenorrhea, the ovaro-metritis of menstrual subinvolution, in sterility after the birth of one child, that these phenomena are fundamentally phenomena of acclimation. On that very account they should be more conspicuous in New England, whose rigorous climate differs more from that of Old England than does the climate of the Middle States. In the South and West the influence of malaria replaces the influence of a colder climate.

I am immediately reminded that the climate of Canada is more rigorous than that of New England; yet both French and English Canadians are remarkable for fertility, and I think are much less subject to uterine disease.

It is evident, therefore, that other elements come in to complicate one that always exists to some extent unless counteracted, when a race is transplanted to a foreign

climate, as the English in India. The second condition I would refer to the special circumstances of the settlement of New England. For a hundred years there were conditions of peculiar hardships; and the present inhabitants are in many cases the descendants of those who during that first century struggled at once with cold, poor food, confinement to mean houses for two-thirds of the year, epidemic disease (small-pox) the morally depressive influence of constant apprehension from the Indians, and constant gloom from a religion as ferocious as the character of the Indian enemy.

In Canada during this same century, there was relatively little settlement by families who left descendants; it was colonization by monks and nuns and soldiers; and the half-breed illicit progeny of the latter had one ancestral foot well planted in the soil. The real colonization of Canada began in the next century, when conditions of life were beginning to be easier. On the other hand—and here is a curiously cross influence, which I think we must take into account—increasing care of life means diminished infant mortality and a consequent survival of individuals with a debility which, though sheltered during childhood, manifests itself irresistibly during adolescence. The powers of life, sustained for the more or less adequate fulfilment of individual functions, flag in reproductive nutrition; the wave ebbs from its outermost expansion. Another cross influence comes in here, which is almost paradoxical: namely, that people of exceptional longevity are now known not to transmit as much vigor to offspring as do those of only average strength. Hence, only those who survived exceptionally severe conditions, such as surrounded the early New England colonists, may be presumed, like the people who to-day live to eighty and over, to have absorbed or consumed the nutritive forces of the organism in the interest of individual functions; leaving less for the "supplementary waves" of reproductive nutrition, and less for the offspring developed in these.

How often does every physician receive in his consulting office frail girls brought by robust mothers, who cannot understand this fragility when they themselves have never been ill in their lives? This is the converse of what is also seen in the robust sons of sick mothers who seem to have absorbed all the strength of the parent stem. The influence of tubercular inheritance is especially important both in the development of uterine disease, of the anemia which often precedes this, and of the neuroses which may either precede, originate or replace this. I think cervical catarrh in young girls, with passive pelvic congestions and uterine displacements from relaxation of ligaments and of the pelvic floor, may almost invariably be traced to a tubercular family diathesis, as it frequently precedes tubercular disease in the individual.

Tubercular disease makes a *premier étage* of degeneration, that which gives a susceptibility to an external agent; hence is less profound than the spontaneous degenerations of the grave neuroses. Yet how many of the latter also, at their inception, merely imply a susceptibility to physiological or other irritants and would be averted were the nature of these better understood!

I believe that ovarian disease, on the other hand, though always originating in some degree of fundal endometritis, whenever it assumes marked prominence or independence, is always rooted in a neurotic diathesis rather than in a tubercular. Many of the nervous or even mental disorders often assigned to "reflex ovarian irritation" are the direct expression of cerebral disease or cerebral malnutrition, which also causes the vaso-motor paresis in the vascular territory of the ovaries; at least, this is my explanation.

Here, again, the individuals who would in former generations have died of tubercular disease in infancy or early adolescence are preserved by a better hygiene, therapeutics or climatic adjustment, to mature life, but on penalty of suffering from uterine disease excited either by celibacy or childbirth.

And, again, it was not necessary to wait for Grasset to show (as in his essay on "Tuberculosis and Hysteria")¹

¹ Brain, 1880 ('7)

that the neuropathic constitution in itself is often a transformed tubercular diathesis.

The wide prevalence of consumption in New England, due to climate, to poor food, and to imperfect acclimation among ancestors, is certainly a very important source of uterine disease, and attendant or equivalent neuroses in the present generation.

I believe it is also true that the imperfect development of reproductive organs, nerve centres, and correlatively of sexual instincts, is one reason that the intellectual life of women, and the cerebral cortex, has in the present generation become more active. To suppose that cerebral activity could dwarf sexual activity (which is often alleged) is absurd, or rather, though theoretically conceivable, is in contradiction with known facts. The one fact, now noted by ethnologists, that sexual passion is far more highly developed among highly civilized peoples than among savages, shows that normally the two poles of existence develop *pari passu* and not in antagonism to each other. Detailed proof could easily be furnished were it necessary.

But until now, women have not held a normal position as complete human beings; their mental activity, though often considerable, has been spontaneous, untrained, unsubjected to systematic educational drill. I think the flagging of reproductive activities, due to temporary impairment of race vitality, has facilitated this extraordinary new departure in the *régime* of the race, whereby the sex whose brain has been hitherto neglected, is to-day educated, stimulated, often unfortunately forced.

But because this new departure is a race innovation, it undoubtedly involves difficulties and dangers, risks a certain dislocation of organic adjustment, which can only be gradually triumphed over. It requires the most careful study of individual cases, and recollection of three facts. First, that the girls already in possession of the most active, responsive and readily educatable brains, may be especially deficient in general organic force, and especially as manifested in the reproductive organs, hence unprovided with the undercurrent of sexual strength which is needed to healthfully support cerebral activities. Second, that the other girls — and there are to-day not a few of this class — who are not only mentally active but seem physically sound and strong, may not have the final reproductive strength; their menstrual life is healthy, but they may either break down in child-bearing or have delicate children. Third, that the reproductive imperfection in question may show itself at first by no more tangible symptoms than moral incapacity for love or marriage, or fantastic perversity of sentiment in regard to these fundamental interests, this incapacity frequently involving or determining social situations that react most disastrously upon the health of the "highly strung" individual.

With all these race and constitutional complications, when educational systems are adopted which not only ignore such general considerations but violate the most elementary principles of ordinary hygiene; when brains which are not only immature but female, and whose stock of inherited capacity for trained work has all been derived from the parent of the opposite sex; when such brains are submitted to an often illogical cramming; when food is inadequate and exercise absolutely neglected; when hours of work are imposed which no adult woman would bear, and few men; when all this work is carried on under the stimulus of high-pressure competition, emulation, vanity, sometimes fear; when hundreds of girls are shut up together in the exciting atmosphere of a college life, so that their nerves are mutually reacting on each other, — under all these circumstances it is not at all wonderful that towards the close of adolescence so many girls exhibit constitutional debility and uterine disease.

It must, however, be noted, and contrary to what might theoretically be expected, that the influence of superior education, although occasionally seeming to be detrimental, is far less so than any other observed agency. Where there is to be trouble, this is always distinctly foreshadowed at or before the ages of sixteen, seventeen, eighteen, when the college education begins. My own statistics, as col-

lected in the essay on "Rest in Menstruation," and also those which have since been collected by college alumnae, all show that the least ill-health is found among the women who have been most highly educated. Of course, the fact partly shows that only healthy girls complete their course and graduate; others fall away earlier. At all events, the college-bred women are still so much in the minority that the general statistics are hardly affected by them; yet physicians often write as if these constituted the mass of nervous invalids.

But the list of causes of the special invalidism of the century is not yet ended. Every city physician who has also seen country people must have noticed that while mechanical injuries from childbirth are rather more common among country people, their influence is apt to remain limited to mechanical discomfort. But a much less degree of injury in city women excites, or is liable to excite, a protean swarm of nervous disorders. The French comment emphatically on this contrast between the Parisian and peasant women. Evidently this implies more delicately strung nervous organization, in more unstable equilibrium, as more developed among the inhabitants of cities, or specifically among the women who have been freed from manual labor. I think Tolstoi is quite right in asserting that such freedom is a curse to the "upper classes."

If the excessive drudgery of New England ancestors under unfavorable conditions weakened the constitution of their descendants, the excessive luxury of these descendants is certainly a second cause of weakness. I am not speaking now of coarse and unreasonable luxury, but of the refined and delicate ease of life and sensibility in which so many thousands now contrive to live — up to a certain point an advantage and a grace, beyond this a dangerous effeminacy. In manual drudgery, or in Puritan asceticism, there are dangers from exhaustion, depression, or gloom; but there is at least a discipline, an enforced stoicism, which is of immense value in bearing toil, trouble or shock. To-day stoicism has vanished from education, as asceticism from creeds; it is considered natural and almost laudable to break down under all conceivable varieties of strain — a winter dissipation, a houseful of servants, a quarrel with a female friend, not to speak of more legitimate reasons.

Women who expect to go to bed at every menstrual period expect to collapse if by chance they find themselves on their feet for a few hours during such a crisis. Constantly considering their nerves, urged to consider them by well-intentioned but short-sighted advisers, they pretty soon become nothing but bundles of nerves. They suffer from lack of the wholesome neglect to which their grandmothers were habitually consigned; too much attention is paid to women as objects, while yet they remain in too many cases insufficiently prepared to act as independent subjects. A healthy objectivity is one of the greatest desiderata for modern women. To knock the nonsense out of them, to direct attention from self, to substitute a cosmic horizon for that of their own feelings, who does not know the importance of this for thousands of hysterical women? and equally the impossibility of attaining it?

I think, finally, it is in the increased attention paid to women, and especially in their new function as lucrative patients, scarcely imagined a hundred years ago, that we find explanation of much ill-health among women, freshly discovered to-day, but which always existed, and which is often due to conditions arising among men, and not therefore new. Shattered nervous systems are inherited by girls from the alcoholism of the fathers; gonorrhea contracted by wives from husbands; sterility due to licentiousness in which the innocent woman may have no share; enforced celibacy due to bad social arrangements; occasionally, though less and less frequently, childbirths too close together; certainly all these causes of ill-health to women have existed for centuries. I think the peculiarity of the present time is that now attention is being drawn to the special effects produced upon women by these general causes. All of which is respectfully submitted,

Very truly yours,

MARY PUTNAM JACOBI.

METEOROLOGICAL RECORD.

For the week ending August 3d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.		Daily mean.		Daily mean.									
			Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..28	29.83	72	77	66	70	53	62	N.	N.W.	15	5	F.	C.	.03
M..29	29.93	69	80	58	53	58	56	N.W.	S.W.	8	14	C.	C.	
T..30	29.76	71	79	63	69	90	80	S.W.	W.	16	6	C.	C.	.46
W..31	29.83	63	72	54	56	60	58	W.	S.W.	9	9	C.	C.	
T..1	29.86	64	71	56	56	65	60	W.	S.W.	15	8	O.	F.	
F..2	29.94	66	72	59	71	71	71	W.	S.E.	9	5	O.	F.	
S...3	30.01	68	79	58	53	60	56	W.	S.W.	6	10	F.	F.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 3, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,956,000	893	492	26.20	9.60	18.10	.80	3.80	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	—	—	—	—	—	—	—	
Brooklyn	1,043,000	500	288	33.00	8.80	28.60	.80	1.60	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	244	137	31.98	6.56	27.47	1.64	2.87	
Baltimore	500,000	—	—	—	—	—	—	—	
Cincinnati	325,000	—	—	—	—	—	—	—	
Cleveland	325,000	110	—	24	—	—	—	—	
Washington	285,000	103	53	27.16	7.76	21.34	2.91	.97	
Pittsburg	272,000	86	48	24.36	8.12	18.56	3.48	2.32	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	35	10	28.60	2.86	17.16	11.44	—	
Charleston	65,165	38	9	15.78	18.41	5.26	7.89	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	24	17	44.38	6.34	38.04	3.17	—	
Fall River	92,233	57	36	50.75	5.25	49.00	—	—	
Lowell	90,613	36	24	50.00	5.56	47.26	—	2.78	
Cambridge	79,607	31	21	51.68	—	38.76	3.23	6.46	
Lynn	65,123	20	10	30.00	15.00	25.00	—	—	
Springfield	50,284	14	8	50.00	—	50.00	—	—	
Lawrence	49,900	—	—	—	—	—	—	—	
New Bedford	47,741	31	20	45.22	—	45.22	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brookton	38,939	5	3	—	—	—	—	—	
Salem	33,155	26	15	42.35	3.85	34.65	3.85	—	
Haverhill	32,925	9	6	—	11.11	—	—	—	
Malden	30,209	14	6	42.84	7.14	42.84	—	—	
Chelsea	29,606	11	5	18.18	—	—	—	9.09	
Fitchburg	29,383	7	2	—	14.28	—	—	—	
Newton	28,837	12	6	—	6.25	—	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,964	10	4	20.00	10.00	—	10.00	—	
Waltham	22,058	9	1	—	11.11	—	—	—	
Quincy	19,642	10	5	40.00	20.00	30.00	—	—	
Pittsfield	18,802	3	1	33.33	—	33.33	—	—	
Everett	16,886	9	4	11.11	—	11.11	—	—	
Northampton	16,331	2	1	50.00	—	50.00	—	—	
Newburyport	14,073	5	3	40.00	—	40.00	—	—	
Amesbury	10,920	4	2	25.00	—	—	—	—	

Deaths reported 2,467; under five years of age 1,292; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 786; consumption 218; acute lung diseases 136; diarrheal diseases 622; diphtheria and croup 64; typhoid fever 37; measles 22; whooping-cough 22; cerebro-spinal meningitis 8; scarlet fever 5.

From measles New York 13, Brooklyn 9. From whooping-cough New York 14, Providence 3, Washington 2, Boston, Fall River and Cambridge 1 each. From cerebro-spinal meningitis New York 5, Worcester, Chelsea and Taunton 1 each. From scarlet fever New York, Providence, Lynn, Quincy and Amesbury 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending

July 27th, the death-rate was 22.5. Deaths reported 4,572; acute diseases of the respiratory organs (London) 185, diarrhea 903, measles 156, diphtheria 77, whooping-cough 55, scarlet fever 39, fever 22, small-pox (Oldham 2, London 1) 3.

The death-rates ranged from 11.8 in Brighton to 31.5 in Preston; Birmingham 20.3, Bradford 21.4, Cardiff 18.4, Hull 25.7, Leeds 24.0, Leicester 23.7, Liverpool 30.0, London 23.0, Manchester 25.0, Newcastle-on-Tyne 16.9, Nottingham 17.7, Portsmouth 17.0, Sheffield 21.1, Swansea 16.7, West Ham 30.1, Wolverhampton 27.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 2, 1895, TO AUGUST 9, 1895.

A board of officers to consist of MAJOR PHILIP F. HARVEY, surgeon; MAJOR GEORGE H. TORNEY, surgeon, and CAPTAIN CHARLES F. MASON, assistant surgeon, is appointed to meet at West Point, N. Y., August 15, 1895, or as soon thereafter as practicable, for the physical examination of the cadets of the first and third classes; the cadets of the second class on their return from furlough and such other cadets of the U. S. Military Academy and candidates for admission thereto as may be ordered before it.

A board of officers is appointed to meet at Fort Robinson, Neb., on Friday, September 6, 1895, for the examination of CAPTAIN LOUIS W. CRAMPTON, assistant surgeon, with a view to determining his physical fitness for promotion. Detail for the Board: COLONEL DALLAS BACHE, assistant surgeon-general; MAJOR HENRY McELDERREY, surgeon; MAJOR JOSEPH K. CORSON, surgeon.

Leave of absence for two months is granted FIRST-LIEUT. CHARLES F. KIEFFER, assistant surgeon, U. S. A.

Leave of absence for one month is granted MAJOR EZRA WOODRUFF, surgeon, Fort Keogh, Montana.

Leave of absence for two months is granted FIRST-LIEUT. WM. F. LIPPITT, Jr., assistant surgeon, Fort Leavenworth, Kansas.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 10, 1895.

C. G. HERNDON, surgeon, detached from Bureau of Medicine and Surgery, to duty on the "Lancaster."

F. C. BRATHWAITE, passed assistant surgeon, detached from Naval Hospital, Norfolk, Va., to duty on the "Lancaster."

E. R. STITT, passed assistant surgeon, detached from special duty and ordered to the "New York."

J. F. URLE, passed assistant surgeon, detached from the "New York," and granted two months' leave.

I. W. KITE, passed assistant surgeon, detached from the Monitors to duty on the "Franklin."

L. L. YOUNG, passed assistant surgeon, detached from the "Franklin," to duty at Naval Hospital, Norfolk, Va.

SOCIETY NOTICES.

TRI-STATE MEDICAL SOCIETY.—The seventh annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held in Chattanooga, Tuesday, Wednesday and Thursday, October 8th, 9th and 10th. The programme will be announced later.

FRANK TRESTER SMITH, M.D., Secretary.

MEDICAL SOCIETY OF VIRGINIA.—The twenty-sixth annual session of the Medical Society of Virginia is to be held in Wytheville, Va., beginning September 3, 1895.

LONDON B. EDWARDS, M.D., Recording Secretary.

APPOINTMENT.

DR. C. E. EDSON has been appointed a physician to the medical out-patient department of the Boston City Hospital.

RECENT DEATH.

DR. BENJAMIN S. MACKIE, U. S. N., died at Philadelphia on July 25th, at the age of fifty years.

BOOKS AND PAMPHLETS RECEIVED.

Colorado School of Medicine, Annual Announcement, 1895-96. Cystic Tumors of the Vaginal Vault, with Reports of Two Cases. By Frederick Holme Wiggin, M.D. Reprint 1895.

Address.

THE PROFESSION AS VIEWED BY THE PUBLIC.

BY C. ELLERY STEDMAN, M.D., DORCHESTER.

"THE Breviary of Health," by Andrew Borde, published in 1547, has this prologue, which I adopt: "Egregious Doctors and Masters of the eximious and arcane Science of Physic — of your Urbanitie exasperate not yourselves against me for writing this Boke." I wish I could sustain such an exordium, and I feel that you will be disappointed that I am constrained to sink to a colloquial level. As you have appointed me to fill a half-hour of your hard-earned leisure, you must take the consequences while I talk to you in a familiar and rambling manner, with an unavoidable and cruel abuse of the first person singular about some views which the public holds of the profession.

In the set orations and addresses which the year brings round we are generally told of the progress which science has made; we are reminded of the blessings bestowed on mankind by vaccination, anaesthetics, antiseptics, and bacteriological research, and we complacently dwell on the glory reflected on us, humble practitioners, by the great minds of the profession. All this is very right and very true. It is just and proper that we should feel that our vocation is a noble one, and has numbered in its ranks some of the great ones of the earth. But with this righteous pride it will do none of us harm and some of us good to recall now and then what people say of us, and consider if there are any grounds for aspersions on our manners and customs. By the people I do not allude to the anti-vaccinationists, or the anti-vivisectionists, or the anti-registrationists, or to the faith-curers in all their branches, including homeopaths, or to the noble army of cranks, or to those of the best educated among us, but to the People with a large P, who send for us when they are ill, and who pay, or do not pay, our bills. There is, we all know, a class, not small, who declaim loudly against doctors and their ignorance, and boast that they never need them. These are they who when taken ill want the doctor in the greatest hurry, demand the most attention, and whose recovery is signalized by a woful amnesia in regard to the physician's remuneration.

"Tres medicus habet facies unam, quando rogatur,
Angelica: mox est, cura juvat, ipse Deus:
Post ubi curato, poscit sua præmia, morbo,
Horridus apparet, terribilisque Sathan.

— *Enricus Cordus.*

"Three faces wears the Doctor: when first sought
An angel's, and a god's — the cure half wrought;
But when, that cure complete, he seeks his fee,
The Devil looks less terrible than he."

The testimony of such we can dispense with. To reach the other extreme we have only to remember that each one of us has two or three patients who would prefer to die under his hands, than get well at another's. The partiality of many of them is too apparent to be useful, and though they try to show themselves our best friends, their unreasoning and injudicious praise often does us harm; they tease patients of other doctors into changing their physicians, and beget the lively hatred of our dislocated brother.

But the consideration of such items would lead us too far.

The gravest charge made against the profession and the most widely credited, is that of being abortionists. Let us consider the grounds of this imputation. One of our best men, whom all of us respect and many of us love, was called to a young woman in one of his families, and to his vast surprise found the maiden — whom he had known from her birth — in the throes of a miscarriage. After scolding briskly for some minutes, he proceeded to relieve her of her chorionic encumbrances. As he worked red-handed an aunt came in, and rising to the situation, exclaimed, "So you *are* in the business after all." The rage of the good-hearted and honorable man may be fancied. He now devotes himself to the infernal gods if he ever attends a woman in that trouble again; and if he finds himself caught at the bedside, he abandons the case.

Last winter I was called to assist in a tragic drama. A young wife who had a child a year old; a devoted and adoring husband; was pretty, lively and agreeable, but spoiled, having never had anything denied her; who had everything to live for — in the absence of her doctor sought my advice, in dreadful distress because she was pregnant. On his return she asked his counsel, but would not take it, nor listen to argument, preaching nor soothing, but said if we could not help her she would go to some one who had the knowledge and means to do it. She kept her word, alas, and in due time my friend was summoned. She had been, six days before, to an abortionist — a woman — who had inserted a bougie which remained *in situ* three days; a man came out two or three times to see her. She had not been changed nor washed: the chamber reeked with a fetid odor; pain and chills and fever, racked her body, while her mind was wrung with remorse and apprehension. Every resource known to modern science was applied, but in vain; and she died, after an illness of three weeks, in wild delirium. Although it is not required by law that we should report the occurrence of any case of criminal abortion, otherwise than by the death-certificate, the medical examiner was at once notified. He came, and tried to find out the names and address of the criminals; but the husband, to whom the wife had confided them, stoutly kept the secret. The examiner reported that the embalmer had already put in his destructive work, that it would be impossible to identify the malefactors, and that further investigation would only make a noisome and useless scandal. Nothing could be done. I was abused for calling in the medical examiner. The murderess, slapping her pocket, if she had one, with ghoulis glee, rejoiced and was exceeding glad that she had encompassed her reward, and made us her accomplices. Were we not her accomplices?

Most of you have read in the *New York Medical Record* of March 23, 1895, the affecting experience of two good doctors in that progressive town. For the benefit of those who have not I will reproduce a part of the report: A reputable physician was called to see a woman dying of septic peritonitis in the house of a midwife. The patient denied that any criminal operation had been performed, and positively stated, to the best of her knowledge, that the miscarriage of which the sepsis was the result was caused by a strain in lifting. The midwife said that she had only used tampons to control the flooding. The gravity of the case made a consultation necessary. The consultant,

¹ An address to the Norfolk District Medical Society, June, 1895. Published by request of the Society.

after hearing the same story, proceeded to afford such counsel and assistance as seemed necessary, after which the patient was sent to a neighboring hospital. The hospital authorities promptly notified the police, and the following morning the two physicians were taken into custody and escorted from their offices by two policemen to the station. The patient, however, was dead when the physicians and police arrived. Before she died the patient charged the midwife with the abortion, but emphatically exonerated the two gentlemen who had endeavored to minister to her in her extremity. In spite of this positive evidence, the physicians were taken to the Police Court and thence under the escort of two detectives, and in company of the midwife, were sent to the coroner's office. The coroner, taking an undue advantage of the situation, insisted on imprisonment or bail, but was eventually persuaded by parties who were better able to understand the real merits of the case to release the supposed culprits on their own cognizance. A coroner's jury of physicians subsequently entirely exonerated the attending physicians, but not until the suspicions of criminality against them were widely published by the daily press.

Dr. A. Y. Reid, of New York, had his experience of this kind in 1892. He was exonerated by a jury of eminent physicians, but a police captain said that Dr. Reid would thereafter have to swell the ranks of the abortionists, meaning that legitimate practice would leave him. Such was known to be the usual effect of having one's name enter the newspapers in connection with cases of abortion, however innocent he might be. Dr. Reid's patients did not leave him, fortunately; but his practice suffered, while legitimate expenses had been over seven hundred dollars. All this, by the way, is owing to the adherence of the people of New York to their antiquated coroner's system, and could not happen here. Such reports—served in the spicy, exaggerated, irresponsible style of modern journalism—help to form public opinion.

I do not suppose that I am alone in the experience of epidemics, the symptoms of which occur in matrons (sometimes spinsters) who come to one's office having reason to dread that they are pregnant. It is odd how such cases come in batches. Their fright in nine cases out of ten is groundless. Early in my career I used to prescribe for them small doses of aloes and myrrh. The recipe acted in some by their taking the whole prescription at once, or doubling it, or persisting in its use till their *primæ viæ* were raked as by a brush harrow—with the result in some cases of causing, or coinciding with, a return of the menses. Certain exaggerated expressions of gratitude led me to reflect. I next told such patients that what I gave them would not relieve the amenorrhea of pregnancy, and exhibited iron, or what was really a placebo. Fewer clients were grateful, but now and then one was too thankful by half. It is now many years since I have told women thus applying that I would not prescribe for them if there were any reason to suspect pregnancy. If you give medicine to a woman who thinks she is pregnant—and her period returns—nothing will convince her that she was not *enceinte*, that your recipe has not done the work and relieved her of her burden, and she will tell her friends how you have helped her. Who has not been told—when he declined to interfere—that other doctors do it; and the patient will give names of good repute to fortify her statement,

which is born of some such practise as I have noticed. Nothing but a point-blank refusal to have anything to do with the case will produce the desired effect. And it is best to add when they threaten to go to an abortionist that they must not send for you to supplement his work. They seldom do go if probable consequences, physical, moral, and legal, are forcibly presented. But if you do so present them, you may consider your own hands aseptic, even if you have to eat your words and attend the patient after all you have said.

I know of a case, not in this neighborhood, where a physician was applied to by a young lady in one of his choice families who had the best of reasons for believing herself to be in the family way. After recovering from the shock, he deeply lamented the situation, and that professional reasons and legal requirements forbade him to help her out of her dilemma. She then declared that she knew where to go for help. Just how it was arranged I know not; but I do know that she went to the abortionist, that the family doctor engaged a nurse who received her on her return from town, and who, it was given out, was Cousin Minnie from Buffalo, on a visit. The doctor was sent for, assisted in the expulsion of the ovum, everything went off well, no one was the wiser, and miss soon recovered from the grip. I hold, and I hope all here hold, that the doctor, if the story be correctly told, was accessory and accomplice in the abortion. I say I hope; for I regret to add that some of his friends maintain that he did nothing professionally or morally questionable.

A friend of mine found himself wondering how it was that so many cases of miscarriage fell to his lot. He learned later that a well-known abortionist of the day had operated on a woman who had been obliged subsequently to send for my friend. He did his work so well, that the miscreant was pleased to approve, and recommended all his victims to send for him if they needed a doctor. Thus my friend—one of the straightest of our sect—found himself, to his dismay, in association with a man whose neck he would willingly have broken. The partnership was dissolved, I believe, by the death of the senior member.

By such methods are we made the accomplices of the abortionist; and it is not easy always to avoid the complication. As I have said, some physicians declare that if they find their patient to be the victim of a criminal abortion, they leave the house at once. That is virtuous and noble on their part, but what is to become of the patient? Is she to be left to hands that may be less deft and experienced? "Oh, well!" they say, "she has made her bed, and must lie in it; she shall take her chance." I argue this stand to be wrong. We find a woman suffering and in danger; our professional honor requires us to succor her or provide a trusty substitute. We are not the judges of her morals, nor are we to execute punishment of her sins. Such refusal only unloads the work, the anxiety, the responsibility, on shoulders which may be less broad, and quite as reluctant, if more sturdy than our own. Because the poor girl has got herself into a scrape, and in her bewilderment or her ignorance—for all such patients have not been warned of consequences—she is not to be left to die, as Dean Swift said he was, like a poisoned rat in a hole, because all skilled men and women will not go near her by reason of their superior virtue. This reasoning does not ap-

ply to our friend above mentioned who engaged the nurse, for he was not called in to confront a surprising and unwelcome condition, but had made the road smooth for the abortionist. Nor need it prevent our threatening the patient that we will not attend her, for menace is usually potent enough to prevent the crime. A few more leads in this direction would land us in the position of declining cases of specific disease because of their origin in lapses of virtue, which would be a regrettable loss to science and to our bloated bank accounts, besides delivering the victims into the hands of the advertising hobgoblins.

I do not blame some women for going wild when they find themselves pregnant. A large family, narrow means, a drunken or stingy or surly husband, ill health, may — all or some — make the burden too hard to bear. But though some seem to be almost irresponsible at the time, nearly all are amenable to reason. More than once have I asked a happy mother, who in the first months of her gestation, had begged and prayed to be rid of her load, what she would take for that baby now. The flash of gladness and the hug of maternal love were answer enough.

If there are any here who have not ignorantly procured an abortion, I congratulate him or her. Twenty-odd years ago I attended a young matron for amenorrhea. I was particularly careful about vaginal examinations, fearing to do harm if she were in the family way. As she did not gain fast, I sent her into the country. The change of air and scene, and the absence of household care and worry, did wonders. A monthly period returned, and she came home in renewed health and beauty. Soon afterwards she fell ill again; and in two or three months I was called once more, to find her again amenorrhic. I blamed myself for neglecting thorough examination, and instituted one that afforded me the information that the uterus was four inches long internally. The next morning I was joyfully told that she had miscarried in the night. The case was plain. The country air, and freedom from anxiety had cured the amenorrhea; nature responded by immediate conception; and I spoiled her work by my meddling. The lady was immensely grateful for my services; and to this day I have no more devoted friend, because she was convinced, in spite of all said to the contrary, that the result was owing to my sagacity and friendship — instead of gross ignorance.

The possibility of early and artificial termination of pregnancy seems to be known in other countries in no such degree as in this. This is partly owing to our prudery in regard to the marriage relation and the lack of proper teaching about it by our rulers and governors, doctors, spiritual pastors and masters. I have often wondered how much of the infrequency of criminal abortion in England was due to the comprehension of the nature of wedlock, as set forth in the marriage service of the Established Church, which gives no uncertain sound in its teachings about matrimony. Every woman who is wedded in that country from the queen to the poorest peasant is told (or was told till within a few years) before the altar what the object of marriage is, in language which admits of no mistake. Let me read you a few sentences. The opening address ends with duly considering the causes for which matrimony was ordained. First, it was ordained for the procreation of children to be brought up, etc. Second, it was ordained for a

remedy against sin and to avoid fornication; that such persons as have not the gift of continency might marry, etc. Then they sing the psalm about thy wife shall be as the fruitful vine and thy children like the olive branches round about thy table. And next the parson prays that they may both be fruitful in the procreation of children, that they may see their children Christianly and virtuously brought up. Not much sickly sentimentality about that. Fancy the pastor of the First Church or of the Old South or the rector of Trinity lecturing a fashionable bride in that strain. How long would he hold his position? All these dreadful things are cut out of the American prayer-book. No Protestant clergyman in this country would refer to the indecent subject of children at a wedding. We all know how the Church of Rome enjoins on its laity to increase and multiply, and what safeguards she throws around the fetus; and to my untutored mind it seems as if the Roman and the Anglican teachings would not be wholly amiss in our own beloved land.

In "Outre Mer," Paul Bourget recalls the story of the fashionable lady in New York, who, when told that her friend, married last year, had presented her husband with twins, exclaimed "How vulgar!"

A parish priest, known to many of us by his piety, learning, and humor, was applied to by a man whom he had very often relieved, for further alms, and asked him, "How many children have you now, Dennis?" — "Elivin, father," he replied. "You'll always be poor at that rate; why do you have so large a family?" — "Sure," retorted the beggar, "your riverence isn't the man that 'ud interfere with the will o' God."

But to return to our facts. We have seen how the abortionists can make us their accomplices — that some of us give or have given to patients, tonics or placebos, after which some women, be they few or many, abort, and that through wrong treatment some may unintentionally induce miscarriage. We consider, too, that few people reflect or reason (only those naturally bright or those who have been trained to think, really reason); and we see how what is called the Public forms the opinion that not a few of us practice the Black Art.

Another thing people cannot understand is that we ban and deride and ill-treat the homeopaths. Now this is really unkind. We have done all we could to set them up. I may be wrong, but there is no law compelling any one to adopt my views. Though I have friends among them, no one can be less in sympathy with their tenets and with the practises of some of their fraternity than he who addresses you. Therefore, he could never see why we should do anything to help them. Now, in 1873, there were in the Massachusetts Medical Society a few men, mostly having the degree of M.D., Harvard, who had renounced the errors of the Old School to embrace those of homeopathy. They were quiet; sought no office; some of them had scholarly tastes; and their characters were, I presume, quite as good as the average. But their presence in the Society was regarded as a rodent ulcer gnawing its vitals. Accordingly, a by-law aimed at them was submitted to the Council. The only councillors voting against the by-law were Bowditch, Cushing and Faulkner. The reason one distinguished councillor gave for not voting against it was, in effect, this: — There are a certain number of

men who will never be easy until they learn wisdom by experience. They have already cost the Society considerable money by similar follies, and it were better to give them rope enough to hang themselves.

At a meeting of the Norfolk District Medical Society held in Dedham shortly after this, a councillor was asked about the above vote. He answered the question, and added that the action reminded him of the Farmer who had a Dog addicted to the killing of Sheep. So he shut him up in the yard with a hitherto peaceable but healthy and vigorous old Ram. On the first overt offensive act of the Dog, the Ram went for the Dog and incontinently butted the life out of him. But the Ram was so elated with his new-found ability that he soon became a greater nuisance than the late Dog, attacking every one who ventured on his premises; and it was obviously necessary to teach him a lesson. So a Hat was provided for him to wreak his vengeance upon; but without the owner's knowledge, it was hung on the point of a new crowbar cunningly disposed in horizontal position, and the Ram having been patted and encouraged by his backer was let loose upon it. The Hat was not valuable and sustained little injury, but the energetic rush of the poor, dear, old Ram caused him to be spitted on the crowbar like a haunch of his kindred mutton.

Well, a trial was had, to the intense delight of the public, and the homeopaths were thrust out of the Society, for conduct unbecoming and unworthy of honorable physicians and of members of this Society, and for practising an exclusive theory or dogma. They lost no time in proclaiming how wofully they were persecuted. The newspapers took up their cause; subscriptions flowed in to the hospital fund; their college was built and endowed; and they were advertised in a fashion which no money they could have raised could possibly have effected. And in spite of all this, there are those who continue to uphold that we have evil-entreated the homeopaths.

One is often told by patients or others that medical etiquette is beyond comprehension of the vulgar, and that doctors are most touchy. If the voluminous rules of ethics submitted for our guidance—a sort of medical Bible—were referred to, the captious would have a basis of criticism. But what people cannot understand is the refusal or reluctance of physicians to supplant a good fellow, or to criticise his diagnosis or treatment, or to decline to continue attendance in a case where one has been called in an emergency; or why one should not make friendly visits when another doctor is in attendance. Nor can they see any reason why they should not send for any doctor they choose, or why he should hesitate to come because they had formerly employed some one else. They do not reflect that when we have served a family for some time, and seen its members over some rough places, we cherish a fancy that we are liked for ourselves as well as for our skill, and are led to believe that we have a sort of property in the family. The fact is that we cannot divest ourselves of the idea of the "family" physician. I can hardly do our youngsters better service than by pointing out that the family doctor is dead and buried. The specialists have squeezed him out as the vines do the big trees. Christian Science cannot resurrect him. A man told me at the club the other day, that when he quit his house that morning he left there three doctors; one was seeing his wife, one was dressing a sprained ankle, and the third was

poking things into a boy's ear. It was all right—they were all three first-rate fellows, and he was glad to see them; but he sometimes wondered if the old institution of the family doctor—who did all those things well, if not elegantly—were not preferable, as it was certainly less expensive. On this, another gentleman, with grown children, said that he never meant to have a family doctor; he held himself free to call in any one he pleased. Some time since, on the occasion of illness at home, he sent for Dr. B, instead of Dr. A, the man whom he usually consulted—not for any particular reason, but because he wanted to. He was surprised to learn, later, that Dr. A had sent for Dr. B, and taken him soundly to task for answering the call. To the gentleman's question if he had done any wrong, I replied that he had a perfect right to send for any one he chose, that Dr. B was perfectly right in responding to the summons, and that Dr. A was not unreasonable in feeling hurt, that, after his services in the family, he had to realize that he was not indispensable, but he was wrong in scolding Dr. B. Moreover, he should have reflected that if Dr. B had not answered the message, the patient would have been vexed with both, and called in Dr. C, who would have been only too glad of the chance to oust either or both of them.

I make, no doubt, that as a race we are touchy. You are touchy; I am touchy. I know I am sad when I see another man's carriage at the door of an old patient whom I know I have served well. To be sure, it is a balm to my *amour propre* when I learn afterwards that the backslider is now attended for two dollars a visit, when he used, with cheerfulness (which was indeed perchance forced), to pay me three. It is also a source of melancholy when on account of illness you send or recommend a substitute, and the patient is so lacking in taste as to prefer and cling to the new-comer. It is trying to the unregenerate mind to recommend a certain course to a patient, which he dislikes, and have him send for another man and adopt, on the new doctor's advice, substantially the same regimen the old one advised. It is indispensable, however difficult, to cultivate a cheerful smile when one hears of these things; to be thankful if the sufferers have fallen into hands as clever as your own, if not superior. My young friends must begin by telling themselves that patients will change doctors from whim, from ignorance, from indifference, from neighborhood, from false report, for no reason. When one is young he is too boyish, too inexperienced, too hasty. When you grow old you are cross, forgetful, hardhearted, or what not. You are surprised to learn that you no longer go out o' nights, that you take no new patients, that you have turned all your old ones over to Dr. Tallboy, that you have retired from practice with an ample competence; and you are lucky if the local *Weekly Bug Light* does not print, as fashionable intelligence, the news that you are under restraint for softening of the brain. In this connection it is good to ask ourselves for just what reasons we change our dentist, our lawyer, our architect or our broker—the butcher, the grocer or the milkman. Some of them are as sensitive as we are, and it would require long and close argument to make them see the difference between the two cases.

We must also remember that in the face of medical etiquette most patients are cowards. I don't use the word in an invidious sense. They are not so bad as

our public men, so-called statesmen, for when we find a politician possessing a vertebral column with well set up *erectores spinæ*, we are lost in wonder, love and praise. To illustrate by a familiar case: An old lady in a family which I counted most attached to me, fell and broke her radius. In the fright and hurry a neighboring surgeon was called in. He was — not of our kind. He did not gallantly suggest, as any of you would have done, that the usual attendant of the family be sent for, after the emergency was passed. The family wanted me, but feared to offend him. I pointed out that they had only to say that their family doctor would assume charge, and he could take no umbrage. But they were afraid. I thought it unkind to suggest that while they dreaded to hurt his feelings, they showed how strongly they relied on my friendship, in their confidence that I should take no offence. Again, when we mean to walk straightest we ourselves not seldom offend. I know that in the innocence of my heart, I have clumsily trampled on my friends' toes. Sometimes I have heard of it long afterwards. It is to be recollected, that, whenever another doctor is concerned, you will almost never get a proper account from the patient or his friends. I have had the best people tell me fibs calculated to make trouble between friendly physicians. The only way for us, when there is a difference, is to go directly to the doctor; never let a variance simmer; let it come to a boil and take it off; but ninety-nine times out of a hundred it will be found that it is a mere flash which never should have glowed into flame, a simple misunderstanding that three words clear up.

A fruitful topic for cheap orators is the ignorance of doctors. The most blatant talker cannot know how deeply we are sometimes made to feel our want of knowledge. Nor do they know that it is the most experienced man who feels it the most. If we assume that we know all that is or can be known, then we cannot blame those who take us at our word. And it is consoling to know, when we are abused for want of knowledge and success, that we receive much praise that is not deserved. Only the best informed of our patients are conversant with the facts of self-limited disease — and very much of the old *post hoc, propter hoc* argument remains in force. I rejoice in the possession of a family brought up by one of our most skilful men, who was able to impress his personality so strongly on all those whom he attended that they almost worshipped him. These people, though educated and highly intelligent, still believe that if the doctor is called in early enough, he will "break up" any "threatened" disease; that each symptom has its remedy; and that Nature left to her own devices would make but a poor showing of it. Such calamities as have happened to them have been sudden and unavoidable. Accordingly, one is highly prized for his attention and services, and any remarks about these newer views are not digested. There is no one of us who has not been happily surprised by the favorable turn of what looked like imminent disaster, and few who have wished it have been able to disown the praise and gratitude which followed.

The confident man, who is always sure of his diagnosis and certain that his treatment is going to succeed, is the man who oftenest comes to grief. It is greatly a matter of temperament, and temperament is a larger factor in character than is known or admitted. I have heard of a great surgeon, that he always promised his

patients relief or cure when an operation was contemplated, but if it failed, he lost all interest in the case and could not be prevailed on to go near it again. Some are so timid that they let pass the most favorable moment for operation or other relief. Others do not recollect the best points in diagnosis or treatment till they have had hours to think it over. A few seem to blunder all their lives long. No man knows everything, and the law only requires ordinary skill in the recognition and treatment of injury or disease. There are many who know a great deal and can apply their knowledge at the right time.

It is the same in all occupations. Not all preachers, if I recollect rightly, can be listened to with edification and delight. I have heard of lawyers who could not agree about what the law was, and who failed to make the judge and jury see it in their light. I have known of engineers and architects who made mistakes, and of men of business whose speculations and operations failed. No one should be surer than doctors that most of horses' work is done by the slow and the unsound. Likewise most of the world's work is done by those who are far from being athletes or geniuses. From a long and pretty close observation of the manual and mental labor of those to whose livelihood I contribute, it seems to me that there are few workmen who do their tasks for anything else than the wage they bring — do it somehow and draw the pay. Seldom do we encounter one who works in the spirit of a legend I saw, twenty years ago, pinned above a marble-cutter's bench, "Study to show thyself a workman which needeth not to be ashamed."

I believe there are none whose work is of better quality or more conscientiously done than that of the general practitioner, who represents the body of the profession. It ill becomes those whom they serve, to doubt their capacity or to depreciate their work. The doctor may scold, he may even swear when he turns out of his warm bed of a cold night; but he turns out, he plods or drives through the snow and the mud and the cold — too often for no other remuneration than the glow of satisfaction if a knotty diagnosis be cleared up, or if remedies have steered Nature into a safe port. All over the world are men in laboratories, in the dead-house, in the hospitals, in the hovel, striving to wrest her secrets from Nature, satisfied if after days and nights of toil they may elucidate one point — forge one link in the chain of evidence that shall establish a truth or expose an error. They live among the dead and dying, in an atmosphere charged with disease and death; and, as Dr. Holmes says, "They have tasks to perform which the chambermaid and the stable boy would shrink from undertaking."

Yes, we are ignorant; but it is not because the way to knowledge is closed or unfrequented. The old roads are thronged with travellers; and new ones are opened every day, in which one timidly steps at first, another enters and goes farther on the path, more join them and soon there is a crowd which thickens and presses on. Nature hides her jewels deep; and we must sweat and dig and bore and wash before she will yield her treasure. Much can be told of what has been done, but that is just the line of thought which we avoid to-day.

I had planned to speak of many other taunts that are shot in our faces; but I have already tried your patience.

To sum up — needless though it be to say it to this

company — let us reflect that it is easy to give offence even when we least intend it; that even on the low ground of self-interest we prosper when we keep to the straight path; that in dealing with those not of our own communion, whatever they may do, no one of us can afford for one moment to forget that he is a gentleman. If we are told we do not know much, we confess it with shame and confusion of face; but we know as much, if not more, than those whom we pay for working for us; we do our best work when no one is watching us; and — thank God! — ours is the only profession that at any time does its work for nothing.

Original Article.

CASTRATION FOR HYPERTROPHY OF THE PROSTATE.¹

BY F. C. THAYER, M.D.,

Surgeon-General of the National Guard of the State of Maine.

THE prostate gland is generally described as resembling a large chestnut, being one and one-half inches in its vertical aspect, one and one-quarter inches in the direction of the urethra, and one-half of an inch in thickness. There are two lateral lobes and an isthmus, or the so-called middle lobe; this latter is said to correspond to the uvula in its position upon the vesical surface. It should be understood that in its normal condition, this so-called middle lobe is a connecting band between the lateral lobes, and can only be called such when hypertrophied or enlarged by disease. When thus enlarged, it may and often does obstruct the flow of urine through the vesical orifice of the urethra.

Not all hypertrophied prostates disturb their possessors, for I have frequently found patients with large rounded prostates who made no complaint of frequency or other disturbances of urination. But when the enlargement encroaches upon and occludes the urethra, the annoyance may be very great and oftentimes the suffering intense.

Any procedure which will bring relief to men suffering from the conditions consequent to and dependent upon hypertrophy of the prostate gland must be hailed with delight by the surgeon as well as by the sufferer, for such cases have long been a *bête noir* to the medical practitioner.

That these cases are of extreme frequency is shown by the statement of Sir Henry Thompson, who tells us that one man of every three, over fifty-five years of age, has some degree of prostatic enlargement; one of every seven some obstruction as a result, and one of every ten has enough hypertrophy of this gland to demand some sort of treatment. Thus it will be seen that a vast number of men in this country to-day are suffering from this senile change.

When the outflow of urine is interfered with, as a result of hypertrophy of this gland, its effects are very serious. Retention of urine, cystitis, ascending pyelitis, disease of the kidneys, sleepless nights, wretched days, dribbling urine, — all serve to make this condition one of the most distressing that we have to meet.

Upon theoretical grounds, Dr. J. William White,

of Philadelphia, first suggested in a paper read before the American Surgical Association, at its meeting in Buffalo, May, 1893, the operation of double castration for the relief of the symptoms consequent upon hypertrophy of the prostate. This theory had its basis upon the believed analogy existing between uterine fibro-myomata and prostatic overgrowth, for histologically considered they are very similar; and that if removal of the ovaries in the female would reduce and dispel fibro-myomatous growths of the uterus, ablation of the testicles in the male might reduce and dispel hypertrophy of the prostate gland.

This was supplemented by the fact that in eunuchs and geldings the prostate becomes atrophied. By a series of carefully conducted experiments made upon dogs, Dr. White demonstrated that castration is surely and quickly followed by prostatic atrophy.

From the conclusions drawn from the analogy and the facts presented, Dr. White evolved the procedure which should rightfully bear his name. The operation itself is exceedingly simple, and in proper hands devoid of danger. Sentimental objections, to a man suffering from the results of prostatic hypertrophy, can have but little weight, particularly when he realizes that these glands are or soon will be functionless.

Since the publication of this paper by Dr. White, many cases have been reported, with almost universally favorable results. And did time permit, it would be interesting and instructive to review the various phases of these cases. I shall content myself, however, by referring you to the various authors consulted in the preparation of this paper, and giving you a few conclusions drawn mainly from their experience.

I have but one case to report, and I regret that more time has not elapsed since the operation, so that its results might be more pronounced. But while I am not able in my case to report some of the almost miraculous results which have attended operations in other hands, yet sufficient cause is already evident to convince me of the good effects of the procedure in this particular instance.

Mr. R. C., age seventy-four, has always led rather an active life; not now engaged in business; always temperate in his habits; with the exception of chronic diarrhea — which lasted him several years — has enjoyed good health. In 1886, he developed, without apparent cause, an attack of acute cystitis, from which he entirely recovered. In 1887, he discovered that he was compelled to rise two or three times during the night to urinate. From that time until the winter of 1892, this symptom slightly increased. At this time he had complete retention of urine. It was then that I first saw him. The retention was relieved by the use of the catheter, a silver one with a large curve — it being impossible to use any other at that time. The use of the catheter was attended with a good deal of pain. There was a good deal of pus in the urine, and the bladder was washed daily with a half-saturated solution of boracic acid. Since then he has been drawing his urine with a No. 8, English scale, soft-rubber catheter. Rather more than thirty-six ounces are passed in the twenty-four hours, and all by the catheter — he not having passed a drop naturally for nearly three years. The catheter is used about every four hours, its introduction being attended with more or less pain, its withdrawal occasioning still more.

¹ Read at the Annual Meeting of the Maine Medical Association in June, 1895.

At times he has suffered with lancinating pains in the perineum and glans penis. This last symptom has given him a great deal of distress, and he has contracted the habit of holding on to his penis a great part of the time. Pus has been pretty constantly present in the urine. He has used the boracic-acid solution when an increased presence of pus seemed to demand it, himself being the judge. He has strong erections and a decided sexual desire, which, however, he has not gratified.

During the past three months he has been in the habit of taking from a quarter to three-quarters of a grain of morphine daily. The urine is cloudy, strongly alkaline, and of a marked ammoniacal odor; specific gravity 1.018; some albumin; no other evidence of renal disease. By rectal touch, the prostate was found to be markedly hypertrophied and quite tender. The finger could barely reach its upper limit. It was not much rounded, but rather flattened, both lobes being quite dense and uneven.

I had no doubt of its being a typical case of senile hypertrophy. It appeared to me from rectal and urethral examinations, that the obstruction was due to enlargement of the median portion, rather than general hypertrophy. The catheter passes nine and one-half inches into the urethra before urine flows. Six ounces of urine can ordinarily be retained in the bladder without much trouble.

I suggested to him the possibility that removal of the testicles might afford him some relief, promising him nothing. He readily consented to have anything done which offered even the possibility of relief. Operation was made May 12, 1895, and the testicles were removed through a single median incision, as suggested by Dr. Francis S. Watson of Boston. As this can be done more readily and leaves but one wound, it commended itself to me as the best method. And I am very sure I shall in like cases make use of this plan in the future. The cord and vessels were tied *en masse* with a double ligature, the wound thoroughly dried, and closed with cat-gut sutures, without drainage; the septum being included in the grasp of the suture. The wound was dressed with a liberal supply of dry gauze, and the patient put to bed. He recovered promptly from the effects of the anesthetic, and four hours afterward expressed himself as feeling first-rate. Eight hours after the operation he passed a catheter and drew something more than eight ounces of urine.

The seventh day after the operation, pain has somewhat decreased, irritation of glans penis much reduced. He still uses a catheter and draws forty ounces (plus) of urine per day. Urine still contains some pus, and flows when the catheter is introduced nine inches into the urethra. The prostate is less tender and has become somewhat softer, otherwise remains the same. The wound dressed on eighth day and found completely healed.

Twelfth day. At the close of the first week the morphine was discontinued and the loss of the stimulant has had rather a depressing effect. An excessive and exhausting diarrhea followed the leaving off of the morphine, so that altogether he has presented for two or three days rather a dilapidated aspect. To-day, however, he expresses himself as feeling decidedly better. The attacks of pain are much less frequent, and the irritation of the penis is decidedly lessened, and he rarely touches it. The prostate has

decreased in size, and there is hardly any tenderness. He still uses the catheter, and draws about forty-five ounces of urine in the twenty-four hours. There is still some pus and albumin. Specific gravity 1.018, reaction faintly acid.

Twenty-second day. The pain and distress is much lessened. He is gaining in strength and courage, and declares that he is decidedly better. He still uses the catheter and draws the same amount of urine as last reported. The prostate is softened and has markedly decreased in size.

I am aware that nothing is proven by a single case, especially one in which the positive improvement is so much delayed, as in the one just reported. But it adds one more to the rapidly increasing list, and is given for what it is worth. Personally, I am so well satisfied with it, that I shall surely recommend the operation in similar conditions.

Many interesting questions come up in connection with this subject, not the least of which is, Why should removal of the testicles result in atrophy of the prostate gland? Physiology is almost silent and gives but little information concerning the particular use of the secretion of the prostate. It not much more than intimates that it may play a very subordinate part, and possibly contribute something to the impregnating fluid.

Finger assigns to it the power of accomplishing the vivification of the previously motionless spermatozoa. It has been demonstrated that the prostate of animals enlarges and becomes more active coincidently with the other sexual apparatus at the time of breeding, thus implying that its secretion must contribute some principle to the seminal fluid.

If Finger's idea is correct, it is quite apparent that there may be a physiological as well as philosophical reason why atrophy of the gland should follow castration; for it is a well-known principle that nature thus disposes of tissues and organs for which she has no further use.

It would appear from the reports thus far made, that the experimental stage of this operation has long since passed, and that the increasing favorable evidence places it upon a legitimately established basis. And yet it must still be considered as *sub judice*, for it is not yet established that all cases of obstructive enlargement are thereby benefited. No operation or no procedure is a cure-all, and this will scarcely prove to be an exception. It is apparent that the cases must be carefully selected and must be those of true hypertrophy, not complicated with other forms of obstructive disease. Stone in the bladder, however, would not necessarily lessen the usefulness of the operation when accompanying true hypertrophy, for after the enlargement had subsided in consequence of the operation, the lithotrite could be more easily introduced into the bladder and lithotripsy could be practised. This has been done in one case, at least, by White.

Too much should not be promised the patient in the line of insuring freedom from the catheter life, for emancipation from it depends largely upon the tonicity of the bladder, and voluntary micturition cannot be promised where pronounced atony exists.

The operation is of unquestioned value in diminishing the size of the prostate, whether of a soft adenomatous character or of a hard, tough, fibro-myxomatous type. It relieves cystitis consequent upon microbic infection; it diminishes pain and relieves distress. It

lessens the frequency and difficulty of catheterization. I confess I am at a loss and cannot understand why in many of the cases reported, the shrinkage of the prostate, normal micturition, and a subsidence of the active inflammatory symptoms should so quickly ensue, unless, indeed, in these particular instances, the enlargement is, in part, an inflammatory exudate, added to the already existing prostatic overgrowth.

It is said that glandular tissue predominates in the hypertrophied middle lobe, and that its enlargement is of an adenomatous rather than of a fibro-myomatous character; thus, perhaps, accounting for its rapid shrinking.

That the operation has a legitimate field there can be but little doubt, and in properly selected cases will prove a great boon to those suffering from conditions depending upon obstructive hypertrophy of this gland.

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Clinical Department.

TWO CASES OF DIPHTHERIA SUCCESSFULLY TREATED BY ANTITOXIN FURNISHED BY THE MASSACHUSETTS STATE BOARD OF HEALTH.¹

BY JOHN S. PHELPS, A.M., M.D.,
 District Physician to the Boston Dispensary.

THESE cases are interesting, in that they give an opportunity of observing the action of the antitoxin manufactured and dispensed by the Massachusetts State Board of Health, being the first cases of its use reported. In them its effect was most beneficial.

The patients resided in a most filthy tenement, with unhygienic surroundings, in South Boston. The father and mother with seven children, the youngest of whom, an infant at the breast, subsequently contracted diphtheria, lived in a suite of four rooms on the second floor with most wretched plumbing and sanitary arrangements above and below.

One room was given up to the sick ones and in this they were isolated as rigidly as could be done, for it was impossible to prevent the occasional mingling of the entire family. The sick were cared for by a devoted mother. The parents had free intercourse with the rest of the children and throughout the other rooms of the house. The father occupied the same bed at night with his diphtheritic child. Circumstances prevented their living otherwise, and how the whole family failed to contract the disease is not easily explained. A previous experience with diphtheria had rendered the mother posted in a crude sort of way as to its dangers. Her precautions against its spread by the free use of chloride of lime scattered about the house in filthy corners, the avoidance of contact with

the discharges from the sick, and thorough washing of the hands with soap and water immediately after caring for her sick ones before attending to other duties, deserves due recognition. But these were more than counterbalanced by the conduct of the father, whose efforts in a similar direction were absolutely *nil*. In fact they tended to an opposite extreme, in consequence of his addiction to alcohol and frequently to its abuse.

Closer observations were impossible, owing to inability of more frequent visits and the absence of a district nurse, who could have seen that directions were carefully followed, and recorded the temperature, pulse, respiration, etc.

CASE I. On March 30th, J. R., seven years old, was seen for the first time. He presented a suspicious-looking membrane on right tonsil, gray in color, and he had constitutional disturbances of not very severe type. Cultures were taken, a report from which the next day stated that Klebs-Löffler bacilli of diphtheria were present. The following treatment was instituted without awaiting the report, the membrane having extended to both tonsils. Peroxide of hydrogen (15 volumes), spray to the throat every three hours; tincture of chloride of iron, five minims, every four hours; whiskey, half a drachm, every four hours; and a cathartic. His case progressed slowly, with no serious symptoms. He had repeated epistaxis, but no nasal obstruction or discharge. Moderate fever and elevation of pulse. The membrane in the throat slowly disappeared, and by April 6th none could be seen, and the treatment was slowly cut down. Prostration seemed to be quite severe, and it was not until the 16th that he was up and dressed. On the 25th, cultures from the throat were taken, showing the Klebs-Löffler absent. Examination of the urine showed it to be normal. As his appetite and strength returned, an escape of food and liquids from his nostrils was noted on April 27th, and he had a distinct nasal twang to his voice, showing a paralysis of the soft palate. Tonic treatment with strychnia in minute doses has rendered some improvement in his condition, but the trouble has not yet entirely disappeared.

The house was fumigated, after the negative report from the throat culture, by the City Board of Health, and the sign removed.

CASE II. On May 1st I was again called, to find A. R., five years old, suffering with foul nasal discharge, following upon a cold in the head of one day's duration. Examination of the throat showed a swollen pharynx with an extensive grayish-white membrane on both tonsils, reaching to base of uvula on each side, and apparently continuing up into the naso-pharynx. There was marked prostration; eyes suffused; puffy, swollen cheeks and lips; and thick, pasty coat on tongue. Cervical glands slightly enlarged; respiration 36, labored pulse 135, temperature 100.6°. She presented the picture of a very sick child with diphtheria, with the chances of impending intubation or tracheotomy. Application for admission to the hospital was made, with reply of, "no beds." Antitoxin was strongly recommended, and at 5 P. M. 5.5 c. c. of Massachusetts State Board of Health diphtheria antitoxin (strength 1-50,000) was injected into the right thigh (three barrellfuls of an ordinary subcutaneous syringe, that being the only syringe available at the time). Cultures taken from the throat and nostrils showed Klebs-Löffler bacilli present. Examination of the urine before injection showed it to be normal.

¹ Reported May 27, 1895.

The child was put upon brandy, two drachms every four hours, combined with three minims of tincture of chloride of iron. There was considerable shock after the injection.

The next morning respiration was 24, pulse 128, temperature 100.2°. The nostrils had a thick, white membrane extending away down to the *alæ nasi*, accompanied by a profuse foul-smelling discharge. The edges of the membrane in the throat seemed more clearly defined, the membrane swollen and the surrounding mucous membrane swollen and congested. She spent a restless night. That afternoon she had marked pallor and prostration, and 9 c. c. of the same antitoxin were injected into the same thigh, this time with a Koch syringe, with considerably less discomfort.

The next day, May 3d, snuffles increased, with epistaxis. Temperature dropped to 99°. Pulse and respiration remained the same. Urine showed slightest possible trace of albumin by heat test. The membrane in the throat seemed to be whiter, and actually melting away and very clearly defined. An urticaria-like eruption, the size of four fingers, gradually developed over the seat of injection, points of entrance of needle not involved.

May 4th. A small trace of membrane only remains in the throat as a slough. The snuffles have ceased, and the membrane has disappeared from the nostrils like a charm, and nasal breathing apparently perfectly clear. Patient sitting up in bed, and much interested in surroundings. Leg free from pain upon manipulation, and rash diminishing. Medication diminished.

May 5th. Throat absolutely free from membrane. Urticaria disappeared. Child apparently well. Temperature, pulse and respiration normal.

May 7th. Child up and dressed. Examination of urine shows it to be free from albumin.

No further symptoms or treatment. Cultures from the throat May 8th and 15th showed Klebs-Löffler bacilli present; May 23d, absent.

CASE III. On May 6th, H. R., nine months old, showed signs of constitutional disturbance. Examination of the throat showed nothing but congestion. Cultures were taken showing Klebs-Löffler bacilli present; and on May 7th a small gray patch appeared on each tonsil, which developed into an extensive membrane on the 8th, covering both tonsils, uvula and pharynx, with a temperature of 101.5°. Nostrils apparently not involved. Slight enlargement of cervical glands. Respiration normal. On the morning of the 8th 9 c. c. of similar strength antitoxin were injected into his left thigh. Brandy and tincture of chloride of iron were given by the mouth, and he was transferred from the breast to the nursing-bottle.

On May 9th the temperature dropped to normal, the membrane assumed characteristics similar to those described in the previous case, namely, whiter, swollen and with outlines clearly defined, with a swollen, congested appearance of the mucous membrane of the pharynx. No extension of membrane apparent. There was marked prostration, with pallor, and difficulty in administering nourishment and treatment.

May 10th, two days after injection, the membrane very white and melting away. No nasal complications. General appearance much improved. Slight urticaria, size two-cent stamp, over seat of injection; point of entrance of needle not involved.

May 11th. Temperature, pulse and respiration

normal. In the throat there is a slight necrotic mass in place of the membrane. Mucous membrane congested and swollen. The child looks well, sits up in bed, and nurses the bottle with avidity. Urticaria disappeared.

May 12th. Throat absolutely clear, and the child appears absolutely well. Medication omitted. Specimens of urine unable to be obtained.

No further symptoms noted. Cultures from the throat May 15th showed Klebs-Löffler bacilli present; May 23d, gave negative result. No local treatment to the throat was used in either Case II or III.

Mrs. R. had nursed her child for forty-eight hours after the membrane had been present in its throat. She was given 5 c. c. antitoxin (1-50,000) in her left deltoid muscle on May 8th, as an immunizing dose. Cultures were taken from her throat at that time with negative results. Examination of her urine two days later showed it to be normal. She never showed any rash on her body, and stated that she felt just the same as if she had never taken it save for the prick of the needle.

The noteworthy point about these cases is the rapidity with which the membrane disappeared; in Case II in five (possibly six) days; in Case III in five days; and this without any local application. Inside of forty-eight hours the membrane showed itself vanquished. In Case I the membrane lasted eight days. The urticaria needs no comment.

A few itemized cases prove practically nothing; but when one sees an extensive membrane in a septic case of diphtheria melt away and disappear in about one-half the usual length of time, and that without any of the bother and exhaustion which accompanies the use of the local application, both to the physician and the patient, he cannot but entertain a hopeful outlook for the future use of antitoxin. I think the State Board of Health is to be congratulated on the production of such an efficient preparation.

DIFFUSE HYPERTROPHY OF THE BREASTS.

BY FRANCIS W. ANTHONY, M.D., BRADFORD, MASS.,
Surgeon to Haverhill City Hospital.

THE following notes are reported as continuing the history of a rare and interesting case.

The patient reported by Dr. J. C. Warren, in the JOURNAL of August 3, 1893, as having diffuse hypertrophy of the breasts, became pregnant for the third time, and was under my observation during her pregnancy. The breasts, which had become smaller after her second delivery, again increased, until two weeks before the third labor they presented the appearance shown in the photograph. An apparent attempt at a nipple formed on the enlargement in the right axilla. An accessory nipple on the under surface of the left breast was surrounded by a dark areola. The enlargement in the left axilla was about one-fourth that on the right.

The labor, watched by Dr. G. M. Atwood, in my absence, was normal, as was the convalescence. Contrary to the method pursued at the time of the birth of the second child, nursing was allowed—in fact, it was insisted upon by the patient, who had lost her other two children—and was without unpleasant complications, the enlargement at the onset of the

flow of milk being trifling and the supply about equal to the demand.



Two months after delivery the breasts had receded to a size about that before pregnancy.

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

SURGICAL SECTION, JUNE 11, 1895.

THE TREATMENT OF PROSTATIC HYPERTROPHY.¹

DR. L. BOLTON BANGS, of New York City: It is needless for me to say to you that the subject of prostatic enlargement and its treatment is, in my opinion, one of the most important surgical discussions of the day. When we consider the relation of enlargement of the prostate to human suffering, when we consider how many men of advancing years, who ought to go down to their graves in comfort, are the subjects of it, you will readily see, and I am sure you will agree with me in my opening remark, that it is one of the most important surgical questions of to-day to know how best to deal with it.

It has been stated by various teachers, by different surgeons, that prostatic enlargement makes its appearance in one man in three after the age of fifty, as some have it; and others state it after the age of sixty, and that one man in ten suffers from it. I once endeavored to make a record of all the men I examined to determine how many really had prostatic en-

largement, and whether my statistics are in agreement with "one man in three" I am not sure at this moment, but I came to the conclusion after observing a great many cases of my own that we are wrong in stating that prostatic enlargement begins after the age of fifty. I believe that it begins—not that it always shows symptoms—at an earlier age than fifty or thereabouts. At any rate, there are enough men sufferers from this condition. I may have it; you may have it. It comes to be a grim thing when we contemplate it from the personal standpoint, therefore there is sufficient cause to warrant taking every step, to balance with care everything presented to our attention, and to consider how best we shall treat these sufferers.

In the main I agree with everything that has been said in the able presentation of this subject this afternoon, certainly with regard to the palliative treatment and for my comfort as well as for yours it should be borne in mind that the largest proportion of men with prostatic enlargement, even admitting the fact that it begins early in life, have no urinary symptoms—certainly not to a degree requiring the intervention of a surgeon.

Now then as to palliation. Bearing in mind that a large proportion of men with enlarged prostate have no symptoms, and that another proportion of them do have symptoms, it is also a satisfactory fact, perhaps to you, certainly to me, that these can go through life with only palliative treatment, and require no operation whatever. Of course that statement is to be modified by the condition of the individual who presents himself to you, and may be modified also by the stage of the disease at which he presents himself and by its progress. You all know men who seem so immune, whose tissues are so indifferent to the inroads of microbic bodies. I have in mind a man of eighty-two, strong, looking well, who never makes a drop of urine spontaneously, but carries his catheter in his hat and in the absence of any other more suitable lubricant spits upon his catheter when he wishes to urinate. That illustrates what we know of the immunity with which a certain number of individuals can go down to their graves with easy, comfortable catheter life.

Besides palliative treatment or catheter life there is a consideration of the care of the bladder in regard to which I think we ought to say a word or two, and that is a treatment of the individual himself. If you can only impress upon such a patient the fact that he is a "prostatic" and therefore has a weak point, and that he ought to go to his doctor at certain regular intervals in the same way and with the same cheerfulness that he would pay his fire-insurance premiums upon his house! He does not want a fire nor does he want future damage to his bladder. If he will pay periodic visits to his doctor who will overlook his bladder, many of these individuals who have been compelled to find their way to the hospital or to the office of the surgeon for operative procedure will escape it I believe. If the same attention were paid to a man who has a prostatic enlargement as is often paid to the heart of the individual who has such an organic weakness, I believe many a man would live out his time with simply palliative treatment.

Dr. Cabot in his admirable *résumé* of the palliative treatment mentioned to you the cases which constantly arise in which the very first symptom calling the attention of the individual to the fact that he is a prostatic

¹ See papers by Drs. Cabot and Watson, in the last number of the Journal, pp. 149-161.

is retention of urine. Of course I admit that his statement is correct; that is, there is a sudden congestion. In advancing life the valves in the prostatic and pelvic plexuses disappear and there is a direct flow of blood from the rectum and associated portions of the pelvis through the prostatic plexus. Hence congestion and narrowing of the urinary outlet may easily arise, and the first symptom of a positive character—he may have had indefinite symptoms to which he ought to have paid attention—that calls the man's attention to himself is retention of urine. Many of these persons can be relieved without the passage of the catheter. My rule in such cases is: prone position, pelvis elevated, high enemata and simply hot irrigation of the urethra through the meatus and repeated in an hour or two. In some of these individuals you will see a little spurt of urine following the irrigation and hear a sigh of relief on the part of the patient. It does not succeed in all cases but should be tried first.

Before I ask your patience to proceed to the consideration of the operative measures for the relief of prostatic enlargement, let me call attention to another fact. There should be a differentiation between the men whom we call among the "higher classes" and those of the lowly and poor and uneducated. If you will look over your experience with the prostatic cases and consider how many of them have been placed upon catheter life and how many of them go *comfortably* through, you will find that a certain proportion of them have that comfort, because of their comfortable surroundings, because of their intelligence, because education and whatnot have prepared in them a certain amount of tactile skill; they are able to pass the catheter and to understand your minute directions as to asepsis and the care of the bladder; therefore, a differentiation must be made between these and the men who have no education, no home, who are parasites upon the body politic, and who resort from one dispensary to another or are brought into the hospitals in a state of acute suffering. These are the individuals on whom we must attempt some operative procedure for radical relief, and this I think is the experience of all men who have hospital experience.

Now, when we come to the question of operative treatment, I find myself in a difficult position, in such a short time as this, to define to you the cases that shall be subjected to operative procedure and to which form. But, take the tying of the iliacs. I do not approve of it. I protest against it. I believe it is unnecessary. I have been told of two cases; in one of which a secondary amputation of the leg was required, and there was no relief to the urinary symptoms. He has just as much residual urine as he had at the time of operation, and now stumps about on one leg and passes his catheter as usual. The other case I heard of recently. His iliacs were tied on this theoretical belief that it would limit the growth of the prostate and cause its atrophy, and he, I am told, is just as bad as before.

Now, drainage certainly presents to us in many cases a most attractive field. The individual has no violent or dangerous attack made upon his pelvic organs, is enabled to retain his testicles, the shock is not very serious, and in many cases, I do not know in what proportion, but in some of them, perhaps in many of them, after prolonged drainage there is a certain amount of spontaneous urination and comparative

comfort. I have in mind one individual whom I drained a year, and then he found himself able to urinate so readily and freely by the urethra that he requested the removal of the tube.

Drainage presents another opportunity, and that is in those acute, serious cases where we must attempt something for their immediate relief, or soon have symptoms of uremia because of the back hydrostatic pressure upon the kidneys. In those cases I think drainage offers to us the best means, and it is so simple that where you are in doubt I would commend it to you rather than repeated aspiration of dirty, thick, purulent urine. It can be done with cocaine anesthesia or by a mixed fluid of morphia and cocaine whose proportions I do not remember at this moment, but it can be done very easily and comfortably by cocaine anesthesia. On several occasions *in extremis* rather than to aspirate I have simply made use of a long trocar introduced quickly and easily by cocaine anesthesia behind the pubes, left it *in situ*, ran a bistoury down by the side of it until I made an opening in which I could get my little finger, slipped down a drainage-tube, through which urine and pus flowed out quickly, and the use of an antiseptic solution followed at once. Dr. Wishard, of Indianapolis, tells me he has facilitated his entrance to the bladder by having soldered on the trocar two fine wires that make a sort of grooved director, and he finds that his bistoury slips into the bladder without trouble.

To prostatectomy it seems to me not necessary to pay any attention at this time. The whole question has been ably presented, and the cases in which prostatectomy will be selected will have to be decided by the good sense, skill and experience of the surgeon.

But I wish to pay some attention in my remarks, to the comparatively new operation for the relief of prostatic enlargement by causing atrophy of the gland; namely, castration. The same thing without the removal of the testicles has been attempted in other ways,—ligation of the cords, torsion of the cords, subcutaneous torsion of the cords, the idea being to cut off the blood-supply from the testicles and cause their subsequent atrophy. Another individual has lately come forward with another suggestion. I am not prepared to comment upon it; I mention it. It may yet be found to have something of value. He suggests hypodermatic injections of cocaine solutions into the testicle itself. He gives no records, but claims that in all cases which he subjected to this treatment, twice a week for two months, there was evident atrophy of the testicle, diminution in the development of the spermatozoa, and after an indefinite time a decrease in the symptoms of urinary difficulty and great relief to the individual. I am not prepared to express any opinion upon it. But you see that the position of criticism which has been taken by certain men, particularly Belfield of Chicago, and others, toward this operation is bringing out other facts, some physiological and others pathological, in regard to the relation of the testicle to the enlarged prostate. Being one of those who have taken a conservative and critical position in regard to this operation, I think it is but fair to say that enough testimony has been advanced for me to believe that there are cases which will be benefited by the operation of castration.

Now, gentlemen, which will be the case that will be benefited by castration? I think that is the question which will be submitted to us and which we will have

to consider with great care. For example, I was asked to see in consultation a man sixty-four years of age who had all the evidences of prostatic obstruction, and apparently it was very large. He was straining in a most agonizing manner to expel a few drachms of purulent urine every two hours. He had a cachectic look, with a bladder overdistended; and I was asked if this man was a case for castration, the surgeon having made up his mind to do the operation on a fixed day. I said I did not consider it a case for castration. His kidneys were suffering. He evidently needed something done immediately. Nevertheless castration was done, and the man died in a week. I did not consider that that was a case which should be left to the dangerous delay of atrophy, and atrophy only to be guessed at. I believe that man should have been treated immediately by drainage, and then subsequently, if necessary, or if it seemed wise and judicious, some operation for his radical relief instituted.

I was asked by a doctor to see his old father, who was suffering from retention of urine. It was as simple a thing as could be done to pass a catheter upon that old gentleman and relieve his immediate symptom; but I was told by the doctor that a gentleman, who is an orchidectomist in my city, had said the only way to relieve the old man was to remove his testicles. Now, I claim that those two cases alone require me to take a conservative position, and demand of the gentlemen who wish to do orchidectomy upon every occasion that they shall present good and sufficient reasons for the operation, because the man who is *suffering* will accept anything. I agree with Dr. Cabot that the operation is so seductive, and relief so enthusiastically stated, that we are liable to be placed in the same position as the profession was placed in the early and too frequent ovariectomies, of which we all know. I have listened with great interest to the paper by Dr. Edes this afternoon, and especially to that part in which he called attention to the failures in those unfortunate women who had been subjected to normal ovariectomy. Do not think I am an antagonist of the operation of castration. I say there are cases in which it will be useful and proper, but they must be most carefully considered.

Now, there is something yet to be ascertained in regard to the physiology of the testicle, and also in regard to its pathological facts, some of which we heard stated at the Niagara meeting of the American Association of Genito-Urinary Surgeons. For example, Dr. Wishard, of Indianapolis, a well-known and careful observer, stated that a patient whom he had castrated four and a half years ago for epithelioma of the penis had at this late day shown no evidence of atrophy of his prostate. Dr. Belfield also reported castration upon a dog, in which he had first opened the bladder to be sure there was enlargement of the prostate, then castrated the animal, and no atrophy of the prostate resulted. So that there are some facts we have yet to learn, and we must bear in mind that there are some doubtful questions when we come to consider any case presented to our notice whether we shall castrate him or not.

I wish to give my friend, Dr. Keyes, full opportunity, gentlemen; and without considering this operative treatment any further I want to call your attention to a question of treatment that I believe, if we can put it upon a sure foundation, if we can arrive at enough facts to take it from the realm of speculation, we will

have settled in a very large majority of cases in the future generations this matter of enlargement of the prostate. I have no sympathy with Mr. Reginald Harrison, who claims that the prostatic enlargement is myomatous, muscular. I believe the prostate is purely a sexual organ. Its health, position, function, so far as we can arrive at it, indicate that it is a sexual organ. True, from a hypertrophic enlargement of the glandular portion there may extend an enlargement to other portions of the stroma, of the muscle, of the fibrous connective tissue, etc., but I believe its origin is to be traced distinctively to hyperactivity of its function. Now, I am going to present this question to you for your consideration as intelligent men, men in earnest for the welfare of your fellowmen, and to a body of men who represent, I believe, the profession of probably the most intelligent State in our Union. I want you to observe, gentlemen, for yourselves. Collect and place upon record facts by which the future generations of medical men can at least *direct* their studies. I believe that the enlargement of the prostate is not due to senility. We have enough facts to warrant my statement. Sir Henry Thompson says it rarely makes its appearance after seventy, and when it exists it has already reached considerable proportions by the age of seventy-five. I have seen prostatic enlargement in young men of about forty. Belfield reports a case at forty-three; Dr. Packard, of Philadelphia, at forty-five; Dr. Mudd removed an enormously enlarged prostate from a young man aged twenty-seven. It seems to me also there is a relation between the enlargement of the prostate and the age of fertility, and now I ask your attention to one fact, and that is this, that the enlargement of the prostate begins at a very much earlier stage than we have supposed. I believe it begins during the active period of sexual life. These are facts extremely difficult to arrive at. Every man knows his own sexual history, very often to his own great regret, and it is very difficult sometimes to get a correct statement of his sexual life from boyhood upward. If you will consider the facts that come to our knowledge as confidential advisers: to begin with early life, the habit of masturbation; secondly, excessive sexual indulgence, not the act of coitus, but that prolonged indulgence with women who permit sexual relations persisting for hours at a time, but do not permit intercourse; and thirdly, the varied excesses of married life, you will find sufficient cause for overgrowth of the prostate. In some individuals I have succeeded in getting at the inmost sexual life, and have followed it all the way up, but have not had enough cases to classify and present them to you in any other way than as a suggestion. I ask your attention to it, gentlemen, in order that in the future we may possibly arrive at some conclusion as to the *causation*, and therefore prophylactic treatment, of enlargement of the prostate.

Dr. Cabot has called attention to a question which has arisen in my own mind, and that is, what is the effect of castration upon these elderly men. In those castrated what is to be their relation to the body politic; to us? Some of them retain their power of intromission, sexual desire, but of course are not fertile. I think all these questions we as reasonable men, as scientific men, should consider as bearing upon the question of good morals.

DR. EDWARD L. KEYES, of New York City: On reading the title of the discussion by Drs. Cabot and

Watson, I concluded that its whole drift would hinge upon the question of the progress made in treatment, and I judged that it was to be the operative treatment; and whatever thoughts I have had upon the subject, and whatever ideas to present to you, were all centred around that focus, namely, the advances made in operative technique; but the discussion has turned entirely in different directions, and very little or nothing has been said upon this point. Perhaps I would better, therefore, confine myself to what has been gone over; but as I have brought a few specimens I may be allowed to touch both sides.

The very judicious and balanced presentation of the subject by Drs. Watson and Cabot I have nothing to say about; I give my assent heartily to the proposition that in any case, so far as catheter life *versus* operative treatment is concerned, the former should be presented and urged upon any one going into prostatic life, and he should not be tempted to undergo any operation whatsoever. This, when practicable, is the best way to treat prostatic enlargement, because it is the safest. If a patient uses his catheter properly, and understands how to manage his bladder, he will get on. Pitha's case, a man who had depended for urination entirely upon the catheter for forty-five years, is sufficient to point the moral. I had a patient who urinated exclusively through the catheter for twenty-one years, and when a man does not begin to use the catheter until after fifty if he goes twenty to thirty years longer he should be content. The least mortality given for orchidectomy — seven or eight per cent. — is to be thought of seriously in connection with the choice between catheter life and operative effort at cure.

Allow me one correction in the method of instituting catheter life, which Dr. Cabot quoted from me. I have changed my mind since I wrote what he quoted. Corrosive sublimate I still use. I have given up carbolic acid long ago. I do not like it; it is irritating; it does not destroy most bacteria until used in a five-per-cent. solution, which cannot be tolerated by the bladder. Corrosive sublimate is very much better as a paracitide and antiseptic, but is often exceedingly irritating to the bladder. A 1 to 12,000 solution I have known to cause a cystitis that lasted a week. This is a serious bar to its routine employment. I constantly use it in the urethra. The urethra tolerates it much better than the bladder. A 1 to 8,000 solution is not too strong in the urethra, but I am very prone to use salicylic acid, one-half grain to the ounce, which does not irritate. A solution of it can be easily kept. One grain of salicylic acid will dissolve in a drachm of alcohol. One-half grain of salicylic acid to the ounce is strong enough, and one drachm of this solution in two ounces of water is just as good as Thiersch's solution; with it I flush the urethra constantly in instituting catheter life. And I always entirely empty the bladder at the first sitting, slowly, pinching the catheter, feeling the pulse, having the head low. I wash the bladder on the first occasion with 1 to 4,000 silver-nitrate solution. That will destroy any bacteria which one may have introduced into the bladder. If the urethra is flushed with salicylic acid, one-half grain to the ounce, as the catheter goes in, if the catheter is immaculate, if the bladder is emptied slowly and flushed out with 1 to 4,000 nitrate-of-silver solution and a little sterile salt solution left in, I believe no harm can come. I don't know what I shall do when I come to a case in which

the bladder holds a gallon. I have no hesitation now in attacking any case of thin-walled bladder with enlarged prostate, which is the worst kind, that holds a quart, and I feel that I can put that man in ten days into catheter life with a sterile bladder if his prostatic urethra be not in a catarrhal condition from the start; that is, if the first time the catheter goes in it brings no blood upon withdrawal. If you produce traumatism, if there be stricture, much catarrh, granulations of the urethra, then it is vastly more difficult to institute catheter life without starting up a certain amount of catarrhal cystitis.

Now, perhaps I may turn to the subject I was intending to speak about, and mention the choice of operation. It seems to me if a man has come to the point of accepting prostatectomy, and is to have his prostate taken out, the choice of operation is exceedingly easy. If he has a prostate as large as an orange, considerable peripheral enlargement, it should be taken out, I think, above the bone. If he has practically no peripheral enlargement or a moderate amount, and still a considerable amount of deteriorative symptoms due to the prostate, I think he should be attacked through the perineum. This point is exceedingly clear in my mind: the mortality through the perineum is less. The method I use has not been referred to by Dr. Watson. I do not know that I have ever described it. I have used it several years. In attacking the prostate without peripheral enlargement I prefer to go through the perineum to the apex of the prostate. With a probe-pointed straight knife in the bladder and one finger in the rectum, I cut down the neck of the bladder laterally toward the finger, cutting entirely into, perhaps two-thirds the way through, the prostate. I then wash the rectal finger with permanganate of potash and oxalic acid, and proceed with the rest of the work. Then putting the finger into the slit, one appreciates what is the matter. It may be a bar, may be a prominent piece of one side or the other, or it may be a projecting third lobe. If there be a third lobe get it off by making another cut. Lately I have found another method which succeeds so well I shall try it in the future. It was a case of third lobe, which stuck up into the bladder three-fourths of an inch. I made the incision, and by a lateral movement of the finger the whole thing came off with a projecting tongue of mucous membrane running down along the floor of the prostate. The whole operation was done in ten minutes or less. The temperature never went above 100°. The rest of the prostate was smooth and normal. Recovery was prompt and perfect. The method I usually use is to cut out a V-shaped piece if there be a third lobe. If there be a bar I have an instrument which is put in shut, turned to one side, opened, and then by a little pulling backwards and forwards shut so as to cut out a considerable oval-shaped piece including the bar, making a distinct groove in the bottom of the prostate. If this method of pressing out with the finger a piece of the prostate can be done it will be the simplest operation, and it is very desirable in these old cases not to prolong etherization. Yearly as I go on I use less ether and more chloroform, and operate as quickly as possible. This operation can be done in ten minutes perhaps. A small amount of anesthesia is very desirable in cases of damaged kidney, and the old man's kidney is habitually damaged. The old method was to cut off the projecting portions with the scissors, and the

methods I formerly used were to cut off with curved scissors first one side and then the other, and slip out a triangular bottom piece, packing when the hemorrhage was excessive. The operation I now do above the bone has recently been described at Niagara Falls by my associate, Dr. Fuller, who has perfected it and practically developed it in operative technique. The operation is exceedingly simple; it is all done in the dark at the bottom of a well of blood. One never sees anything after the first incision. The finger is carried down behind the bar into the *bas-fond*. Upon this with a scissors curved on the flat the bar is cut clean through until you get to the bottom of the *bas-fond*; with the finger you now commence and dissect off the bladder in the depths at the bottom of a pool of blood and work the finger about in all directions well forward under the bone until you can entirely shell out the prostate. The mucous membrane generally tears a little, but that makes no difference. I think it is better than cutting into the lateral lobes, because if you cut laterally you have pouches that do not drain. With a central cut your pouch drains backward, the best possible exit. By this method you may gouge out and draw up and pull away first one side and then the other in a very few minutes. This is a method of enucleation through a suprapubic opening, and is eminently adapted for use in very large prostates.

Another operation, which has also been used largely and advocated by Dr. Alexander of New York, is that through the perineal opening. It is not to open the mucous membrane of the prostatic urethra at all, but through the perineum by combined pressure through a suprapubic opening to enucleate the prostate. I have generally preferred to go in front through the bar, make an incision and eviscerate laterally. In a thin man it is an exceedingly simple operation and pretty rapid. I have never done the combined operation which Dr. Alexander does.

I wish to say a few words about orchidectomy. Everything that is new has a glamour about it, and is fortified by the faith-cure element which makes it advance at a more rapid rate than it deserves, and then it swings back too far the other way. I belong to the conservative group to which have attached themselves the three former speakers. But by no means do I believe that this operation is without merit. The emotional side, or æsthetic side, or poetical side of this question only exists in the imagination, because, when the prostate is eviscerated from within, or cut away freely, certainly the ejaculatory ducts are torn away and necessarily included in the scar, and the man is nearly as much a eunuch from this operation as from the removal of the testicles. It is a matter of sentiment, but still I think without sentiment we should return to our original condition of barbarity and tear each other's throats. Sentiment is life. I very much respect the perhaps very rank and crude expression of virility one old gentleman gave to me when I suggested orchidectomy to him as a possible means of relief. Said he: "No, doctor, I'll be damned if I do. I will die with 'em." Still that is neither here nor there. I never have done this operation but once and I don't care to speak of the experience of others. These experiences are in print, and the only possible objection is that the greater number come from people who have no other claim to credibility than the fact that they write, that is, the majority of the reporters.

If not a majority, at least many of the reporters are not skilled observers. A man in some obscure western town reports some seven or eight cases all getting well in a few weeks, skipping about, and one declaring that he wished he had got rid of the "damned old stones" before, because he was so much better sexually after their removal. That sort of case leaves an honest man permission to doubt. But there is something in it, how much we shall soon know, because everybody is doing it, and it is being done too much.

I have offered the operation to a certain number of people, discussing the question and placing it before them, and I never have yet found anybody in the past year since the case of Smith willing to try it until finally, one day about two months ago, a handsome old gentleman came in and asked me about it. He said he had come to have the operation done. He was a bachelor about sixty-five, and apparently in very good health. I had encountered him with suppurative testicle many years before, in connection with the use of a catheter not sterilized. Then I had seen him a number of times at long intervals with slight attacks of recurrent prostatic suppuration in a mild catarrhal way, giving vesical spasm, never laying him up. He came back with another of these attacks, said he was getting rather tired of it, had to use his catheter every four hours, and he was getting another attack. He wanted to have his testicles taken out; said he had a relative studying medicine who told him about it, and he was full of the idea. I thought it better to get rid of the commencing attack before taking the testicles out. He said he had not used his testicles for years and never intended to again. I told him I thought it best to try the old way and see if I could not get the bladder into a condition of quietude before operating. I tried a few times and failed to make any advance. I think it is not proper to take out the testicles in a condition of advancing catarrhal disturbance at the neck of the bladder. This patient over-persuaded me and I took out his testicles under cocaine. He said it did not hurt as much as when the abscess was opened years before. His spasmodic calls to urinate continued with the same violence; the bladder was irrigated each time the catheter was used, about every three hours. He had no stone, no tumor, no ulceration, nothing in the bladder, a moderately enlarged prostate and a moderate amount of catarrhal cystitis in the prostatic sinus. He was somewhat of a bleeder. A little oozing formed a clot in the scrotum, and one side was opened the next morning and a moderate clot turned out. Nothing happened to the wound and nothing to the operation. But he continued to strain with increasing violence. Then I insisted that the bladder should be drained. He would not hear of it. The family also objected. About the end of the first week he strained out a hemorrhoid which became strangulated and edematous and from that a slight erythematous blush and a sort of ambulatory erysipelas ensued. He strained and strained and strained his life out; he died in the fifth week. The bladder never cleared up. I searched again and found nothing in the bladder. No autopsy was allowed. The catheter finally was tied in for a week, and that made matters worse. He strained all the time. The catheter was taken out and passed every two hours, twelve times a day, and between these two hours he had habitually three intense spasms so that I made out that he had forty-eight intense vesical

spasms in the course of twenty-four hours, and he finally died, not allowing himself to be drained. There were consultations held, but nobody would uphold me in insisting on drainage. Still I do not condemn the operation. I do not know enough about it. But it seems to me that on many accounts it is best to withhold judgment a little while and go slowly, and certainly not to operate on a man who is in a condition at all of urgency or emergency or progressive vesical spasm even if just commencing. He should be operated on in periods of quiescence or periods of decline, because the operation does not always produce this immediate relief which we are led to expect when we read the brilliant articles where the relief commenced the third day after the operation.

DR. ABNER POST, of Boston: When a man is called upon to continue the discussion at the end of two and a half hours, and as a fifth speaker, the first kindness he can pay his audience is to tell them he will detain them but a very few moments.

I cannot believe that the operation of orchidectomy, as my learned friends have chosen to call it, is to entirely supplant all other operations. But it is the operation which at the present moment especially attracts our attention, and the few words that I shall say this afternoon will be in reference to that part of the discussion, and in order that I may be sure not to repeat what the gentlemen have said before me, I will confine myself by your consent chiefly to my own experience in the matter. I have castrated two men for enlarged prostate and have advised as a consultant the operation in a third patient. My own patients are somewhat interesting.

The first was a man of seventy-six years of age, who was under my observation for two weeks before the operation was done. He was entirely unable to pass his urine himself, was obliged to be catheterized not by himself, but by an attendant, catheterization five times in the twenty-four hours being a necessity and keeping him barely comfortable. He was constantly begging for the use of the catheter. His pain and discomfort were very great. He was a feeble old man, was confined to bed, and his complaints in regard to his head were very great. He kept informing us that he should go crazy if he did not have relief from his bladder, the irritation was so persistent and so excessive. Treatment in hospital in bed with careful systematic catheterization and washing of the bladder, for his urine was also purulent, failed to give him relief; and at the end of sixteen days, in spite of a general febrile condition, I castrated. I cannot say that I had any great hopes of relief or that I urged the operation. He and his friends would have consented to it long before I did it. At the time of the operation I told them what I believed to be true, that the operation would I thought in itself prove of comparatively little moment, and that there was little danger of death as a direct result, and that in his case it was certainly worth an attempt to give him relief. The castration was done with a minimum of ether and with the greatest rapidity. I do not remember exactly how long the operation itself took; it was but a very short time, but from the moment the ether was put over his nose until he was back in his bed in the ward was something like thirty minutes. I was surprised in the afternoon to find the old gentleman in a state of extreme danger, with a temperature of 104° and a pulse of 150, and I thought I had certainly

killed him. The next morning, however, he had recovered, and he is to-day an example of the beneficial effects of the operation, which was done nearly three weeks ago. He can at present pass a fair amount of urine. The greatest amount he has passed is something like five ounces. He does not empty his bladder; there is still residual urine. There is still pus in his urine. He has to be catheterized once daily. His mental condition has changed wonderfully for the better. He is greatly encouraged, feels happier, sits up two or three hours at a time. The operation in his case is certainly a success. It has not restored him to youth; it has not entirely restored his bladder; it has restored him to a condition where he is partially independent of the physician. I cannot help thinking that he rejoices in the way that patients often do over the result of an operation, and that his mental condition is an extremely favorable one towards the operation, so that he is inclined to exaggerate its effects. He is quite garrulous in regard to it, and advises a repetition of the operation to every old gentleman similarly affected.

My second operation was in a man of fifty-nine. The prostate in his case was not very much enlarged as felt through the rectum, but there was a distinct bar at the neck of the bladder to the entrance of the catheter. He was obliged to pass water every hour. His amount of residual urine was something like six ounces. He asked for the operation. I should not have suggested it to a man of his years and with his general condition. It seemed to me there was probably some other factor which entered into the frequent urination. I kept him a fortnight before operating. I could not find any satisfactory explanation of his frequent urination short of the prostatic trouble. I castrated him about the same time as the first man. The operation proved in him a mere bagatelle, followed by no rise of temperature. I cannot feel very certain by my finger of any diminution in the size of the prostate, but his intervals between urination have increased decidedly, so that the average is two hours instead of one. He often goes three and a half hours. He does not entirely empty his bladder. There is something like one-half of the former amount of residual urine, but a good amount of the pain and discomfort now, he says, has disappeared. I must say that he expresses himself a good deal more favorably in regard to the effects of the operation than seems to me to be justified.

In the third case in which I advised its performance, I know the operation has been performed, but I have no details since. I mention these cases because I think they will show fairly well something of the risks, and the fact that the brilliant cases must go side by side with those which are less brilliant. I speak of them more particularly to introduce another small series of cases in which I have refused double castration, and it seems to me that those are more important for a moment's consideration than the cases in which castration has been done. Gentlemen have reported the cases in which they have performed castration, but have not reported the cases in which they have refused. The cases in which I have advised against castration are:

First, the cases which are comfortable with the catheter. The gentlemen who have preceded me have agreed that the catheter life, such as we have depended on before, is still to be depended on, and

these were cases who could pass their own catheters, and cases in which it was improper to advise an operation, which, looking at it in as favorable a light as we can, I think we must still consider as questionable in its results.

Second, were the cases of moderate age. I have now a gentleman of fifty-seven who has a well-marked prostate, who is practically dependent upon the catheter, who expects to be married during the coming summer, and I did not feel that a case of that sort was one in which castration should be advised.

A third class of cases, of which I recall two at the present moment, are cases in which the prostatic disease seemed only a minor incident in the degeneration of old age. There was one old man transferred to me at the hospital from the medical side. He had entered the hospital I hardly know for what, but it was found that he had an enlarged prostate and a certain amount of residual urine, and an operation was suggested. Really, in that case, although he certainly had an enlarged prostate and could not empty his bladder, that seemed to me only an incident. His greater trouble was the feebleness and stiffness due to old age, and I could not imagine that he could really be benefited by it. He was not even in a condition in which the actual use of the catheter was a necessity.

Fourth, is a case in which there is marked disease of the kidneys, in which it seemed to me that was of more importance than the prostatic disease itself.

Fifth, is another case in which the pain connected with micturition, etc., was extreme; it suggested something more than an enlargement of the prostate, with its attending evils. It was excessive. The patient finally got so that he used ether, or wanted to, every time he passed water. It seemed to me that that was an improper case for castration; in the first place, because the relief to be given that man must be immediate, and I recommended and carried out perineal drainage, as mentioned by Dr. Bangs. There was another reason for doing that. His symptoms were exceptional, and it seemed to me there must be some other explanation, and it was necessary to explore in some way the bladder. A stone-searcher could not be entered, and after the perineal incision it was with the greatest difficulty that I entered my finger. There was no stone, and I could not make out malignant disease of the prostate, but the post-mortem examination showed that there was malignant disease of the bladder. It was spread over the walls of the bladder, starting from the prostate, but involving rather the walls of the bladder than the prostate itself.

There is another case in which I have refused to operate because of double inguinal hernia. It seemed to me that the additional gravity involved in that case is sufficient to rule out the operation.

With these exceptions to the universal application of castration, and doubtless there are others, it is plain that there is still field for the other operations which have been mentioned so favorably and at such length. There is one thing more I want to say in regard to the matter of castration, and that is the temptation to do it loosely and without proper regard to the individual patient is extremely great. It is so easy to consider any old gentleman who has trouble with his urine as a prostatic and to proceed to castration, that the temptation to superficial work is extreme, and I perhaps may be excused if I make men-

tion of certain cases which I have myself seen regarded as prostatic when really disease of the prostate was absent. These cases include, in the first place, cases of deep stricture. I have seen one or two cases of deep stricture which certainly presented the ordinary symptoms of prostatic enlargement, occurring as they did in men long past sixty. I have seen one or two cases of locomotor ataxia with marked bladder symptoms where I thought really a person might be excused for thinking at least of prostatic enlargement. At times it is extremely easy to mistake cancer of the prostate for chronic enlargement, and I can remember at least one case where there was a difference of opinion as to whether there was cancerous disease or not, which was settled only by post-mortem examination. And I have an idea that I have seen certain cases of rectal disease in old men which also so interfered with the bladder function that it was possible to consider them as cases of prostatic disease.

One might almost say that it is more necessary to be careful about diagnosis in cases of castration than when some other operation is proposed. The operation through the perineum or over the pubes allows direct access to the prostate, and we are able to correct our diagnosis and adapt the operation to the condition present, but castration is done at a distance from the seat of disease, and after it is over we know no more about the actual condition than before.

Without going further into the subject, let me condense what I have tried to say by simply repeating that, while castration promises so much in certain cases, it is by no means a cure-all, and is not to be entered upon rashly nor without proper consideration of the individual case, and above all, not without a careful diagnosis.

DR. GARDNER W. ALLEN, of Boston: I should like to speak very briefly of a point in diagnosis which seems to me important, although it probably concerns only a small number of cases. This matter was especially impressed upon me at the recent meeting of the American Association of Genito-Urinary Surgeons at Niagara Falls, by Dr. Belfield of Chicago, who called attention to some of the consequences of careless and hasty diagnosis. He mentioned cases which presented the ordinary symptoms of enlarged prostate, and had been treated as such before coming under his care. Examination showed the trouble to be due to inflammation of the prostate and its appendages, especially the seminal vesicles, which were swollen and distended with fluid, forming a large part of the tumor which had been mistaken for hypertrophied prostate. One of these cases had been castrated without relief at the end of two months, but had begun to improve on stripping the vesicles; it was too early, however, to give final results. Dr. Belfield thinks that although there may be some enlargement of the prostate in these cases it is due to inflammation and not to hypertrophy, and is best treated by milking the prostate and its appendages by means of a finger in the rectum.

At the same meeting Dr. Fuller of New York exhibited some photographs of dissections which showed in a beautiful manner how the distended vesicles may simulate enlargement of the prostate.

I have observed this condition not infrequently, and have in mind one case in which a diagnosis of enlarged prostate had been made, both lobes being apparently greatly hypertrophied, forming conical tu-

mors with a deep sulcus between them. When the vesicles had been emptied the prostate was found to be of normal size and form. It seems to me that this matter deserves a place among the numerous factors that are to be borne in mind in the study of prostatic enlargement.

MAINE MEDICAL ASSOCIATION.

FORTY-THIRD ANNUAL MEETING, PORTLAND, JUNE 5, 6 AND 7, 1895.

THE Association met as usual in Common Council Chamber, City Building, and was called to order at 10.15 A. M., by the President, DR. W. P. GIDDINGS, of Gardiner.

After prayer by the REV. MR. SAMPSON of the Free Street Baptist Church and the disposal of some routine business,

DR. R. D. BIBBER, of Bath, reported

A UNIQUE CASE OF APOPLEXY,

interesting in character from the fact that at intervals of a few hours during the first day or two, consciousness was regained, and entire use of the paralyzed left side of the face, left arm and leg for periods of five or ten minutes at a time. Recovery took place without unusual symptoms, and the patient died a year later from another stroke.

CEREBRAL EMBOLISM

was the subject of a paper by DR. JOHN F. HILTON, of Lewiston.

The writer urged the idea that emboli oftenest had their origin in thrombi, and that the distribution of the left common carotid was most frequently their seat from its direct anatomical relation to the current in the aorta.

DR. WILLIS F. HART, of Camden, presented a paper on

NEURASTHENIA,

special stress being laid upon over mental crowding of school-children as a predisposing factor.

DR. S. C. GORDON, of Portland, thought the idea of forced feeding was too much insisted upon, a practice which often defeated its own end by weakening the patient's powers of digestion. He believed nature to be a good guide both as to the character and amount of food, and certainly would not push the feeding, if the digestive capacity did not seem equal to it.

AFTERNOON SESSION.

Delegates were presented from New Hampshire.

The President, DR. W. P. GIDDINGS, delivered an address, upon "A Few of the Accomplishments of Associated Forces, Natural and Intellectual."

DR. F. C. THAYER, of Waterville, read a paper advocating

CASTRATION FOR THE RELIEF OF HYPERTROPHIED PROSTATE.¹

The general tone of the discussion was favorable to the operation.

DR. W. L. Dana spoke of the importance of frequent examination to determine the amount of residual urine, which would be an index of the amount of atrophy of the gland.

DR. S. C. GORDON criticised the tendency to base expectations after this operation upon assumed influence of ovariectomy upon fibroids. He said it was not true, as a rule, that the removal of ovaries causes atrophy of fibroids. The facts relative to eunuchs and geldings were of more value than any to be derived from the effects of ovariectomy.

DR. W. K. OAKES, of Auburn, read a paper on

VAGINAL HYSTERECTOMY.

The vaginal method was urged as preferable for cases of purulent salpingitis, small ovarian cysts and small fibroids. It was regarded as especially useful and safe in those forms of bilateral suppurative disease with strong adhesions. The results were claimed to be better than by abdominal incision,—attended with less shock, less suffering, shorter period of convalescence and comparative freedom from dangers of hernia and necessity of an abdominal supporter.

DR. J. F. THOMPSON, of Portland, read a paper on

PYOSALPINX.

Distention of the tube to the size of a uterus at the third month of pregnancy, was said to mark the limit of enlargement before bursting.

Decomposition and infection of retention *débris* after miscarriage or abortion was given equal place with gonorrhea as a causative agent.

Preventive treatment by removal of inflammatory conditions in any part of the genital tract was regarded as the most important.

Distention by pus should be relieved by vaginal puncture to anticipate spontaneous rupture. Such treatment is only palliative, and should be followed by complete removal of the diseased organs, with drainage if there has been much oozing or soiling of the peritoneum with escaping pus.

Diagnosis from typhoid fever is not to be lost sight of, long-continued fever being strong presumptive evidence of inflammatory action in the tubes.

Complete removal of the uterus in these cases by Gordon's method is followed by better results, both local and systemic, than is simple Tait's operation, especially in cases of long-continued suppurative endometritis or marked retro-displacement of uterus with endometritis. Cases of briefer duration, or where there is no displacement, may be cured by removal of the appendages, preceded by thorough curetting of the endometrium.

DR. S. C. GORDON favored hysterectomy in addition to removal of appendages. He had seen tubes resuming their function after early evacuation of pus by vaginal puncture.

DR. A. P. DUDLEY, of New York, thought the proper line of work during the next ten years ought to be preventive rather than destructive. Surgery that cannot save anything to the woman but the vagina is poor surgery.

DR. S. H. WEEKS, of Portland, agreed with Dr. Dudley. He would remove ligaments with tubes. He preferred to save the cervix as a support in the pelvic floor. He would leave any part of uterus or tube or ovary which was sound.

DR. WOODS HUTCHINSON, of Des Moines, Ia., being invited to take part in the discussion, said 85 per cent. of all cases were due to gonorrheal infection, the remainder to tubercle bacilli.

¹ See page 182 of the Journal.

DR. THOMPSON, in closing, expressed his belief that there was more butchery done in the name of conservative surgery than good surgery. The best surgery is that which conserves the health and safety of the woman for the longest time. He thought cur-ettage of a uterus without removal of appendages for these cases would amount to about as much as curetting the rectum to cure an appendicitis.

THYROID EXTRACT IN CASES OF MYXEDEMA.

DR. J. K. P. ROGERS reported the relief of all symptoms of a case of myxedema by repeated injections of thyroid extract.

Several gentlemen spoke of the good results attendant upon this method, but agreed that continued use during life was necessary to prevent recurrence.

DR. ALFRED KING, of Portland, read a paper on

HENNEQUIN'S METHOD OF TREATING FRACTURES OF THE THIGH.

The paper was illustrated by an exhibition of the apparatus, and its application to a supposed patient. It consisted essentially in making traction upon the thigh just above the condyles by means of a cord and weight attached to a cravat bandage. Rotation is counteracted by shifting the attachment of the cord from side to side.

Interference with the traction by the leg, the thigh being at an angle of forty degrees, is prevented by removing a segment of the mattress. The thigh is then encased in any well-fitting supportive and coaptation splints, and kept up by supports from below.

This method was also advised as efficient for traction in treatment of hip-joint disease. In fracture it is said to meet all requirements. Selecting the best possible *point d'appui*, and transmitting traction directly to the desired point, rotation is prevented and accidental resistances are avoided. Its advantage over Buck's extension cannot be over-estimated.

SECOND DAY.—THURSDAY.

DR. S. H. WEEKS, of Portland, read an exhaustive paper upon

TUBERCULAR DISEASE OF THE KNEE-JOINT.

In the discussion of treatment, prominence was given to the anti-tubercular action of iodoform injections, fixation by plaster-of-Paris or splints, and traction to overcome muscular spasm. Excision is a last resort after a faithful trial of mechanical measures.

A lively discussion followed the report of a special committee on

REVISION OF THE CODE OF ETHICS.

Two reports were submitted.

The majority report eliminated from the old code all that related to duties of patients and the public, and suggested several changes in the section relating to consultations, making a more specific allusion to the various irregulars than does the present code, and removing any doubt as to whom was meant in the prescription. It also recognized the right of a practitioner to respond in emergencies when in his judgment the demands of humanity justified it.

The minority report was identical with the majority except that it removed any and all restrictions from consultations, when the consultant was an educated

man and of good repute in the community in which he lived.

Neither report met with much favor with those who participated in the discussion. The Committee used the word "liberal" as applied to medical education instead of the term "regular." This was criticised as "indefinite," notwithstanding it was easily demonstrated that a "regular" medical education is not necessarily a liberal one.

With two or three exceptions, the main question, as usual, was not discussed. A strong minority was in favor of laying the majority report upon the table for further discussion, there being in the Association a strong desire to have a code which is essentially a statement of the principles which ought to govern the practice of medicine among educated and honorable physicians. Finally, it was stated that the American Medical Association had indefinitely postponed the whole question, and influenced by this potent fact, the Association voted (40 to 16) to indefinitely postpone all consideration of those parts of the reports which suggested any changes in the code.

The Committee made two recommendations, which were unanimously adopted. One requires applicants for membership, before recommendation by the censors, to demonstrate to the censors their familiarity with the code, and in their presence subscribe to its requirements. The other urges the faculties of medical schools to give to students some instruction in the principles of the code, before sending them out as practitioners.

The first of these, if followed out, ought to demonstrate the foolishness, to say the least, of much that is irrelevant in the present code, and may be confidently reckoned upon to make the absurdity of certain parts of it more apparent than now.

AFTERNOON SESSION.

DR. J. M. JONAH, of Eastport, read a paper entitled, CHIPS FROM THIRTY YEARS' EXPERIENCE.

DR. C. E. WILLIAMS, of Auburn, read a paper on THE RADICAL CURE OF INGUINAL HERNIA.

The radical operation of opening the sac, returning its contents, drawing it down, suturing by buried kangaroo tendon, and removing it, was the one advised.

DISPLACEMENT OF THE GALL-BLADDER.

DR. JOHN F. THOMPSON, of Portland, reported a case of gall-bladder displaced into the right inguinal region, with symptoms so close to those of appendicitis that an operation was undertaken which disclosed the true nature of the case.

Officers for the ensuing year were elected as follows: President, Dr. L. W. Pendleton, Portland. First Vice-President, Dr. D. A. Robinson, Bangor. Second Vice-President, Dr. C. E. Williams, Auburn. Corresponding Secretary, Dr. W. T. Goodale, Saco. Board of Censors: Drs. C. O. Hunt, Portland; A. Mitchell, Brunswick; J. L. Bennett, Bridgton; B. F. Bradbury, Norway; W. B. Moulton, Portland. Committee on Publication: Drs. C. D. Smith, Portland; C. A. Ring, Portland; F. C. Thayer, Waterville; A. G. Young, Augusta; J. L. M. Willis, Eliot. Business Committee: Drs. Addison S. Thayer, Portland; Alfred King, Portland.

The Recording Secretary, Dr. C. D. Smith, and the Treasurer, Dr. A. S. Thayer, continue.

The Necrologist reported the deaths during the year of Drs. M. B. Cobb, Biddeford; J. W. Toward, Augusta; Wm. Osgood, North Yarmouth; Henry H. Hunt, Portland; Fred C. Perkins, Augusta; I. M. Eveleth, Waldoboro'.

DR. C. A. PEASLEE, of Wiscasset, read a paper reporting a

CASE OF PULMONARY TUBERCULOSIS CURED BY THE CURASSO TREATMENT.

The discussion elicited the fact that this method has been generally tried in this State, but with no very satisfactory results, even in hospital practice.

THE SEQUELÆ OF DIPHTHERIA.

DR. JAS. A. SPALDING, of Portland, presented a paper on this subject.

EVENING SESSION.

At 8 o'clock DR. A. K. P. MESERVE, of Portland, delivered the Annual Oration, dealing with the

RECIPROCAL INFLUENCE OF THE MASSES AND THE INDIVIDUAL.

DR. D. E. PARSONS, of Oakland, read a paper on
A CLINICAL STUDY OF TYPHOID FEVER.

The writer discussed the possibility of a non-bacillar origin of the disease from the standpoint of the country practitioner.

THIRD DAY.—FRIDAY.

In response to a communication from the Philadelphia County Medical Society, the Association passed a resolution condemning the use of the columns of the *Journal of the American Medical Association* to advertise proprietary medicines.

The Board of Censors reported, finally fixing the date of the next annual meeting on the second Wednesday, Thursday and Friday in June, 1896; appointing Dr. A. P. Dudley, of New York, a former resident of Maine and still a member of the Association, as Orator; and naming the following delegates to other medical societies:

American Medical Association: Drs. Alonzo Garcelon, Lewiston; Geo. H. Cummings, Portland; C. W. Foster, Woodford's. Vermont: Drs. S. C. Gordon, Portland; J. A. Donovan, Lewiston. Massachusetts: Drs. Aug. S. Thayer, Portland; Alfred King, Portland. Rhode Island: Drs. Daniel Driscoll, Sidney; W. H. Bradford, Portland. Connecticut: Drs. W. E. Baxter, Bangor; W. E. Elwell, Togus. New Hampshire: Drs. W. D. Williamson, Gorham, N. H.; Geo. C. Parker, Winthrop. New York: Drs. R. D. Bibber, Bath; W. B. Small, Lewiston; W. L. Dana, Portland. New Brunswick: Drs. S. B. Hunter, Machias; C. E. Williams, Houlton. Maritime Medical Society: Drs. B. B. Foster, Portland; J. M. Jonah, Eastport. Visitors to Maine Insane Hospital: Drs. E. M. Fuller, Bath; A. K. P. Meserve, Portland; G. M. Woodcock, Bangor. Portland School for Medical Instruction: Drs. B. B. Foster, Portland; W. K. Oakes, Auburn. Medical School of Maine (two years): Dr. E. S. Coan, Auburn.

The session was unusually well attended, notwithstanding the absence of any social features, and the papers were of unusual merit. Fourteen new members were elected.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, AUGUST 22, 1895.

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THE PROXIMATE CAUSE OF SENESCENCE
AND DEATH: WHY THESE ARE NECESSARY.

THERE has been much speculation as to the cause of old age and death. To many it is a sufficient explanation that such is nature's law. Involution and dissolution are always the complement of evolution.

Two quite remarkable treatises have recently appeared which attempt a solution, based on the most general data of biology, of the questions "Why do men grow old? Why do they die?" The one is by Sabatier, "Essai sur la Vie et la Mort"; the other is by Boy-Teissier, "On Senility in General."¹ Boy-Teissier adopts the standpoint of Sabatier, applying his theory to the explanation of old age and death. Let us see what that theory is.

Biologists have insisted on the extraordinary vitality of living undifferentiated protoplasm. Weismann says that monocellular beings (infusoria, monads) do not die; they multiply incessantly by bipartition, and live on in their descendants. In the metazoa, a part of the organism remains in this undifferentiated state—the reproductive cells, the germ-plasm—and is immortal (that is, potentially immortal). Maupas was the first to show that though in the protozoa the individuals may long multiply by division and thus continue existence, yet the cycle is destined eventually to terminate by senescence and death, which, however, may be escaped by "Karyogamic rejuvenescence," when a new cycle begins.

Living matter, then, is not necessarily subject to decay, and in the simplest forms prolongs its existence indefinitely by various modes of genesis; nay more, many of the fungi multiply by spores without sexual contact, and multitudes of the higher vegetable organisms, as the hop, the vine, the weeping willow are susceptible of indefinite "agamous" reproduction. The attributes of living matter are irritability, mobility, the faculty of exchange with its environment and

¹ Sabatier: *Essai sur la Vie et la Mort*, Paris, 1893. Boy-Teissier: *Maladies des Veillards*, etc., Paris, 1895.

the power of reproduction. But what is essential to its existence and continuance, and what especially distinguishes living matter from dead is a property which we may with Sabatier call a "bait power" (*pouvoir d'amorce*). As bait attracts fishes, so living matter has the power of attracting elements like itself, and incorporating them intimately into its substance, and thus its constant losses are made good. We may compare life and nutrition to a *whirlpool* (*tourbillon vital*, Flourens), whereby new particles are constantly drawn into the interior, while from the periphery dislocated particles are thrown off (assimilation and dissimilation).

The minutest portion of living matter has this faculty, and thus possesses the requisite condition for increasing its mass and perpetuating itself.

We have now to study the effects of differentiation of the protoplasm into cytoplasm and into nucleus. This is probably one of the first differentiations, as the lowest forms are destitute of a cell wall and nucleus, while endowed with remarkable powers of vital resistance and multiplication. The differentiation of the nucleus has probably "increased the value of the protoplasmic labor"; "has enabled the organism to adapt itself to the varied conditions of a higher life, to become a laboratory fit for the fabrication of superior and special products, having more of aptitude for action." Here then is the *qualitative* influence of this first differentiation.

What has been also its *quantitative* influence, that is, its influence on the faculty of growth and multiplication of the protoplasm, has this been increased or diminished? There is good reason to believe that it has diminished, for it is in the inferior micro-organisms, *those which present the nuclear differentiation the least accentuated*, that these powers are the most excited (bacteria, algæ, lower fungi).

Sabatier deems himself warranted here in stating as a law that *there is an inverse relation between the degree of nuclear differentiation and the power of growth*. It is in the nucleus that we first notice marks of senescence in the ciliated infusoria. The nuclei are approaching a state of molecular equilibrium — a static condition — and this equilibrium can now only be overthrown by "Karyogamic" interplasmic associations which re-establish active molecular change by mixing the slightly different physiological units of slightly different individuals (Herbert Spencer). From this, the way is easy to the generalization that the more the cell is perfected, complicated, differentiated, the more its power of self-nutrition "its bait power" is diminished; what is gained in *quality* is lost in *quantity*. Sabatier alludes in this connection to the known fact that in animal pathology there is often a return to more simple, more embryonic and more primitive states of the cell (carcinoma and sarcoma).

He also points out that in the metazoa the primitive cell, the protoplasm capable of playing the part of *amorce* (bait) diminishes progressively in quantity in the differentiated cells. Take, for instance, the

muscle fibres. These are not primary tissues, but they result from modifications of epithelial or connective-tissue cells. These modifications consist in changes of form of the cell which becomes more or less elongated, and especially in the deposition of a new substance, muscular substance or sarcoplasm, susceptible of contraction or relaxation. The muscle fibre is a complex element, composed of a primary cellular part small and relatively inconspicuous, and a muscular part more or less developed; and always in the animal scale there is a tendency toward increasing predominance of the muscular substance over the primarily cellular portion, which, however, more completely disappears. In the development of nerve, we may also follow the deposition of secondary nerve-substance by the side of the primordial cell substance. The same may be said of the more solid tissues, bone and cartilage, the formed material augmenting in volume while the primary cell element shrinks to small dimensions. It may be said of all these textures as of the secreting cells (liver, pancreas, etc.), that the original protoplasm (cytoplasm and nucleus) has little by little given way to products of its own activity with highly specialized functions and properties, but poorly fitted, however, to protect themselves and maintain the integrity of their structure.

"This new mode of activity," says Sabatier, "due to evolutionary tendency, is developed by selection, by usage, by exercise, by habit. Little by little the protoplasm has lost its primitive nutritive function which has been modified to the profit of its secondary differentiated function. It has ceased more and more to make living matter properly so called, in order to make contractile, sentient, secreting matter. . . . It has become more and more incapable of reconstructing and repairing itself; and the machine which was originally made to escape wearing out, has become a machine fitted to wear out and perish." Boy-Teissier insists "that it is not the years one has lived which are the causes of old age; the number of years one lives is in strict dependence on the coefficient of vital resistance," and this vital resistance is just what suffers diminution by the differentiations and specializations of living matter "which mark the first step towards death." These new adaptations and specializations can only arise by a transformation of a part of the energies of living protoplasm, so that the latter has less power to oppose destructive agencies. Lowering of vital resistance means retardation of nutrition, and this leads to changes of texture, to atrophy, to degenerations, to sclerosis.

The fact is emphasized by both Boy-Teissier and Sabatier that the tissues of man and the higher animals are poorly endowed with the power of regeneration. In the nervous centres, for instance, which represent a very high differentiation, all regeneration of and by the nervous elements themselves is practically *nil*, and repair is effected by the formation of cicatricial tissue, that is, connective tissue, in the striated muscles and in the true skin; reparation is also

cicatricial, while in the unstripped muscle (less highly differentiated) the tissue may regenerate itself (this is especially the case in young subjects and in the inferior metazoa). The epithelial elements (epidermis, lining of alimentary canal, renal epithelium) are less specialized, and have not altogether lost the faculty of regeneration, though the more developed gland epithelium is with more difficulty repaired. In the liver the regeneration of an entire acinus is impossible—at least a third of the acinus must remain (Podwisoczky). In the kidney there is a variable limit to the regeneration of epithelium.

The connective tissue, at least in its primary, unmodified form, to which "cellular tissue" is an approach, long retains its vital energies in a high degree, and becomes a needed means of repair in traumatism and destructions of the true parenchyma. "It is," says Sabatier, "the matrix from which come the elements of the other tissues; it is during adult life the enfeebled representative of the neutral blastodermic cells; it is a post-embryonal blastoderm." By the same law which causes the connective-tissue cells (and in this category Cohnheim would include the leucocytes of the blood) to repair the losses of the nobler elements after traumatism, we see connective tissue taking the place of the nobler elements when these atrophy, and hence an explanation of senile sclerosis is obvious.

The constructive processes manifested in compensatory hypertrophy (as of the heart in valvular obstruction, of the kidney when its fellow has been destroyed) is according to Sabatier no exception to the law enunciated, although there is a marked contrast between this energy and the feebleness of reparative construction in cases of lesion. The hypertrophy and hyperplasia are the result of excessive constructive activity of the connective-tissue cells and perhaps of the leucocytes, which under stimulation of a physiological kind originating in the necessity for increased functional activity of an organ, "return to the conditions of embryonal life, acquiring the energies and the power of tissue formation peculiar to the early stages."

We have not time to follow out the numerous lines of inquiry which this subject so full of interest presents, and must refer to the authors whom we have cited, and who have drawn from all the reserves of biology to fortify their positions.

OVER-OPERATING IN GYNECOLOGY.

THERE can be but little doubt in the minds of conservative physicians that at the present day the pendulum of practice has swung somewhat too far in the direction of the operative treatment of the diseases of the female generative organs.

Excision of the uterine appendages is recommended for slight inflammatory disease, often without previous trial of conservative treatment. Operative gynecologists in excellent repute, affirm that the only effective

treatment of retrodeviation of the uterus is laparotomy and suture of the fundus uteri to the abdominal wall. Total ablation of the uterus is recommended for the endometritis which sometimes persists after the removal of the appendages for inflammatory disease, and other examples might be multiplied.

The present prominence of the operative side of gynecology, is doubtless in part a healthy reaction from the unsatisfactory results of the older, so-called medical gynecology, when applied in cases too severe to be cured or benefited by it; and there can be no doubt that the operative work in gynecology, made possible by the antiseptic treatment of wounds, has been an immense boon to suffering woman. There is not the slightest doubt either that the good accomplished by the modern operative measures in the main far outweighs the evils produced by their occasional careless, unskilful and over-enthusiastic application. The operative side of gynecology is attractive and progressive, and the field for it is large; but unfortunately, not so large as to afford sufficient operative experience to all the enthusiastic workers who enter it. These latter, perhaps without recognizing the fact themselves, and all the while actuated by the highest motives, are apt to be over-influenced by the brilliancy of successful operative results; perhaps they never have had the opportunity of following cases medically treated to their slowly procured but successful termination. These circumstances all tend to influence them to choose operative methods, and often, perhaps, to underrate the dangers of operation, and their own responsibility in advising it. Then there is the reputation of having performed the operations, and the larger fees which, perhaps unconsciously, become factors in the case.

A fact that should never be lost sight of is that operative skill is developed at an earlier stage of a surgical career than is the mature judgment which can decide what cases are best treated by operative methods, and that the truly conscientious surgeon will choose the treatment by major operation only in carefully selected cases, either intrinsically or proved by actual trial to be not amenable to medical treatment.

Sir William O. Priestley, who made this subject the theme of his opening address before the Section in Obstetric Medicine and Gynecology of the British Medical Association, reminds us that in this connection we must consider also that "although a just equilibrium will no doubt be attained as to what is right and proper, so far as operations are concerned, by the usual process of evolution, a too reckless attempt at progress not only impairs the reputation of gynecology, but the experience and recognition of faults must be gained at the expense of much suffering to many patients—patients of the gentler sex, on whom no man with a spark of chivalrous feeling would desire to inflict unnecessary pain. They are absolutely at the mercy of the medical man, and submit in blind faith to what he recommends as the best to be done under the circumstances.

We should never by any consideration of either personal credit or the credit of surgery, be led to forget that the welfare of the patient comes always first. For all conduct and decision not founded on the great principle that the profession exists for the good of the public, and not the public for the profession, is fraught with the greatest harm to both.

MEDICAL NOTES.

THE MEMORY OF THE LATE DR. DUJARDIN-BEAUMETZ has recently been honored by the erection of a bust in the garden of the Hôpital Cochin in Paris.

TESTIMONIAL TO SIR JOSEPH LISTER.—On his retirement from King's College, London, Sir Joseph Lister was, July 31st, presented with a three-quarters length portrait of himself, together with an illuminated and illustrated album containing the names of the subscribers.

MEDAL AWARDED TO DR. TRYON.—Dr. James R. Tryon, Surgeon-General of the United States Navy and Chief of the Naval Bureau of Medicine and Surgery, has been awarded the bronze medal of the Red Cross Society of Venezuela, in recognition of services rendered the wounded at La Guayra during the Venezuelan revolution, three years ago, when Dr. Tryon was surgeon of the United States flagship. *Chicago.*

HONORS FOR IRISH MEDICAL MEN.—Knighthood has been conferred upon Dr. Thornley Stoker, the President of the Royal College of Surgeons in Ireland, and Dr. Christopher Nixon, the physician in ordinary to the viceregal household.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, August 21, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 72, scarlet fever 21, measles 9, typhoid fever 32.

PREVENTION CHEAPER THAN CURE.—In the *Bulletin of the State Board of Health* of Connecticut, for the month of July, we find the following statement of the unfortunate result of a penny-wise and pound-foolish policy as applied to public hygiene: "An epidemic of scarlet fever in the city of Ansonia has been prevailing since the latter part of May. The small appropriation of \$150 per year to the health department of that city did not enable the health officer to use those means which are necessary to control the spread of the disease. It began in the tenement houses in Jersey Street, occupied by foreigners, and has spread from there to various parts of the city. On the recommendation of the State Board, an additional appropriation will be asked for, and more effective means of control undertaken. The suppression of an outbreak of a contagious disease at the beginning, at any cost, is cheaper than to let it spread."

NEW YORK.

YELLOW FEVER AT THE NEW YORK QUARANTINE STATION.—A case of yellow fever, the first one this season, has developed at quarantine. The patient, Burt E. Hyde, of Connecticut, who arrived on the Ward line steamship *Seneca* from Havana on August 12th, was held, together with the other passengers who did not have certificates of acclimatization, at Hoffmann's Island until five days should have elapsed from the time the ship left Cuba. On the following day it was suspected that he had yellow fever, and he was removed to Swinburne Island, and on August 14th the diagnosis was fully established.

A DEATH FROM GLANDERS.—Joseph Hopkins, a builder of Brooklyn, died on August 9th of glanders and farcy contracted from one of his horses which he had attended himself.

Miscellany.

NOURISHMENT BY SUBCUTANEOUS INJECTION.

At the Congress of Internal Medicine at Munich last April, Leube, of Wurzburg, made a communication on "Nourishment by Subcutaneous Injection," and discussed the general subject of assimilation from the stomach and intestine. For subcutaneous nutrient injections he had employed only fats in his experimental work on this subject. In order to demonstrate that the material thus injected was really absorbed and at times assimilated, he had made use of butter as his nutrient material. Dogs who had been rendered entirely free from fat, when given from 50 to 3,500 grammes of butter by subcutaneous injection showed a noticeable deposit of fat both in the subcutaneous tissues and the internal organs. Chemically this was shown to be in some cases ordinary animal fat, in some still pure butter. The proof that this fat thus artificially supplied was available as nutrient material for consumption in the "animal furnace," was shown by the fact that when the animals' supply of fat was again cut off, this new deposit entirely disappeared.

Correspondence.

THE RIGHTS OF MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

MONSON, MASS., August 16, 1895.

MR. EDITOR:—I avail myself of the columns of the *JOURNAL* to present a matter of interest to the Fellows of the Massachusetts Medical Society. The occasion of this communication is a disagreeable incident at the last annual meeting, which I should consider had interest to myself alone, did it not largely concern the rights and privileges of all the members of the Society.

I have been a member of the Massachusetts Medical Society since 1880, and I have always paid my dues with great cheerfulness and regularity. I am also happy to state that, up to a recent date, I have been treated with uniform courtesy by the officials of the Society; but I regret to be obliged to add that this pleasing record was shattered at the last annual meeting. It has not been my habit to regularly attend these annual festivals; but this year a yearning for frozen pudding and a desire to see the governor lured me from my rural haunts.

Judge of my surprise — imagine my righteous indignation when I presented myself at the window of the Treasurer's office with a request for a dinner-ticket, to learn that I should be required to deposit twenty dollars in order to obtain the coveted pasteboard. I was informed that there was no record of the payment of my assessments for the past four years. I assured the Treasurer most emphatically that there was a horrible mistake, that the dues had all been paid, and that I had the receipts at home. But the Treasurer was obdurate and peremptory; his voice was stentorian, and the crowd in my rear impatient. Some one behind me yelled, "Come, hurry up there." I do not know who the gentleman was from whom the cry emanated, but I seize this opportunity to thank him for not administering a kick when he learned that I was a delinquent for four years. Notwithstanding the pressure fore and aft, however, I did not obey the summons to stand and deliver. To my unsophisticated intelligence it savored too strongly of a bunco-game. I concluded that twenty dollars was too much to pay where I owed nothing, even to see the governor. I did not feel, in justice to my family, that I ought to risk my year's surplus in that way. We do not often see twenty dollars in our part of the State, and we never see it again after it has been to Boston.

It is unnecessary to add that I did not partake of the cold snack that I expected was to reward my journey of nearly a hundred miles. I repaired to a hotel, where I astonished the waiters with a display of the appetite that I had been carefully nursing for the annual dinner. In lieu of the speeches that I had hoped to enjoy on that occasion, I could only divert myself with thoughts of James Jackson, Jacob Bigelow, Benjamin Waterhouse, and the discoverer of anesthesia.

And now for the moral. Pardon me, Mr. Editor, if I continue to encroach upon your valuable space. Imagine yourself, for a moment, in the position in which I found myself, and then feel of your pulse. I had been made the victim of official blunders, I had been subjected to an inexcusable and unmitigated outrage — and all owing to an arbitrary assumption of authority on the part of the Treasurer, which he does not possess; but of which more anon.

I returned home, by express train, for my receipts. I found them. Two of them I fished out of the waste-basket, where I had recently consigned them, not knowing, at the time, of the peculiarities of our Treasurer. The receipts were dated as follows: April 20, 1892; April 18, 1893; June 11, 1894; April 15, 1895. If any Fellow of the Massachusetts Medical Society has a better record than that I should like to shake hands with him.

I next transferred my investigations from the waste-basket to the records of the Hampden District. I found that the records were in accordance with my receipts, and that I had due credit there. But it appeared that, owing to an oversight of the District Treasurer, the payment in June, 1894, was not reported to the Treasurer in Boston. A further complication was due to the failure of the District Treasurer to render his account for 1895 before the annual meeting; consequently I had no credit, for the past two years, on the books of the Treasurer of the State Society.

But this does not account for all of the twenty dollars; this only explains just half of my imaginary indebtedness. Hear the rest. Owing to a blunder in the office of the Treasurer of the State Society, which he ascribes to his stenographer, the ten dollars, for which I had no credit on his books, was magnified to twenty. And so, owing to the errors of two of the officials of the Society, I was robbed of my rights, humiliated and insulted. What happened to me might under similar circumstances happen to any other Fellow of the Society; and for that reason I wish to enter an energetic and formal protest.

Of course, the natural supposition is that the Treasurer had authority for doing as he did; but had he? If so, I should be pleased to learn where he got it. There is no rule, regulation or by-law of the Massachusetts Medical

Society authorizing its Treasurer to withhold dinner-tickets at his discretion. I am assured by a legal authority that every member in good and regular standing is entitled to a dinner-ticket, whether he has paid his assessment or not, in the absence of any express rule of the Society to the contrary. The supposition that the Treasurer has power to withhold tickets from those who cannot produce evidence on the spot that they have paid all their assessments is erroneous. The fiction has only been tolerated by the good nature of the Society. No one can deny that it has subserved a useful purpose, but my personal history shows that it can work the gravest injustice. The annual meeting is not the place to rectify mistakes; the press of business there is too great. There is no time for convincing argument when one is surrounded by a waiting crowd of Fellows, eager for the banquet-hall, and impatient, as hungry animals always are. In any case of doubt the ticket should be handed over, and the account adjusted afterwards; as frequently occurred before the present Treasurer assumed his office.

The Massachusetts Medical Society is composed, for the most part, of honorable and responsible gentlemen, and a "public-be-damned" policy is decidedly out of place in the conduct of its affairs. Let all the Fellows of the Society bear in mind that they have rights. Let them remember that it is a duty which they owe to others as well as themselves to protest when their rights are infringed upon. And let it also be remembered that the Society is not under military rule; that no officer is a dictator, but that we are all peers and brethren.

Hereafter, when I attend the annual meetings, I shall carry a shot-gun, and bring my dinner in a tin pail.

Yours very truly,

F. W. ELLIS, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 10, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping cough.	Diphtheria and croup.	
New York	1,956,000	897	459	28.27	11.11	18.59	2.53	3.96	
Chicago	1,600,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	477	224	22.05	7.98	15.75	.18	3.78	
Brooklyn	1,043,000	500	280	31.60	7.00	24.20	2.20	3.60	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	300	159	31.02	6.93	27.42	.66	3.63	
Baltimore	506,000	—	—	—	—	—	—	—	
Cincinnati	325,000	104	33	13.44	15.36	86.41	.96	.96	
Cleveland	325,000	120	48	24.00	8.30	20.75	—	2.45	
Washington	285,000	140	61	29.82	8.52	22.72	.71	1.42	
Pittsburg	272,000	—	—	—	—	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	27	9	25.90	14.60	18.50	—	—	
Charleston	65,165	38	13	15.78	13.15	13.15	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	33	18	30.36	6.06	33.33	—	—	
Fall River	92,233	68	41	56.00	5.88	44.10	—	1.47	
Lowell	90,613	44	32	44.00	6.81	45.40	—	—	
Cambridge	79,607	35	20	26.00	11.40	14.4.8	—	5.70	
Lynn	65,123	31	16	16.15	6.46	6.46	—	3.23	
Springfield	50,284	11	4	40.45	9.09	40.40	—	—	
Lawrence	49,900	—	—	—	—	—	—	—	
New Bedford	47,741	29	17	37.95	3.45	31.05	—	—	
Holyoke	43,348	—	—	—	—	—	—	—	
Brockton	38,939	8	6	12.50	12.50	—	12.50	—	
Salem	33,155	—	—	—	—	—	—	—	
Haverhill	32,925	—	—	—	—	—	—	—	
Malden	30,209	15	5	40.00	6.66	40.00	—	—	
Chelsea	29,806	22	14	41.83	9.10	9.10	—	4.55	
Fitchburg	29,383	11	6	45.45	9.09	36.36	—	—	
Newton	28,837	10	4	20.00	10.00	10.00	—	10.00	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	5	3	20.00	—	—	—	—	
Waltham	22,058	5	3	20.00	60.00	20.00	—	—	
Quincy	19,642	—	—	—	—	—	—	—	
Pittsfield	18,802	3	2	66.66	—	66.66	—	—	
Everett	16,585	9	6	33.33	—	11.11	—	11.11	
Northampton	16,331	8	3	25.00	12.50	12.50	—	—	
Newburyport	14,073	8	3	37.50	—	37.50	—	—	
Amesbury	10,920	2	2	—	—	—	—	—	

Deaths reported 3,084; under five years of age 1,558; principal infectious diseases (small-pox, measles, diphtheria and

croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 879, consumption 276, acute lung diseases 154, diarrheal diseases 656, diphtheria and croup 99, whooping-cough 44, typhoid fever 36, measles 20, cerebro-spinal meningitis 14, scarlet fever 7, erysipelas 2, malarial fever 1.

From typhoid fever Boston 6, New York and Brooklyn 5 each, Washington 4, Philadelphia and Fall River 3 each, Nashville 2, Cincinnati, Cleveland, Charleston, Worcester, New Bedford, Brockton, Fitchburg and Everett 1 each. From measles New York 15, Brooklyn 3, Cincinnati 2. From cerebro spinal meningitis Chelsea 4, New York 3, Washington 2, Fall River, Lowell, Lynn, Taunton and Clinton 1 each. From scarlet fever New York 3, Boston, Washington, Lynn and New Bedford 1 each. From erysipelas New York 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending August 3d, the death-rate was 20.7. Deaths reported 4,207; diarrhea 854, measles 115, diphtheria 76, whooping-cough 53, scarlet fever 47, small-pox (Oldham 2, London 1) 3.

The death-rates ranged from 10.0 in Halifax to 30.0 in Liverpool; Birmingham 19.9, Bradford 16.4, Croydon 16.9, Gateshead 16.3, Leeds 20.3, Leicester 21.0, London 21.4, Manchester 23.6, Newcastle-on-Tyne 18.6, Norwich 25.8, Portsmouth 15.5, Sheffield 21.6, Sunderland 15.9.

METEOROLOGICAL RECORD,

For the week ending August 10th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S... 4	29.90	72	82	63	86	71	78	S.	S.W.	6	13	O.	F.	1.05
M... 5	29.90	76	86	67	75	53	64	W.	W.	8	8	C.	C.	
T... 6	30.00	78	89	67	64	64	64	S.W.	S.W.	4	9	F.	C.	
W... 7	29.86	73	80	66	88	88	88	S.E.	S.W.	6	11	O.	C.	
T... 8	29.94	76	84	68	57	53	59	W.	W.	12	9	C.	C.	
F... 9	29.99	74	84	64	51	55	54	W.	W.	11	9	F.	C.	
S... 10	29.90	77	86	68	48	44	44	N.W.	N.	10	5	C.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 10, 1895, TO AUGUST 16, 1895.

The leave of absence granted CAPTAIN JUNIUS L. POWELL, assistant surgeon, U. S. A., is extended one month.

The extension of leave of absence on account of sickness granted MAJOR CLARENCE EWEN, surgeon, is further extended two months on account of sickness.

The leave of absence for seven days granted to CAPTAIN R. J. GIBSON, assistant surgeon, is extended twenty-three days.

CAPTAIN LOUIS S. TESSON, assistant surgeon, is relieved from duty as attending surgeon at Headquarters, Department of the Missouri, and examiner of recruits at Chicago, Ill., and ordered to Fort Ethan Allen, Vermont, for duty, relieving CAPTAIN AARON H. APPEL, assistant surgeon.

CAPTAIN APPEL, on being thus relieved, will report for duty as attending surgeon and examiner of recruits, Chicago, Ill.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 17, 1895.

M. S. GUEST, assistant surgeon, to the "Minnesota." August 14, 1895.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING AUGUST 15, 1895.

WASDIN, EUGENE, passed assistant surgeon. Granted leave of absence for ten days. August 1, 1895.

WILLIAMS, L. L., passed assistant surgeon. To proceed to South Atlantic Quarantine Station for temporary duty on being relieved by Assistant Surgeon E. PROCHAZKA. August 6, 1895.

MCINTOSH, W. P., passed assistant surgeon. Granted leave of absence for thirty days from September 1, 1895. August 5, 1895.

MAGRUDER, G. M., passed assistant surgeon. To assume command of small-pox camp, Eagle Pass, Texas. August 10, 1895.

GEDDINGS, H. D., passed assistant surgeon. Granted leave of absence for thirty days on being relieved by Passed Assistant Surgeon L. L. WILLIAMS.

BROWN, B. W., passed assistant surgeon. To proceed to New London, Conn., as inspector. August 15, 1895.

ROSENAU, M. J., passed assistant surgeon. To proceed to Eagle Pass, Texas, for temporary duty. August 4, 1895.

NYDEGGER, JAS. A., assistant surgeon. To assume charge of Detention Camp, Waynesville, Ga., in addition to other duties. August 14, 1895.

PROCHAZKA, E., assistant surgeon. To proceed to Charleston, S. C., for temporary duty. August 6, 1895.

AMERICAN DERMATOLOGICAL ASSOCIATION.

The nineteenth annual meeting will be held at the Windsor Hotel, Montreal, Canada, September 17, 18 and 19, 1895.

FIRST DAY.

Address by the President, Dr. S. Sherwell. Angiokeratoma of the Scrotum, Raynaud's Disease of the Ears, Report of Cases, Dr. J. A. Fordyce. Two Cases of Hydroa Vacciniforme, Dr. J. E. Graham. Two Cases of Bromide Eruption, Dr. G. T. Jackson. The Value and Limits of Usefulness of Electrolysis in Dermatology, a General Discussion. Dermatological Notes, Dr. W. A. Hardaway. The Epitrichial Layer of the Epidermis and its Relationship to Ichthyosis Congenita, Dr. J. T. Bowen.

SECOND DAY.

Remarkable Drug Eruption, Dr. F. J. Shepherd. A Hitherto Undescribed Sequel of Non-Parasitic Sycosis, Dr. J. A. Cantrell and Dr. J. F. Schamberg. The Infected Scratch and its Relations to Impetigo and Ecthyma, Dr. H. G. Klotz. A Contribution to the Study of Mycetozoa, Dr. J. N. Hyde. Unusual Papulo-Pustular and Fungating Bromide of Potash Eruption in a Baby (illustrated), Dr. G. T. Elliot. An Etiological Puzzle, Dr. J. C. White. Studies on Some Dermatological Subjects, Dr. A. R. Robinson.

THIRD DAY.

A Unique Case of Agminate Folliculitis of Parasitic Origin, Dr. M. B. Hartzell. Note on Antiparasitic Treatment of Eczema, Dr. J. Zeisler. The Treatment of Erysipelas based upon a Second Series of Fifty Cases, Dr. C. W. Allen. Notes on Drug Eruptions, Dr. J. A. Fordyce. A Further Study of Alopecia Praematura and its Most Frequent Cause, Dr. G. T. Elliot. The Prevalence of Germ Dermatoses, Dr. J. C. White. Sym-biosis of Cutaneous Eruptions, Dr. J. Zeisler. Sleep in its Relation to Diseases of the Skin, Dr. L. D. Bulkley. Exhibition of Photographs of Unusual Cases, Dr. H. W. Stelwagon. A paper (title to be announced), Dr. S. Lustgarten. Urticaria Pigmentosa (case twenty years under observation), Dr. P. A. Morrow. Note on the Elastic Circular Bandage, Dr. G. H. Fox.

C. W. ALLEN, M.D., Secretary and Treasurer,
640 Madison Avenue, New York.

SOCIETY NOTICES.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-first annual meeting will be held at Detroit, Mich., September 3, 4, 5 and 6, 1895.

The Address on Medicine will be delivered by William Pepper, of Philadelphia, and the Address on Surgery by Theodore A. McGraw, Detroit, Mich.

The programme includes numerous papers on subjects in Medicine, Surgery, Gynecology, Genito-Urinary Diseases, and Diseases of the Eye and Ear.

The railroad rates for the meeting will be one and one-third fares on the certificate plan. In purchasing ticket to Detroit full fare will be paid. On request the local ticket-agent will furnish purchaser with certificate, which will be handed to the Secretary at Detroit. This certificate when signed and visé by the agent of the Central Traffic Association, will entitle holder to return ticket at one-third regular fare.

FREDERICK C. WOODBURN, Secretary.

BOOKS AND PAMPHLETS RECEIVED

Cross Medical College, Denver, Col., Circular of Information and Register of Students, Session 1895-96. Reprint. 1895.

Cirrhosis of the Liver in Childhood. By William A. Edwards, M.D. With Microscopic Report. By William M. Gray, M.D. Reprint. 1895.

Lecture.

METRITIS AS A CAUSE OF MISCARRIAGE.¹

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,
Instructor in Clinical Gynecology, Faculty of Medicine, Tufts
College; Member of the Société Française d'Electrothérapie; etc.

LECTURE I.

GENTLEMEN:— You have seen at my clinics a number of cases of metritis in all its various forms, and you have noticed how many of these patients have had miscarriages. It is for this reason that I would like to devote a few lectures to this important subject, particularly as it is just this class of cases the general practitioner is called upon to treat; and a knowledge of this subject will certainly be of value to you in your practice hereafter.

It is necessary, in order to have a good idea of what is to follow, that I should put before you a few of the generalities of the pathology of abortion.

Abortion is the expulsion of the product of conception before the fetus is viable, in other words, before the end of the sixth month of gestation.

The important writings of Garimond and Jacquemier demonstrated the real etiology, and the rapid progress of medical science has little by little excluded the so-called spontaneous abortions; and I think it is safe to say that there is not such a thing as a spontaneous or idiopathic miscarriage. As the great Barnes says, an abortion indicates that there is a disease, or that the organism is overworked. A healthy woman, well built, and who has conceived from a healthy man, aborts with great difficulty.

Theoretically and practically, the causes of abortion are *predisposing* and *determining*. The immediate or effectual cause in all cases is the contraction of the uterus, which may be produced by external or internal irritation.

To the first order belong traumatism, heat, cold, electricity, nervous emotions, etc. You should put little faith in what a woman or her friends say regarding a slight fall, a slip, jar of a carriage, a disagreeable smell or anger, as a cause of abortion. Medical literature is full of cases in which pregnant women have received bad shakings-up, falls from quite a distance, wounds, and even severe operations (such as laparotomy), without interrupting the progress of pregnancy. Cazeaux mentions the case of a woman who threw herself from a third-story window, fractured her arm, and had a normal labor at term.

In the ordinary conditions of health, pregnancy is well protected against the most various accidental influences, and the cause of the habit of easy abortion must be looked for elsewhere. As Barnes says, a healthy uterus is not at the mercy of an emotional or diastaltic accident; but it is in no way doubtful, I think, that very violent external irritations may produce an abortion, especially in nervous subjects.

Physical irritations almost always act by a partial separation of the placenta from the uterine wall, by the rupture of some vessels, or simply by producing a congestion of the uterus, which may subside or terminate in a short time by a utero-placental hemorrhage. If the extravasation is of sufficient extent to suddenly destroy functionally a considerable portion of the placenta, the fetus dies at once, and very

probably the commotion that is received by the uterus produces contractions which detach and expel the ovum.

It sometimes happens, however, that even when there is a considerable extravasation, the embryo does not die; the ovum is detached, and is then expelled with a living embryo.

There are cases, gentlemen, in which a jar will directly produce an excito-motor action of the uterus, or in others death to the fetus. External violence may act directly over the region occupied by the uterus, and wound the fetus. Severe or sudden mental shocks act by means of the nervous system of the woman by directly producing uterine contractions, with death to the embryo, or by causing a congestion of the uterus and utero-placental hemorrhage.

Although uterine contractions may be set up by external irritation some distance from the genital organs, the most important and dangerous are certainly the *internal* irritations which act on the internal aspect of the uterus. You all are aware that foreign bodies introduced into the uterine cavity will cause abortion. As in the above-mentioned irritations, the uterus contracts by a reflex action; but the starting-point of this reflex is the uterus itself, and not in other parts of the organism.

To this category of internal irritation belongs the exit of blood from the vessels, and even the ovum, in certain cases. The hemorrhages which occur at the surface of the ovum come from the chorion or the placenta, and may provoke a premature labor, not only resulting in the death of the fetus, but also by irritating the internal aspect of the uterus, starting up contractions.

According to Garimond, if the collection of blood is situated between the chorion and the uterus, the muscular fibres show their irritation by contracting, the hemorrhage acting like a foreign body; but it is tolerated when it accumulates in the interior of the ovum. If the ovum is detached, with or without a collection of blood, it acts in the same manner, because the friction that it produces on the interior of the uterus excites the nerves of the organ, thus producing the labor pains.

Now, as to the cause of the death of the fetus, the question is not fully settled. The majority of the French and German authorities admit that the fetus, when once dead, acts like a foreign body, and after a variable time starts up uterine contractions which expel the ovum. But there are some of the present German obstetricians who are opposed to this theory, and give the following explanation in its stead. The dead fetus does not play the part of a foreign body; its action on the contractions is of an entirely different nature. With the arrest of development of the ovum, the stimulant of the growth and proliferation of the muscular fibres of the uterus ceases. Now, if the death of the embryo takes place slowly, the same process will occur in the uterine tissue; there is consequently arrest of the reflex growth of the muscular tissue of the uterus, or, as may be admitted, the usual relaxation of the organ is no longer in a favorable condition, while the muscular fibre having stopped growing must in time contract. Thus, according to this theory, it is not the foreign body but the disappearance of the cause that brings about labor, namely, distention of the uterus and absence of contractions.

Although this theory is ingenious and is in accord

¹ Being four Clinical Lectures delivered at the Suffolk Dispensary, Boston.

to a certain degree with the hypotheses regarding muscular contraction, Rouget's theory is certainly of doubtful value, and is as follows: anything which prevents the work of nutrition of a muscle causes the tendency of lengthening of the fibres to disappear, while the elasticity remains alone in play, and contraction is the result. As is pointed out by Zielinski, it would appear to me that in this theory there is a confusion of *contractility* and *retractibility* which are two very different properties of the uterine muscle.

The most plausible explanation of the action of the dead fetus is probably that given by Barnes: After the death of the fetus (if this is the first act) death of fetal and maternal placenta and the envelopes comes on progressively, the vascular connections between the uterus and placenta are cut off, and the uterus being no longer stimulated to growth, takes on the condition of a non-pregnant organ. There is involution, the circulation of blood becomes less active, the muscular tissue undergoes fatty metamorphosis, and the whole organ decreases in size. At the same time the chorion undergoes an involution of the same nature. The end of this mucous involution is exfoliation or detachment. Once this separation is accomplished the ovum is free in the uterine cavity, and is now only a foreign body. When the uterine retraction, which accompanies involution, has reached a certain point, the dead ovum comes in contact with the retracted uterine walls, and the retraction, which up to this time was only passive and atrophic, is replaced by active muscular contractions, produced by reflex action.

To internal irritations capable of producing miscarriage, I might add distention of the uterus. This may be caused by an abnormally large ovum, as in twins, hydramnios or other similar conditions, which act on the entire internal surface of the uterus by producing over-distention of the muscular fibres of the organ. On the other hand, the ovum may be normal, but the walls of the uterus are limited in development by loss or decrease in their elasticity.

In both conditions, the extreme distention of the uterus is sometimes sufficient to cause premature contractions and thus interrupt the progress of pregnancy. It is probable that in metritis the coexistence of lesions of the endometrium and muscular tissue is constant. According to de Sinéty, Courty and Schroeder, inflammation of the endometrium rapidly invades the parenchyma of the organ, resulting in metritis and parametritis.

No matter what may be the etiological factor, the nature or primary seat, the inflammatory process invades the neighboring tissues by way of the lymphatics, veins, connective-tissue elements — from the endometrium to the parenchyma of the uterus and perituterine tissues. But in most of the cases, you will find the lesions will predominate in some one part of the organ, as the endometrium or uterine parenchyma; consequently pathologists have classified inflammations of the uterus into two groups, endometritis and parenchymatous metritis.

The same division is to be made in the pregnant woman, because the endometrium here plays the all-important part; and as I have already mentioned in another lecture² the adhesions between the decidua and the muscular tissue of the uterus become less and less intimate as gestation progresses. Parenchymatous metritis is not so important a factor in the etiology of

abortion as is endometritis, its influence being of an entirely different kind.

I shall only speak of the chronic metrites, which are far better understood than the acute types. Inflammation of the endometrium may invade any of the three deciduæ, the decidua vera, reflexa and serotina. In each case, the histological process is the same; it is either an interstitial endometritis, consisting of an infiltration of small embryonic cells, often arranged in rows, according to Veis, as well as a proliferation or alteration of the decidual cells; or else it is a glandular endometritis, which is a hypertrophy and hyperplasia of the uterine glands; and lastly, it may be a mixed endometritis, with or without vascular lesions.

According to the nature of the lesions, the changes in the decidua vera present different anatomical characters.

In *hyperplastic endometritis* the decidua is thickened to even double the normal, and continues to increase as it comes nearer to the fundus. This hypertrophy is often uniform and regular, giving the surface of the mucosa an even and smooth appearance. Interstitial inflammation predominates in this type and may go as far as real sclerosis and even to formation of abnormal adhesions. Hemorrhages occur quite often. Kaschewarowa found muscular fibres in parts of the mucosa nearest to the uterine walls.

In the *tuberous endometritis*, also called *polypoid*, instead of an even hyperplasia as in the preceding type, the decidua presents numerous projections, which may attain a centimetre and a half in height. They are rather irregular, generally pedunculated, and look like polypi. Those which are sessile take on various shapes like folds, nodosities, bands, etc. These inequalities are usually very vascular and are made up, according to Dohm, Spiegleberg and Mars, of large decidual cells. Tarnier and Budin, when writing in 1888, said that in all the cases reported up to that date, pregnancy had not gone beyond the fourth month. The development of the ovum was very much interfered with or else hemorrhage occurred and produced abortion.

Cystic endometritis, as its name indicates, has for pathological changes the development of numerous cysts in the midst of the decidua. These cysts vary in size from that of a pea to a walnut and contain a colloidal substance. The surrounding parts of the decidua are in a state of hypertrophy and small hemorrhagic foci are to be found. This cystic degeneration is in some cases so pronounced that it might be mistaken for an hydatidiform mole. Leopold, Winckel and Veit believe that the cysts are produced by the distention of the uterine glands, which are filled by their retained secretions. Maslowsky examined two deciduæ from a woman who had three abortions in one year, all occurring at the end of the second month, and found that in both specimens the decidua was riddled with small cysts which were partially lined on their interior by a glandular epithelium.

The production of *catarrhal endometritis* is due to the inflammation, hypertrophy and over-activity of the uterine glands. When the decidua is irritated and in a condition of hyperemia, these glands, which are now generally regarded as filters and not organs of secretion, filter the excess of liquid which they receive from the neighboring capillaries. There then form between the decidua vera and reflexa what may be termed *hydropneumatic pockets*, with the result that these deciduæ, which

² Hemorrhagic Metritis. International Clinics, Fourth Series.

are united at the end of the third month of gestation, remain separated. I believe that it is quite safe to say that an endometritis can be the cause of a decidual hydrops; but all writers do not consider it as the only factor in the production of a watery discharge.

Hemorrhagic endometritis was the subject of a clinic given here some time since, and I shall be brief. Winckel has termed this affection as apoplexy of the decidua, which is in a condition of hypertrophy with dilated vessels, while extravasation of blood is to be found both at the internal and external aspect. Budin has reported a very demonstrative case in which there was a hemorrhage of the decidua some distance from the placenta, while on the decidua, which was hypertrophied, were some vessels, which near the clot were dilated and moniliform, such as are met with in neo-membranes.

Purulent endometritis is a very rare form, only a few cases having been reported. It is simply a purulent infiltration of the decidua and also in some cases the chorion. The starting-point is probably an inflammation of the decidua vera.

Now, gentlemen, it is very infrequent to meet with a case in which *one* of the above-mentioned forms is perfectly typical; generally they are combined, for example, a hyperplastic will be found accompanying a polypoid endometritis and then we have the *mixed* variety.

Inflammation is much less likely to invade the decidua reflexa, because atrophy takes place much earlier in this than in the decidua vera, the regressive metamorphosis beginning after the first month of gestation; and Veit states that he has never seen a characteristic interstitial inflammation of the decidua reflexa. It is only in catarrhal endometritis that it really plays an important part. However, there are some recorded cases in which the decidua reflexa was found thickened, and although very rarely, hemorrhages in its substance were noted, while Dohm has even reported a case of polypoid endometritis.

Now, if you carefully examine the expelled products of a miscarriage and on the external aspect of the chorion you find a quantity of rather friable yellowish tissue, you must be very careful not to at once make a diagnosis of endometritis, because this mass of tissue, which undoubtedly may be the decidua in a state of hypertrophy, may also be simply fibrous clots of a yellow or whitish color and easily recognized by their stratified aspect. Consequently, you should make a microscopic examination, which will remove all doubts.

The important changes of the decidua naturally affect the other membranes of the ovum. The chorion may be very thin and friable, while its villousities may develop irregularly and undergo a fibro-fatty, or even myxomatous, degeneration. The amnios may be only slightly united to the chorion or may even be separated from it by a sanguineous collection. The amniotic liquid becomes opaque, brown and sometimes even bloody. Consequently, you will keep in your minds these secondary lesions of the membranes which show their changes by partial detachment or adhesions. If the inflammatory lesions are only seated in the decidua serotina, you have to do with placental endometritis, which presents the same types as decidual endometritis, so I will not repeat them here.

As to their histology, I shall use the classification of Zinowiew, who has made some remarkable studies on the pathology of the placenta in abortion.

First, we have pathological changes in the placental vessels with troubles in the circulation, among which may be mentioned, as the most important, intra-placental hemorrhages, circumscribed or diffused, and a periarteritis of the placental vessels which produces a diminution in their calibre and a fatty degeneration of the villousities.

Secondly, a proliferation of connective tissue, which forms the so-called diffused or circumscribed interstitial placentalitis.

Thirdly, changes in the decidual cells and villousities, which consist in a colloid, fatty, granular, hyaline, or fibro-fatty degeneration, with atrophy and change in shape and size of the villousities.

To this last, belongs the four cases of abortion reported by Colucci. They all took place between the tenth and fifteenth week. The villousities of the fetal placenta presented a hypertrophy of their epithelial membrane and an atrophy of their connective tissues. These changes coincided, according to this writer, with an endometritis. Veit, Winckel and others admit that a placental endometritis is often the cause of white infarction, and always that of a placenta marginalis, the latter always being, according to Veit, a characteristic sign of endometritis.

A decidua serotina endometritis may result in a hypertrophy or adhesions of the placenta, these being usually partial, seldom total. Hypertrophy of the placenta is easily recognized by a careful inspection of the specimen. Its increased size and weight, in relation to the size of the fetus and the duration of pregnancy, are also quickly estimated. As to partial or total adhesions which are commonly met with in practice, they play an important part, of which I shall speak later.

Chronic parenchymatous metritis is generally of old standing; the uterine muscle has lost its elasticity; while the predominating histological change is a proliferation of the connective tissue with resulting sclerosis. The muscular fibres, which in the beginning were in a state of hypertrophy, softened and red, atrophy, become hard to the feel, and take on a whitish color. These changes are due to an embryonic proliferation occurring around the vessels. When the uterine parenchyma has been acted upon by an inflammatory process of long duration, it is infrequent if there is not at the same time some remains of a perimetritis with adhesions producing deviations of the organ and traces of salpingitis. The uterine mucosa is *always* more or less diseased.

The question now comes as to how metritis produces abortion and I will try to demonstrate this problem to the best of my power. The uterine mucosa is a soil more or less fertile, in which the ovum may grow and develop, or perish. If it is badly diseased, it is unsuited to hold the impregnated ovum; but if the endometritis is not very severe or generalized, the ovum grafts itself on to it, develops and may go to full term; however, it is more frequent to meet with an interrupted gestation sooner or later in these cases. The consequences are the same for both mother and fetus when an inflammation of the decidua takes place during gestation, and its influence on the evolution of the ovum is always of the worst. Endometritis, and metritis in general, bring about sterility or various complications during gestation, labor or the post partum. The difference depends on the severity, the nature, the condition of the patient and

other factors which are sometimes difficult to make out. The miscarriage in these cases is only one of the symptoms of endometritis, but by far the most important and frequent.

It may occur in several ways which I will now consider :

By the death of the fetus. Following the changes in the decidua produced by the endometritis, the villousities of the chorion become diseased, while the underlying structures become so in their turn until the ovum is also in a pathological condition. On account of repeated congestion, friability and rupture of the vessels, the decidua may also become the seat of extravasation of blood which compresses and alters the villousities of the chorion, resulting in the abolition of their functions and reducing the decidua serotina to a condition of uselessness, with death to the fetus and later its expulsion from the uterine cavity.

The second manner of miscarriage is by detachment of the ovum. If a hemorrhage suddenly occurs in the decidua vera or serotina, or if it is considerable in amount, it produces a detachment of the ovum which is followed immediately or in a few days by a miscarriage. Hydrorrhea produced by a catarrhal endometritis acts in the same manner. When the liquid is suddenly expelled in considerable quantity, the sudden decrease in size of the uterus may produce a detachment of the ovum and contractions of the organ.

Hyperplasia of the decidua, especially the serotina, often exercises its bad influence on the fetus by cutting off its nutrition. The connective tissue or a proliferation of embryonic cells around the villousities and the cotyledons which are thus more or less encroached upon, produce a diminution in the calibre of the vessels and a fatty degeneration of the villousities, while the fact that healthy parts of the placenta become more and more reduced in extent, soon acts on the fetus, which finally dies. Now, a sclerous hyperplasia of the decidua or an induration of the placenta may also produce a miscarriage by loss of elasticity of its tissue, which can only follow the growing uterus with difficulty, and there finally comes a time when a partial detachment takes place.

The third manner of miscarrying is by rupture of the membranes. As I have already said, the pathological condition of the decidua may act on all the membranes; and when they are badly nourished, they become friable and break by the least movement. This is enough to show you how premature rupture occurs, with a resulting miscarriage or premature labor. Sometimes an inflamed decidua, by modifying its nutrition, increases the irritability of the uterus to such an extent that the normal development of the ovum is enough to bring on painful contractions which usually expel the ovum. In this case, the miscarriage is not preceded by either detachment of the membranes or death of the fetus. As to endometritis of the cervix, when there is much secretion, the spermatozoa cannot enter the cavity of the uterus on account of the mechanical obstruction produced by the plugs of mucus in the canal. But cervicitis can also cause miscarriage, and Whitehead believes that 73 per cent. of miscarriages are provoked by diseases of the lower segment of the uterus. Barnes believes that although the cervix has no direct relation with the ovum, its connection with the corpus uteri is sufficiently intimate for a severe cervical hyperemia to produce considerable afflux of blood and nervous disorders in the body of

the organ. An extravasation of blood, with miscarriage may result.

As I have already remarked, in chronic parenchymatous metritis, after perivascular embryonic proliferation and ultimate sclerosis, the uterine walls lose their natural elasticity and can no longer dilate as the ovum increases in size. In consequence of this rigidity, the organ can only tolerate the ovum up to a certain time; and when the germ has developed to a size which distends the uterine walls to their limit, contractions begin and determine the miscarriage. As parenchymatous metritis is of long duration, miscarriages may occur often and usually at about the same time of gestation on each occasion, because the walls can only be distended just so far. Leopold thinks that this metritis is quite sufficient explanation for repeated miscarriage in many cases; and a case is mentioned by Bick of a woman having a chronic metritis, and who aborted twenty-four times, always at the third month of pregnancy.

I have seen many cases of endometritis and metritis, in whom sterility was present, or who could never carry their pregnancies further than the first three or four months. In many of them labor at term was brought about by proper surgical treatment of the diseased uterus.

I have now finished with the pathology of miscarriage, and in the next lecture I shall take up the various forms of metritis and their relations to abortion.

Original Article.

THE TREATMENT OF TYPHOID FEVER BY INTESTINAL ASEPSIS.¹

BY A. L. BENEDICT, A.M., M.D.,

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THE writer's first experience in the treatment of typhoid fever dates from the time when the profession was just beginning to realize, with a feeling almost of aggrivement, that antipyretic drugs were not curative. For years, the cry had been "Oh, if we can only find some drug that will bring down the temperature, we need not fear the fever." Antipyrin was hailed with joy as fulfilling this earnest desire; but disappointment followed, for the reduction of temperature, far from removing the essence of the disease, was often bought at a tremendous cost of vital strength. Moreover, every new drug is given in doses sufficient to show a definite physiological action, and in many susceptible patients an almost toxic effect is produced. The history of antipyrin was about as follows: first year, 40-grain doses; second year, 30 down to 20 grains; third and fourth years, 15 grains or a gramme; fifth year, half a gramme, 7 1-2 grains; and, more recently, it has been taught that all antipyretic drugs should be avoided and that bathing is the only justifiable means of reducing temperature.

The present paper is an argument aimed more directly at the cause of typhoid fever, in other words, a plea for treatment along the line of intestinal sepsis. It might as well be admitted at the outset that this treatment has not justified the glowing hopes of its earliest advocates. We can not dress an intestinal

¹ Read at the annual meeting of the Alumni of the Medical Department, University of Buffalo, April 30, 1895.

ulcer as we can one on the outside of the body, nor can we kill typhoid bacilli, growing in a hotbed of filth, as we can ordinary germs of suppuration which fall into an open wound.

Before discussing the value of intestinal antiseptics, let us consider two cases, one illustrating the antipyretic treatment of seven years ago, the other the more modern treatment, directed toward the poison of the disease.

On April 16, 1888, there was admitted to a hospital, a lad of nineteen, this being the ninth or tenth day of the disease. Three days earlier, he had been seen by a physician, who found his temperature 104° , pulse 120. Subsequently, the temperature had ranged between 101° and 103.5° . The bowels moved twice daily. The patient was delirious, and would not take much nourishment. He was put on milk diet, four ounces (125 c. c.) every two hours, with an ounce of whiskey (30 c. c.) at every third feeding. From April 18th to April 21st, the patient was conscious, in spite of high temperature. A twenty-four-hour sample of urine consisted of 40 ounces, about 1,200 c. c., yellowish-red, acid, of a specific gravity of 1.022, containing albumin, and depositing a sediment of squamous epithelium and mucus but no casts. In the morning, the temperature being 103.8° , not reduced by a sponge bath, 15 grains (a gramme) of antipyrin was given at nine o'clock. The noon temperature was 102.6° . Five grains (a third of a gramme) of quinine was given, and, on account of pain in the right iliac region, a quarter of a grain (.015) of morphine. The evening temperature was 105.2° , and again a gramme dose of antipyrin was given.

The following morning, April 22d, the temperature was normal, having dropped or been forced down seven degrees in eight or nine hours. April 24th and 25th, the temperature was reduced by a gramme dose of antipyrin from 105.2° to 97.4° , a depression of almost eight degrees, yet it bounded back to 103.6° during the day. On the next day, the bowels not having moved for three days, an enema of flaxseed tea was administered successfully.

April 26th, about the close of the third week of the disease, the evening temperature was 106.2° , and was again reduced with quinine and antipyrin. The patient was now taking two quarts of milk (about the same number of litres) in twenty-four hours, with half an ounce (15 c. c.) of whiskey every two hours.

May 1st, about the middle of the fourth week of the fever, the whites of five eggs were added to the daily ration. The temperature for a few days had been somewhat lower.

May 3d. The patient was tremulous, and complained greatly of pain. During the night, he passed a lumbricoid worm. On the 4th, at six in the morning, the temperature was 106° . From this time, the patient was delirious, picking at the air and bed-clothes, tremulous and with jerking tendons, pinched face, cold extremities, at intervals making half-articulate complaints of pain.

May 7th, in the middle of the fifth week, a bed-sore developed. The daily ration at this time, was three pints of milk (1,500 c. c.); lime-water and whiskey, of each six ounces (200 c. c.); and six eggs.

May 10th, there was evidence of effusion into the right thoracic cavity. The restlessness, subsultus, and general prostration were more marked. Camphor-water was given in ounce doses (30 c. c.) every hour

till the patient became somewhat quieter. Beef-juice, four ounces (125 c. c.), was given instead of the later feedings of milk, and the whiskey was increased to 10 ounces (300 c. c.). Aspiration was performed in the fifth intercostal space in the axillary line; 39 ounces (nearly 1,200 c. c.) of greenish-yellow sero-pus was withdrawn. Immediate microscopical examination showed red blood-cells, endothelium and bacteria. Aspiration was repeated the next day, and the same amount of fluid was withdrawn but it was now darker and more evidently purulent. An incision was made and the cavity was irrigated with a 1-8,000 solution of mercuric chloride, after which a drainage-tube was inserted. The patient died that same evening.

On autopsy, less than twenty-four hours after death, decomposition was already in active progress. Cicatrices were found in Peyer's patches, the mesenteric nodes were still enlarged, and the middle part of the small intestine was injected. The spleen was enlarged, as it always is in septic conditions of the intestine, and an infarct was found on the right border. The kidneys were congested, but otherwise normal. The liver was normal. The pericardium contained three ounces, nearly 100 c. c., of fluid. The left lung was congested, but non-adherent and crepitant; the right lung was compressed, and covered with pus and fibrin.

The other case, which occurred last fall, is an illustration of the treatment directed toward absorbing the poisons of the disease. A girl of sixteen, felt the first vague symptoms of typhoid on August 26th, while at a picnic. My first visit was on September 1st, at 6 p. m. Her temperature and pulse were each 104, and there were one or two doubtful typhoid spots. Calomel was given in four small hourly doses, to move the bowels, and sponge baths were ordered. From September 2d to September 5th, salol in ten centigramme doses was given every six hours, and half a teaspoonful of charcoal, two hours after feeding, three times a day. From September 5th to September 16th, the salol was given only twice daily. From the 16th to the 21st, iodoform, ten centigrammes in capsule, was given three times a day. The salol was then recommenced and continued for three days, all antiseptic treatment being then stopped. The charcoal was continued a day longer. From this time, the patient was practically convalescent, though defervescence was not complete till October 1st. There is little to say about the course of the disease. The patient was slightly delirious for the first few nights, and there was, at first, a tendency to high fever. Thereafter, she was simply comfortably sick, showing no marked signs of poisoning and was able to keep her own diet record, something which, as a rule, typhoid patients should not be allowed to do. The urine was examined several times during the disease without ever showing any abnormality. Ehrlich's test was always negative, indicating, I believe, that the poisonous products of the fever had been absorbed by the charcoal. It is likely that this case is to be assigned to the percolation into the soil of fecal matter from a case of typhoid occurring in the same family, two or three years previously. I was informed that no precautions were then taken to disinfect the stools. As the result of an investigation by the Board of Health, after my report of the existence of the case, a sewer was put into the premises and the privy-vault changed to an out-door water-closet.

Here are two cases, about equal in point of maturity

of the patients, both first seen at the fourth or fifth day of the disease, and both having about the same temperature range at the beginning. The former had the benefit of hospital treatment, the latter simply ordinary home nursing. The girl, also, had the disadvantage of a dark room and of the unsanitary conditions referred to. Both took nourishment well, the young man considerably more than the girl. The former was freely stimulated; the latter had a few doses of digitalis and of whiskey, not given except when a little chilliness in the morning called for some spur to the vital forces. The former was treated on the antipyretic plan; the latter with charcoal, salol, and a few doses of iodoform. The former died of septicemia; the latter recovered after a rather short and uneventful illness.

Manifestly, one such contrast is not sufficient to establish the superiority of one mode of treatment over another; hence the cases are reported rather as texts than as arguments. Typhoid is a general infectious fever with a local lesion in the ileum. The lesion itself, with proper diet, is rarely the cause of death. Fatal hemorrhage is quite rare, and intestinal perforation occurs in only a ninth of the fatal cases. Death from septic complications, though not uncommon, is almost always preceded by systemic intoxication. In other words, it is not the typhoid bacillus itself that we need to fear, but the poisons elaborated by it. The same statement might hold good, in a theoretical sense, of many other diseases; but the introduction of typhoid germs into animals does not set up the disease, nor is the fever especially dangerous to human beings so long as signs of the constitutional effect of its toxins are absent. Of course, such a statement must not be taken without some qualification; we must presuppose careful nursing and attention to diet, and must admit the occurrence of exceptions to all rules. One of the most conspicuous features of the toxemia of typhoid is the temperature. At this is aimed the antipyretic treatment; but its advocates are illogical in that they mistake a part for the whole and a symptom for a disease. In particular, the fact is overlooked that one patient with a high temperature throughout the disease may be perfectly rational and comfortable and make a good recovery, whereas another patient with an average temperature range of a degree and a half lower, shows every other symptom of typhoid poisoning and dies.

Typhoid does not attack the lower animals; many human beings are immune, at least, at certain times. Many others who have well-marked typhoid fever, show no tendency toward serious poisoning. The practical lesson is that, although we may not be able to kill the bacilli in the bowel nor to abort the fever, we can rob the disease of its terrors and shorten its course, if we can neutralize the chemical secretion of the germs. I have watched a series of cases treated with carbolic acid and iodine, without any apparent result. Indeed, such soluble antiseptics cannot be expected to reach the seat of the disease in appreciable quantity. Salol, which is practically insoluble till the intestine is reached, and iodoform, which is very slowly absorbable, may be expected to act more vigorously; but the large surface to be covered, and the intervention of fecal matter and mucus, so interfere with their antiseptic effect that they have failed in practice. Irrigation of the colon, recommended by Dr. F. W. Bartlett, of Buffalo, ought to have the

happiest results in cases of typhoid colitis, which are not very common; but the removal and disinfection of the contents of the lower bowel are also of service in ordinary iliac typhoid.

In the present paper, I wish to call attention to a treatment which is not directly antiseptic, but which acts on the same general principle. It consists in the administration of comparatively large doses of charcoal, this being the essential element of Bouchard's method of combating typhoid. Charcoal is absolutely non-toxic, and may be given in any amount short of the quantity sufficient to cause intestinal obstruction. I usually give half a teaspoonful, three times daily. Its action is to fix many organic substances, including the poisonous products of fermentation and bacterial growth. In the second case of typhoid cited, it apparently did all that could be expected. The stools were never offensive; the urine at no time showed signs of renal irritation nor of that particular poison which is most commonly found in typhoid fever and which gives rise to the so-called Ehrlich reaction. There was none of the characteristic tympanites which marks intestinal putrefaction, nor were there grave nervous symptoms. The duration of the illness was not especially shortened, but I believe that the patient had two separate typhoid lesions overlapping in time. After a few days of high fever, the temperature declined almost to normal on the fifteenth day of treatment, or the middle of the third week of the disease. Then it repeated the usual temperature curve of the second week of typhoid, and again declined after two weeks, this time permanently.

Any discussion of typhoid fever at the present time which overlooks the treatment by plunge baths is simply evading a live issue. I will frankly admit that I have not the courage to put this treatment into practice.² The statistics of this treatment are excellent; the authority supporting it is unquestionable; yet I cannot bring myself to do for a dangerously sick man what a well one could scarcely endure. Prolonged immersion in water of any endurable temperature is depressing, as any one who swims, or who has observed swimmers, knows. On the other hand, if the bath is cool enough to reduce temperature without a considerable time of immersion, it must be cold enough to cause more or less of a shock and to drive the blood inward where it will embarrass the kidneys, liver and other vital organs, while, at the same time, the activity of the skin is diminished. In other words, the treatment directed toward the high temperature is either depressing or it tends to lock up in the body the very poisons to which the temperature is due. I have seen the temperature lowered nine degrees in a few hours following immersion and have seen, at one time, three convalescent patients with subnormal temperature, blue lips and chattering teeth after a merely tepid bath. Hot sponging or a steam bath would be indicated so far as the toxemia is concerned; and, granting that the temperature must be brought down at all hazards and that ordinary cool sponging fails, I should prefer antipyretic drugs to the plunge bath.

² This remark was understood by several as referring to the well-known difficulty of overcoming the scruples of the friends and relatives of a patient. Many, indeed, who admit the efficacy and safety of the immersion treatment, say that they cannot use it in private practice though they approve of it for hospital patients. My tears are entirely for the patient, not for any effect on the popularity of the physician who uses the plunge baths.

Clinical Department.

REPORT OF THE FIRST CASES OF CELIOTOMY AT THE BOSTON BAPTIST HOSPITAL.

BY GEORGE W. KAAH, M.D.,

Surgeon to Out-Patients at the Free Hospital for Women, Gynecologist of the Boston Baptist Hospital, etc.

THE Boston Baptist Hospital is at present in Longwood, in what was a private house, and its conveniences, therefore, are not those of older and better-fitted hospitals. The operating-room has been made as aseptic as thorough washing of walls and floor can make an ordinary room; and the fact of there having never occurred a case of sepsis in all the variety of cases operated upon here, is evidence of the good care of the head-nurse in charge. The towels, sheets, gauze sponges and dressings were sterilized in a steam-sterilizer. The instruments were boiled for ten minutes in water with soda. Boiled filtered water was used for washing the sponges and for flushing the abdominal cavity when needed.

CASE I. Mrs. S. W., age thirty-seven. Some two years ago the left ovary was removed by the late Dr. Strong. She felt better for some time; but a renewal of the pain on the left side of the pelvis, and a beginning pain on the right, caused her to enter St. Elizabeth's Hospital, where the uterus was curetted, but with no improvement of symptoms.

Ether examination at the Baptist Hospital showed the right ovary enlarged, and bound down by adhesions, and also some thickening on the left of the uterus. Curetting was done at this time, but without any good result.

Early in November the abdomen was opened, the incision being through the cicatrix of the first celiotomy. The right ovary, enlarged and cystic, was removed, the pedicle being tied with silk. The stump of the left ovary was found bound by some adhesions, which were broken. The incision was closed by silkworm-gut sutures, care being necessary not to include parts of the omentum which were adherent in the line of the first celiotomy incision. The bowels were moved on the third day, and the patient made a good recovery. She is now doing general housework, and has been wholly relieved from the pain she suffered.

CASE II. Miss A. B., age twenty-three. This was a cyst of the right ovary, about the size of a lemon; and the case is interesting mainly because of the very rapid advance made in weight and strength, even before leaving the hospital.

CASE III. Mrs. M. C., age sixty-two. She complained of pressure in the abdomen, and difficulty in micturition and defecation; some soreness, especially on the left side. Examination showed an irregular growth, the size of a cocoanut, apparently attached to uterus and ovaries, and somewhat more movable on left side than on right. Diagnosis of malignant disease was made, and recommendation of abdominal section for removal of uterus. Previous to seeing me, she had been tapped in July, with removal of six quarts of fluid, and again in September, when about eight quarts were removed; for some months she had been having electricity, but with no result. Upon opening the abdomen, the smooth walls of a cyst appeared, filling the cavity of the pelvis. The cyst was drawn out with difficulty and with slight laceration of

its walls, allowing the escape of a brown fluid, which was caught in towels. It proved a papillomatous cyst of the right ovary, extending across the uterus and into the left side, where small accessory cysts had given its irregular feeling through the vagina. The left ovary could not be found, and it had apparently atrophied. The silkworm-gut used to close the incision had been placed in 1 to 1,000 corrosive, which was too strong a solution, particularly in so old and debilitated a patient; for though the incision healed by first intention, there were small abscesses in most of the stitch-holes, which, however, closed rapidly by the application of hydrogen peroxide through a perforated probe. Otherwise, recovery was uneventful.

Medical Progress.

REPORT ON THORACIC DISEASES.

BY GEORGE G. SEARS, M.D.

THE CONSUMPTION SCARE.¹

IN view of the agitation of the public mind at the present time on the subject of tubercular infection, which the utterances and writings of not a few medical men have unfortunately tended to foster, a paper by Ransome, with this title, is timely; since it is well to emphasize the fact that the popular dread of this occurrence is out of all proportion to the danger, that it goes far beyond what the facts of the case justify, and that it is likely to cause grievous injustice to many poor invalids, and in some cases to endanger their prospects of cure. The controversy as to the possibility of contracting phthisis by contagion is a very old one, dating back before the time of Galen; but in all the evidence adduced in support of this assumption, the same defect is noticeable, an almost total lack of appreciation of the conditions favoring or attenuating the power of the bacillus for evil. Nevertheless, long before the discovery of the bacillus, and therefore before any measures of disinfection had been practised, the power of free ventilation to prevent the disease was fully recognized. From the universal testimony of the physicians to hospitals for consumptives; from the change in the death-rate in the army and navy and in public institutions, since the introduction of improved hygienic and sanitary conditions; from the fact that the same races of men in one environment escape almost entirely, while in another they are seriously exposed to its ravages; or even from the statistics of Dr. Cornet himself, to whom was due the most widespread influence in the alarmist direction, it may be confidently affirmed that whenever nature's disinfectants—pure air, light, and dry and pure soil—are to be found, there consumption is rare, but whenever there is overcrowding, filth and darkness, it breeds rapidly and carries off large numbers.

Ransome details the results of some experiments, both with pure cultures of the bacillus and with dried sputum (in some cases scraped and reduced to dust), under varying conditions of light and air, guinea-pigs being used for inoculation. It was observed that in all the specimens exposed in the dark tuberculosis was the result even in free currents of air, the minimum of such exposure necessary not being discovered, only

¹ Medical Chronicle, January, 1895.

three days being allowed to pass before they were removed from the air-current, but even then there was evidence that their virulence was attenuated. On the other hand, all the specimens exposed to both light and air, even for two days only, and for one hour of sunshine, were found to have entirely lost their power for evil. These experiments point out the line that should be taken in all efforts having for their object the eradication of tubercle from our midst. He is far from discouraging any of the measures suggested for the limitation of the disease, with the exception of the preposterous proposal for the entire segregation of all cases of phthisis; but in advocating such measures every precaution should be taken to guard against the inevitable effect upon the public mind of spreading these directions broadcast unless they are accompanied by reassuring annotations as to the absolute security that is given by efficient ventilation by night and day, by good drainage, and by an adequate supply of light. The chief reliance should be placed upon these essential requisites of all sanitation, and all our energies directed toward securing them, for it is mainly to them that the great diminution in the death-rate of phthisis during the past thirty years is due. It is surely within the province of medical officers of health, and in every way to the advantage of public health, to make these facts known rather than to strike a note of alarm as to the contagiousness of phthisis that goes beyond the facts.

Some recent investigations of Kirchner² also go to show how unnecessary such a scare is, since he has sought for tubercle bacilli many times in the dust of rooms occupied by large numbers of consumptive patients, but was successful in only one instance. He regards it as out of the question that phthisis is or could be communicated by air or dust if the sputum and other excreta from the patient are carefully disposed of, and the vessels and other utensils used by the patient thoroughly disinfected.

MIXED INFECTION IN PHTHISIS.³

At the close of an interesting paper on this subject, Elsner draws the following conclusions:

(1) Tubercle bacilli can, without the presence of added bacterial infection, cause changes in the lung, giving rise to symptoms of acute pneumonia in chronic or latent phthisis, which cannot be differentiated without bacteriological examination from non-tuberculous pneumonia.

(2) Concurrent infection in tubercular phthisis modifies very materially the course of the disease, giving rise to many acute exacerbations and anatomical changes; hence the conclusion is justified that the clinical picture of the disease is, as a rule, complex. The double infection must be taken into account when indications for treatment are considered.

(3) An acute croupous pneumonia can attack lung tissue, the seat of tuberculous infection, or run its course in any part of the healthy or diseased lung. As a rule, the tuberculosis, if latent, is lighted into activity.

(4) Aspiration from cavities of streptococci or other bacteria may give rise to acute pneumonia, a streptococcus pneumonia. Early and profuse hemoptysis is present in a majority of these cases.

(5) Mixed infection in pulmonary tuberculosis is an

important factor in lowering vitality and the resistance of the patient; all septic and pyemic processes arising in the course of tuberculous disease may be traced to it.

(6) The differential diagnosis of tubercular pneumonia is oftentimes made with great difficulty. In all cases bacteriological examination must be made repeatedly, and culture experiments add to the refinement of such diagnoses.

Without repeated microscopic and bacteriological examinations it is impossible to determine the pathological significance of the innumerable exacerbations of pulmonary tuberculosis.

Spengler⁴ has endeavored, in fifty cases, by means of bacteriological examinations of the sputum and carefully conducted autopsies, both from the bacteriological and anatomical standpoint, as well as by a careful comparison of their clinical histories, to get some explanation of the different types in which phthisis manifests itself. As a result he arrives at the following conclusions:

(1) In tubercular phthisis only a small percentage of the cases are uncomplicated cases of tuberculosis of the lungs. If fever is present in these pure cases, the extent of the mischief is much greater than the physical examination would lead one to suppose, and the prognosis is unfavorable. They become still more unfavorable in case a mixed infection is added. These cases are adapted to the tuberculin treatment.

(2) Most cases of phthisis are complicated by a mixed infection with streptococci and may be classified as active or passive, according as fever is present or not. The prognosis of the active form is good if it complicates a local tuberculosis, remains circumscribed, and receives prompt climatic treatment. Other bacteria, as well as the streptococcus, may complicate tuberculosis, such as Fränkel's diplococci, staphylococci, tetrageni, influenza and pseudo-influenza bacilli and others. If secondary bacteria appear in a few colonies only in several sputum examinations, fever, if it be present, is not due to the mixed infection but to the tuberculosis, or to some focus of infection other than the lungs. If fever is absent and yet streptococci are found in considerable abundance, the sputum should be carefully washed in order to rid it of accidental impurities from the upper air-passages; and then, if they still persist, the presence of bronchiectasis or cavities may be inferred.

The therapeutic indications are self-evident. Early diagnosis is essential before secondary infection has occurred; and the treatment should be "specific," that is, with tuberculin. Mixed infection can only be combated by pure air, either at sea, in the desert or on the mountains. After the secondary infection has been overcome and tuberculosis alone remains, tuberculin is again indicated.

Huguenin⁵ arrives at very similar conclusions, and says that the prevalent idea that patients with fever are not fitted for high altitudes is radically wrong, as it is those cases with pus-infection in the lungs and secondary fever who are fitted for that, and only that.

AURICULAR MYOCARDITIS.⁶

Radasevsky reports fully the histories of six cases of heart disease in which the valves were not in-

² Zeitschrift f. Hyg. und Infektionskr., xix, i, p. 133.

³ Buffalo Medical and Surgical Journal, November, 1894.

⁴ Zeitschrift. f. Hyg. v. Infektionskr. Bd. xviii, p. 343.

⁵ Schmidt's Jahrb., Bd. 247, No. 7.

⁶ Zeitschrift f. klin. Med., 1895, Bd. xxvii.

volved, and gives the results of a most thorough microscopical examination of the myocardium, which showed that apart from the often described disseminated fibrous myocarditis appearing in foci, a diffuse form existed which has received little if any attention from writers on the subject, and that this form is often more marked in the auricles than in the ventricles. In these cases the evidence goes to show that where the auricles are affected, either alone or with a coincident affection of the ventricles, marked irregularity of the heart's action had been present, while in those cases in which the auricle remained intact, or nearly so, the pulse remained regular, even up to the time of death, whatever the condition of the ventricular muscles. So far as it is possible to generalize from six cases, his observations show that in chronic myocarditis marked irregularity of the pulse is caused by disease of the auricles and not by alterations in the ventricle.

CARDIAC THERAPEUTICS.

In a discussion on this subject at the Medico-Chirurgical Society of Edinburgh, Fraser⁷ contrasts the action of strophanthus with other members of the digitalis group of drugs, and says that so far as experiment has proceeded, it occupies the first position in the action which is produced on the contractile power of the cardiac muscle. It increases the contraction of this muscle with a smaller quantity than any other similarly acting substance and with a rapidity unequalled by any of them. When the energy of the action of the members of this group on the heart is determined by perfusion experiments, strophanthus extract is found to be 8 times more powerful than adonidin, scillitoxin and erythrophlein; 20 times more powerful than helleborein; 30 times more powerful than convallamarin; 300 times more powerful than some specimens of digitalin and 3,000 times more powerful than others; and 30,000 times more powerful than caffeine. None of them, however, act so powerfully upon blood-vessels as digitalin. Spartein slows the heart rather by weakening its systole and thus delaying the cardiac contractions than by increasing their strength. It has no direct action on the myocardium, but only on its regulating nerves, and even this can be produced directly only by large doses. The rapidity of action of strophanthus finds an explanation in the facts that the active principle is soluble in less than its own weight of water and that it preserves the diffusibility of a soluble crystalloid. The selection of the proper drug may be based on the considerations just given, but it is also to be recollected that the practitioner can generally best use for any definite purpose the remedy with which he is most familiar from practical experience. Personally, Fraser says that in a large number of cases he has never been disappointed by strophanthus in any reasonable expectation.

In continuing the discussion Bramwell⁸ said that he most largely used digitalis in cases of failing compensation, whether the object of producing temporary effects or of permanently sustaining the cardiac power and preventing further breakdowns of compensation, but agreed with Professor Fraser in thinking it most useful in mitral lesions, especially regurgitation with dropsy, irregular pulse, scanty urine, etc. In cases of aortic regurgitation it should be given more cautiously

and for shorter periods, and cannot be expected to produce such satisfactory results as in cases of mitral regurgitation. In fatty degeneration of the cardiac muscle the use of digitalis in his opinion is not unattended by risk; and he has seen at least one case where rupture of the heart occurred during a course of the drug, and he was inclined to think it the result of its administration. On the other hand, he has found it of great service in some cases where grave symptoms seemed the result of a chronic myocarditis or fibroid degeneration, but he speaks with reserve on this point, owing to the difficulty or even impossibility of always making a diagnosis between these conditions. He always uses the tincture or infusion, since he has seen repeatedly decided poisonous symptoms follow the use of Nativelle's digitalin granules. When the pulse tension is high, strophanthus is usually to be preferred; when a rapid tonic and stimulating effect is to be desired, strophanthus combined with hypodermic injections of strychnia is of great value.

Balfour⁹ said that unquestionably strophanthus in a sufficient dose contracts the heart rapidly and certainly; but there is room for doubt whether by this action it also acts as a diuretic, because in both hospital and private practice he had found it uncertain in all doses, and because we know that rest, warmth and diet effectively suffice to restore ruptured compensation in both hospital and private patients, and in this way act as efficient diuretics. The one great defect which he has found, in connection with strophanthus, is that though it forces the heart to contract, it seems to have no tonic action on it; it does not seem to promote the nutrition of the cardiac muscle so necessary to its restoration to a healthy tone, which is so characteristic of true digitalis action. This defect is a very serious one, especially in the treatment of that large and important group of heart cases included under the term of senile heart.

Regarding the danger arising from the use of digitalis, cases of heart disease, such as those commonly treated by the drug, are liable enough to sudden death from various causes, but we may acquit the drug of all share in the fatal issue. Excessive doses will often produce great uneasiness and discomfort; but cases are reported where enormous amounts have been successfully employed in the removal of dropsy, and he himself knew of a cardiac patient swallowing an ounce of the tincture with the sole result of keeping his pulse below 40 for a week. The tonic action of digitalis is ordinarily best maintained by giving the equivalent of a grain of the powdered leaves every twelve or twenty-four hours; such a dose can be kept up for months or years with only increasing benefit. Flabby, dilated hearts, if not much hypertrophied, and especially if young, may often be well contracted by larger doses administered more frequently, for example, one and one-half grains or more every eight or every four hours; but such doses require to be carefully watched since the primary slowing of the pulse may pass suddenly into the allorhythmic pulse of digitalis poisoning, a distressing enough condition, but not dangerous as long as the recumbent position is maintained. In aortic regurgitation, when the left ventricle begins to fail, whether the mitral valve has been opened up or not, digitalis in large doses, but with a considerable interval between, is imperatively demanded, and is often of the utmost benefit. The idea that a prolongation

⁷ Edinburgh Medical Journal, April, 1895.

⁸ Loc. cit., May, 1895.

⁹ Edinburgh Medical Journal, June, 1895.

of the diastole favors further dilatation is a mere myth, since it is more than compensated for by the improved tone of the ventricle which slowly regains its compensation. For the removal of dropsy some degree of saturation is necessary; but, whatever the dose given, the equivalent of forty grains may usually be taken before symptoms of saturation appear. The more rapidly the drug is ingested the more certainly the diuretic action is attained, but once attained the drug may be discontinued for a day or two, and the effect continued by smaller doses persisted in for a longer time. When the pulse is hard and cordy and the limbs tense and brawny, digitalis is of no use, the blood pressure must first be lowered by free purgation, and some of the fluid drained off before the drug will act. Southey's tubes may also be of service, and diuretin is occasionally of great value.

POST-DIPHTHERITIC CARDIAC PARALYSIS.¹⁰

Veronese, in an exhaustive paper on this subject, says that no case has yet appeared in literature where death occurred entirely without warning, some suspicious symptoms having always been present for twenty-four hours at least. It attacks boys more frequently than girls, and is most common between the ages of six and fourteen. Children under six are almost never attacked, probably because in severe cases they usually succumb early in the disease; but adults are not altogether exempt. It varies in different epidemics, but occurs also among sporadic cases. Puny children, especially the tubercular and nervous, are more apt to be affected than the strong, yet in all cases it is preceded by severe general or local symptoms. The latent stage, that is, the period between recovery from the local process and the appearance of cardiac symptoms, lasts usually from two to eight days, but may cover from four to six weeks, although in the latter case the cardiac paralysis is the termination of a severe general post-diphtheritic paralysis.

The reason that the cardiac appears so much earlier than other forms of paralysis is due to the fact that owing to the delicate mechanism of the heart, a tiny lesion, by affecting important nerve centres, may produce most serious results on an organism already weakened or degenerated by the diphtheritic process.

In the so-called latent period a series of suggestive symptoms will not escape close observation, of which the most important are great prostration, apathy, somnolence by day, sleeplessness and restlessness at night, increasing dilatation of the heart with corresponding changes in the sounds, alterations in the character and rhythm of the pulse, increased frequency of respiration and signs of pulmonary edema, nausea, more or less constant pain in the epigastrium and increasing albuminuria. Fever is never present, at least as a result of the cardiac affection. An attack of syncope announces that the disease has reached its height, but the first one is rarely fatal. In cases which recover after two or three anxious days, the symptoms of stasis due to cardiac weakness begin to pass off, edema rarely lasting more than two weeks; but convalescence is very slow, requiring from two weeks to six or more months. Permanent lesions apart from a mild grade of hypertrophy do not seem to follow post-diphtheritic paralysis. The prognosis is very doubtful, though not always fatal; the milder the symptoms and the slower their development the better the outlook.

The anatomical lesion may be a parenchymatous degeneration of the heart with interstitial changes, fatty degeneration of the myocardium, parenchymatous and interstitial degeneration of the vagi and the nerves and ganglia of the heart, or degeneration of the sympathetic, especially the ganglion and plexus celiacus. It is probable that death is due less to degeneration of the heart than of its nerves and ganglia, and reflexly to degeneration of the sympathetic, especially the celiac plexus.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

TWELFTH ANNUAL MEETING, HOT SPRINGS, VA.,
JUNE 13 AND 14, 1895.

AFTER a brief introductory address by the President, DR. S. E. SOLLY, a paper on

RECENT MEASURES FOR THE PREVENTION AND
TREATMENT OF TUBERCULOSIS

was read by DR. GUY HINSDALE, of Philadelphia.

He reviewed the extensive provision for this class of cases in England, which country alone has eighteen institutions of this character, providing for between six and seven thousand patients annually; also the French hospitals at Berch-sur-mer, Arcachon, Cannes, Argeles, Ormesson, and that at Agincourt for the consumptive poor of Paris; the new institutions in Germany, at Rehburg for the poor of Bremen, at Malchow and Gutergotz for the poor of Berlin, at Spessart and at Vienna. In the United States mention was made of the new sanitarium at Liberty, in Sullivan County, New York, now being erected as a memorial to the late Dr. Alfred L. Loomis, a former president of the Climatological Association, by Mr. J. Pierpont Morgan; also of the new sanitarium now being constructed at Paul Smith's in the Adirondacks, and of the hospital for consumptives, for the erection of which the legislature of Massachusetts has recently appropriated \$150,000.

The work of the Pennsylvania Society for the Prevention of Tuberculosis was referred to. It was organized to assist in preventing the disease by promulgating the theory of its contagiousness, instructing the public in the practical methods of prevention, and co-operating with boards of health in instituting such measures. The society has distributed 90,000 tracts on "How to Avoid Contracting Tuberculosis," and "How Persons Suffering from Tuberculosis can Avoid Giving the Disease to Others." Its funds are also used to provide hospital accommodation for consumptives. Vigorous efforts have been made by the society to secure better provision in Pennsylvania for this neglected class of cases.

In the discussion following, DR. FREDERICK I. KNIGHT, of Boston, said: When I was before the Finance Committee of the Massachusetts Legislature with reference to this very subject, the question was put to me, first of all, "Have the medical societies of the country made a formal declaration, which has been put on file, in regard to the establishment of hospitals for consumptives?" In England practitioners think the disease has been materially diminished by the hospital accommodations, which have been greater there than in any other country so far.

¹⁰ Wien. klin. Woch., Bd. vi, Nos. 17-22.

DR. THOMAS DARLINGTON referred to a local evil in the northern part of New York City, which has some bearing upon the establishment of consumptive hospitals. Certain large tracts of land there are let out for pasture. In the midst of these tracts is a consumptive hospital. The patients play quoits in a field which has become literally covered with sputa; and here the cows pasture.

DR. R. G. CURTIN, of Philadelphia, read a paper entitled

A STUDY OF THE CAUSES OF SUBCLAVIAN MURMURS.

In the absence of the Chairman, DR. V. Y. BOWDITCH, DR. E. O. OTIS, Boston, presented the

REPORT OF THE COMMITTEE ON HEALTH RESORTS IN THE UNITED STATES.

The Committee have issued a circular to all the health resorts in this country. The work of the Committee will appear from year to year in the Transactions of the Association, and ultimately in book form.

DR. H. L. TAYLOR, of St. Paul, Minn., read a paper on

THE CLINICAL RESULTS OF THE USE OF TUBERCULIN IN PULMONARY CONSUMPTION.

He reported a total of 72 cases, with a complete analysis of 39 cases. Of these, 18 were far advanced, or third-stage cases, of which seven are now dead (but of these seven only two were given a long course of treatment, five being given but a short trial-course), five are worse, five have improved, and one has improved greatly. There were eight second-stage cases, of which one is dead, two are worse, one has improved, and four have improved greatly. There are 13 first-stage cases, of which one is dead, one is worse, and 11 have improved greatly.

Taking the first- and second-stage cases together — the only cases in which the physician would encourage a patient — we have a total of 21 cases, with a mortality of 10 per cent.; 14 per cent. have grown worse; five per cent. are improved; and 70 per cent. greatly improved. In the early cases by themselves, we have 84 per cent. greatly improved. Several of the cases reported have been treated with Kleb's antiphthisin, which promises to supplant the crude tuberculin in the therapeutics of consumption.

Personally, Dr. Taylor said, I am thoroughly convinced that tuberculin is our most certain remedy for this disease, not that it is or can become a specific. Its careful use is not dangerous. In beginning cases, its use should be encouraged; in advanced cases, without too pronounced sepsis, it may be given a trial.

DR. BEVERLY ROBINSON: The use of tuberculin has been before the medical profession now for several years; we have had excellent opportunity of studying its effects, and the consensus of opinion is, I think, that no particularly beneficial results are obtained.

DR. C. E. QUIMBY: I have continued to use tuberculin in a certain class of cases.

DR. F. I. KNIGHT: There are cases in which it may do good. Where patients bear it without extreme reaction, by the use of minute doses, carefully, there is a definite gain.

A paper entitled

A CASE OF TRAUMATIC CARDIAC NEUROSIS,

was read by DR. J. C. MULHALL, of St. Louis.

SUNSHINE STATISTICS.

was the subject of a paper by PROF. MARK W. HARRINGTON, Chief of the Weather Bureau, Washington.

The sunshine, that is, the presence of a direct ray of the sun, not shut off by cloudiness, forms one of the most interesting elements of meteorology, from a sanitary standpoint. It is therefore of interest to this Association. The data considered were all from the United States, with the exception of two stations in Canada. The number of years during which these data have been collected is smaller in the United States than in Great Britain, and there is a large literature and a long series of observations in English and other European publications. In this country the longer series have been taken at Central Park, New York, and at Blue Hill Observatory, near Boston. The data considered were from twenty stations in the United States; they were illustrated by tables which gave the average percentage of sunshine for each hour of the day for each month of the year.

The paper was divided into three parts: a description of the photographic sunshine recorder, with the results obtained from it; second, a discussion of the thermometric sunshine recorder; third, a comparison of the results obtained in the United States from these two records. These instruments seem to be not yet absolutely perfected. There is a difference in sensitiveness. All instruments are not strictly identical in respect to the quickness with which they respond to changes in cloudiness or sunshine. A dense cloud suddenly obscuring the sun in bright sunshine, will not be recorded within three or four minutes, and *vice versa*.

From the comparisons at Buffalo, no definite conclusions could be drawn. The Portland comparisons were limited to three months. For Salt Lake City, there were fifteen months' comparative readings, at a station where the sunshine is not far from the average for the whole country. The results present some curious anomalies. In January the photographic recorder registered the greatest amount of sunshine by fifteen hours. The cloudiness was above the average. In February, with cloudiness about normal, the thermometric recorder registered the greatest amount by twenty-one hours.

The comparisons thus far made seem to establish the following: (a) The thermometric recorder registers the greatest amount of sunshine during the warmer hours of the day; the photographic during the hours from sunrise to about 11 A. M., and from about 4.30 P. M. to sunset. (b) The differences between the two instruments for a considerable period — as a year — are not great. (c) With increase in skill in manipulating the instruments and tabulating the data, the two forms of apparatus will give almost identical results in the long run.

DR. W. F. R. PHILLIPS, of the Weather Bureau, read a paper on

MEAN ATMOSPHERIC TEMPERATURES.

The fact that two or more places may have the same mean temperature, either annual or monthly, does not of necessity imply identical thermal conditions. An example will illustrate this fact more forcibly. Thus Des Moines, Iowa, and Tatoosh Island, Washington, have the same annual mean temperature, namely, 49°. But the mean temperature of the hottest

month is 75° at Des Moines and 56° at Tatoosh Island. The mean temperature of the coldest month is at Des Moines 18°, and at Tatoosh Island 41°.

Throughout the month of July the average daily temperatures exceed 70° in the States bordering on the South Atlantic and Gulf coasts and in the greater part of the Middle Atlantic States.

Statistics were given as to the mean minimum temperatures and the mean maximum temperatures in July.

East of the Mississippi River we may expect a mean daily range, or a daily difference between the highest and the lowest temperatures of the day, of about 18°, and west of the Mississippi a difference of from 5° to 10° greater, increasing with the elevation above sea-level. On the Pacific slope, the difference ranges from 10° to 15°, but may vary greatly as affected by either altitude or proximity of the water.

The variability of temperature or average difference from day to day, is less in July and August than in any other months of the year, and it is so nearly alike in either that it is not practicable to discriminate between them in this respect. In other words, July and August are the most equable months of the twelve as regards temperature. On the Pacific and Gulf coasts the variability is little more than one degree. As we go northward and inland the variability gradually increases. In the latitude of Savannah it is equal to two degrees, and in that of Washington City three degrees. The greatest variability is observed in Montana and in the Dakotas where it reaches four to five degrees.

East of the Rocky Mountains the highest one-day mean temperatures have been observed generally in the central valleys and in the South Atlantic States. The highest mean recorded for one day is 94° at Augusta, Georgia, and the next highest 93° at Kansas City and San Antonio. Temperatures of 91° and 92° have been recorded generally throughout these regions. On the immediate Gulf coast and in the extreme lower Mississippi Valley, the highest means for one day that have been noted have been from 87° to 89°. In New England, the Middle Atlantic States, the region of the Great Lakes, the Rocky Mountain and the Plateau regions, the highest mean temperatures for one day have been about 85°.

The lowest mean temperatures for one day have ranged from 75° on the Gulf to 55° in the northern portions of the United States. In the greater part of the country the lowest mean temperatures range between 60° and 65°.

DR. RICHARD C. NEWTON, of Montclair, N. J., read a paper on

SOME OBSERVATIONS WHICH APPEAR TO ESTABLISH THE AERIAL TRANSPORTATION OF MALARIAL GERMS.

After reviewing the evidence brought forward to prove the transmission of malaria by water, to which theory he gives assent, he took up the literature bearing out the belief in aerial transmission. His own observations in the Indian Territory, while post-surgeon in the United States Army, corroborated this view. The hygiene of this fort was defective, owing to clay soil and rank vegetation. In the seven companies quartered at Fort Sill, 97 per cent. of the men fell ill with malaria. It was shown by diagrams that the number of cases of sickness and days of sickness in-

creased for each company, with one exception, in direct ratio to its proximity to the banks of a creek. (The company least affected was quartered in a spot that was most readily swept by the prevailing wind.) Dr. Newton believes it fair to assume that in places ordinarily non-malarial, the drinking-water is probably the more frequent cause of ague, when it does appear, than the atmosphere; but that in places like the campagna of Rome, the Orinoco River in South America, and the jungles of East India, where malaria is so constant and so deadly, the atmosphere is the usual method of its transportation.

THE GEOGRAPHICAL DISTRIBUTION OF THE MINERAL SPRINGS OF THE UNITED STATES,

by DR. A. C. PEALE, of Washington.

Dr. Peale has recently compiled two maps, one showing the distribution of the 330 springs, the waters of which are put upon the market to the amount of twenty million gallons annually, with a valuation of between four and five millions of dollars. Upon the other was plotted nearly 700 mineral-spring resorts. The majority of the springs used commercially are found in the Eastern United States and in the Mississippi Valley. This is not because the total number of the springs is so much greater in that region, but because the resources are better utilized.

That a spring is thermal depends upon its geologic position. Inasmuch as mineral waters derive their solid constituents from the rocks through which they pass on their way down and up before their emergence as springs, there must be an intimate connection between them and the geological structure of the country. A comparison of the geological map of the United States with a map of its mineral springs is very instructive in this respect. In regions where the older or metamorphic rocks constitute the surface formation, or are near to it, the waters, as a rule, contain a much smaller percentage of solid contents than in those regions where the water, to reach the surface, must come through sedimentary rocks, which are not only more readily affected by the solvent powers of the water on account of their structure, but naturally contain a larger proportion of readily soluble salts.

The practical point for the physician is, that within our own borders we have springs that duplicate those of Europe, or, indeed, any part of the world. And we have them at all elevations, from the Atlantic and Pacific coasts to the high mountain areas of Colorado; and under all climatic conditions, in Colorado, Southern California, Alaska and New England.

THE INFLUENCE OF HEREDITY UPON THE PROGRESS OF PHTHISIS,

by DR. S. E. SOLLY, Colorado Springs.

The paper begins with a discussion of the ways in which the family may affect the development of phthisis. First, by direct transmission of the bacilli. In support of this the author cites cases reported at the last Paris Congress of Tuberculosis, the work of Birch-Hirschfeld and of Whitredge Williams, as well as the experiments of Héricourt, Richet and Gertner. Second, the inheritance of susceptibility. This inherited susceptibility may be that of a general deficiency or lack of power of resistance, or of a more special character, whereby the bacilli readily find entrance and are easily conveyed from one part to another; or the physique is perhaps more often one in

which both of these conditions prevail. Third, family contagion. This the writer took to mean reception of the disease by inhalation.

The paper gave an analysis of 250 cases. These cases confirmed in a general way what has been demonstrated by other observers, namely, that whatever may be the explanation of the pathologic connection between the consumptive and his phthisical relations, there are certain broad differences in the character and course of hereditary phthisis when compared with that of the acquired disease. These, stated briefly, are that the percentage of females is higher among the hereditary than the acquired cases; and the female hereditary cases exhibit the characteristics of their sex, when phthisical, much more strongly, being earlier attacked and more of them dying within eighteen months, and also in showing less resistance. The male hereditary cases exhibit relatively the same peculiarities as the male acquired. The hereditary cases as a whole are attacked much earlier than those in which the disease is acquired, and the proportion of cases in the first stage, when coming under medical observation, is much greater among the hereditary.

In considering the origin and natural history of family phthisis, the statistics given can be compared with a large number of other reports; but as to results, the data for comparison are more meagre, especially in reports from cases treated in high climates. However, those that are available bear out in the main the same conclusions, namely, taking all the cases in all stages together, and comparing the hereditary with the acquired, the results are better among the acquired than among the hereditary; while in the first-stage cases alone, there are more benefited of the hereditary than the acquired.

The parental cases are shown to do better than the grandparental or collateral, and the acquired better than the parental, except in the first stage. In comparing the totals of the paternal, maternal and acquired cases, the writer's statistics show that the most benefited are, first, the acquired; second, the maternal; third, the paternal. Thompson's order is, first, acquired; second, paternal; third, maternal. While there is a strong resemblance between the writer's cases and those of others, there are points of difference, some of which are probably due to the especial influence of altitude. The theory that under certain conditions family phthisis grants immunity, or modified immunity or tolerance, receives some support from these inquiries, and from the writer's own clinical impressions, but especially from the fact that hereditary cases, when they do not die in the onset of the disease, as so many do, are generally more chronic in their course toward death or recovery than acquired cases. And it may be said that the knowledge of inheritance, though depressing to the descendant, is also salutary in inducing prudence of life and a ready resort to medical aid when attacked.

Papers were read by DR. BEVERLY ROBINSON, New York, on

ETIOLOGY AND TREATMENT OF CERTAIN KINDS OF COUGH,

by DR. J. C. MULHALL, St. Louis, on

A CASE OF SIMPLE CHRONIC PLEURAL EFFUSION,

and by DR. THOMAS DARLINGTON, JR., New York, on

TWO FACTORS IN THE PRODUCTION OF DISEASE IN NEW YORK CITY,

These the writer considered to be, first, malaria, and, second, a fecal fermentation producing diarrhea. Cases of malaria are found all over New York City, principally in the northern districts. This he considers to be due to numerous swampy places which occur in cup-shaped places on the hills and cannot well be drained, as they are formed largely of rock; also to the opening of the streets in the upper part of the city and to the use of old water-pipes.

The second condition described was that of fecal fermentation producing diarrhea, generally occurring every morning. Dr. Delafield has also recently written on this subject. This diarrhea, he stated, affected every class in the city, and probably was caused by the Croton water. The symptoms are recorded in detail. The customary treatment in New York is to use intestinal antiseptics combined with an exclusive diet of milk or meat. These remedies gave temporary relief, but the only certain remedy was a change of climate, which in most cases acted like magic.

The following resolution, on motion of DR. FREDERICK I. KNIGHT, was unanimously adopted:

Whereas, Since tuberculosis has been demonstrated to be a communicable disease, it has become doubly desirable that hospitals for the reception of the poor afflicted with this disease should be established.

Resolved, That the American Climatological Association recommend the establishment of such hospitals in every State, not only for the relief of the great suffering attending this disease among the poor, but also as a protection of the community against its spread.

At the request of the Association, DR. C. E. QUIMBY, presented the following resolution:

GENTLEMEN OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION:—Duty and established custom makes it fitting that in formal manner your Committee report to this Association the death upon January 23, 1895, of our former President and member, Alfred L. Loomis, M.D., LL.D.

Love and respect make it imperative that in so doing we dwell for a moment upon the many ties which united us, and make some record by which his many and varied gifts and qualities which have enriched us may be made a powerful influence upon those who are to continue this Association.

Dr. Loomis was born in Bennington, Vt., in 1831. His early education was largely under private tutors at Woodstock, Vt., while his academic degree was taken at Union College. After graduation in 1852, at the College of Physicians and Surgeons, he served the usual term in Bellevue Hospital. Very soon after starting in private practice, he was appointed visiting physician to the same hospital, where he continued in active duty until the day of his final illness. For more than thirty years, Dr. Loomis held the chair of Pathology and Practice in the Medical Department of the University of the City of New York, and to his energy and wise efforts, more than to any other force, may be attributed the growth and prosperity of that institution.

In his professional life, Dr. Loomis was pre-eminently an active, energetic, sagacious physician. In all his relations to medicine and medical progress, he was conservatively but uniformly progressive; never assuming an advanced position until fully convinced of its accuracy, he was unfaltering in its defence. A similar faith in the eventual success of truth, made him unable even to consider the possibility of failure in any purpose once undertaken.

Dr. Loomis was one of the faithful band who originated this Association, and we all well know how faithfully he worked for its advancement and success. He was its first

president and was again its president during the first Congress of American Physicians and Surgeons in Washington assembled, and, as our delegate, was elected the president of the third Congress.

At one time efforts to merge the American Climatological Association into another national organization threatened to destroy it. Dr. Loomis averted the danger, if any such existed.

Dr. Loomis had a most enviable reputation, not only in his professional but also in his private life. He was a frequent contributor to the proceedings of this Association.

In expressing our sense of personal as well as united loss in the death of Dr. Loomis, we realize that we can do him no greater honor than to present this record of his work for a perpetual stimulus to members of this Association.

Officers for the ensuing year were elected: President, Dr. James B. Walker, Philadelphia; Vice-President, Dr. C. E. Quimby, New York; Treasurer, Dr. James E. Hart, Colorado; Secretary, Dr. Guy Hinsdale, Philadelphia.

Dr. Frederick I. Knight, of Boston, was elected Representative to the Executive Committee of the Congress of American Surgeons and Physicians, and Dr. R. G. Curtin, of Philadelphia, alternate.

NEW HAMPSHIRE MEDICAL SOCIETY.

ONE HUNDRED AND FOURTH ANNUAL MEETING, AT CONCORD, N. H.

THE one hundred and fourth annual meeting of the New Hampshire Medical Society convened in G. A. R. Hall, June 3 and 4, 1895.

The meeting was called to order at 11 o'clock by President DAVID P. GOODHUE, M.D., and prayer was offered by Rev. HOWARD F. HILL.

The meeting was a large one for a small State, there being over one hundred and fifty members registered.

After the appointment of the usual standing committees the reading of the following papers was taken up:

THE GERM CONSIDERED AS A PRIME FACTOR IN THE PRODUCTION AND TREATMENT OF DISEASE,

by DR. S. W. ROBERTS, Wakefield; the discussion opened by DR. L. G. HILL, Dover.

The second paper was on

CONGENITAL IMBECILITY,

by DR. EDWARD FRENCH, Concord, N. H.

REPORT ON SURGERY,

by DR. J. FRANKLIN ROBINSON.

The subject chosen for this paper was the Alexander operation for shortening the round ligaments, as a cure in cases of chronic retroversion. A detailed account of this operation is given in the *Annual of the Universal Medical Sciences*, issue of 1889. Several cases occurring at the Eliot Hospital at Manchester, N. H., were reported. All these cases had been under treatment more or less constantly for years without permanent benefit, but after the operation each one expresses herself as constantly improving in health and strength. The strictest antiseptic precautions were used both during the operation and convalescence.

The Alexander operation should not be attempted if the uterus is fastened in retroversion by strong adhesions or pelvic infiltrations; but in suitable cases

it offers a ready and safe means of restoring the uterus to its normal condition, with a fair certainty of its remaining there permanently.

DR. ADAMS, of Manchester: As I understand, the Alexander operation is only applicable to cases where there is retroposition of the uterus with no adhesions, no pelvic peritonitis or inflammation, with a proper support from below, that is, a normal vagina, a normal perineum, a normal-sized uterus, after all other means, except section or celiotomy have been tried and failed. This limits it to a very small scope. To attempt to hold the uterus up as from prolapsus by the round ligaments would be absurd. To attempt to hold it forward, when there are adhesions with retroversion or retroflexion, would be absurd. To attempt to hold up a uterus two or three times its normal size without other means of reducing the size — say, a sub-involuted uterus as the result of lacerated cervix, would be absurd. To attempt to hold up a uterus with a ruptured perineum, with prolapsed vagina, with endometritis, etc., without the operation for correcting the perineum and correcting the vagina, I think would be absurd. Still, we find cases where we have retroflexion with a very small uterus, and where apparently the vaginal wall, the perineum, etc., are intact, and where there are no adhesions, and where there is no disease of the pelvic cavity; and to these cases I think it is applicable, and I believe, as a primary and only operation it is of great benefit.

There is another field for Alexander's operation, as a support to other operations. I believe it may be of benefit where we have retroposition with dilated vagina, ruptured perineum and enlarged uterus. If the other parts are corrected — if the uterus is corrected, and the cervix is operated upon — I believe that Alexander's operation may be added to it with benefit. If there is a ruptured perineum with prolapsus of the posterior wall of the vagina, carrying the uterus down with it, that condition may be corrected and the supports from below properly corrected, and this operation added with much advantage.

There are some objections to Alexander's operation. First, it puts the uterus in an unnatural position and fixes it there; it tips it forward onto the abdominal wall and bladder, and fastens it there. The uterus is a very movable organ; it is susceptible of positions ranging from forty to sixty degrees; and still, when it is tipping back and forth, remains all right and natural. But this fastens it. From this fixation we sometimes get irritation of the bladder. Another drawback is the dragging sensation on the cords. In one case after operation there was a great deal of neuralgic pain from the dragging on the cords, as I attributed it. I saw a report of one case of abortion as the result of this operation, pregnancy following not a great while after, and the patient aborted; and it was attributed to the shortening of these cords. In some cases the cords have stretched after a time and let the uterus down again.

There is a great variety of operations for shortening these cords. Some perform celiotomy, taking the cord in the abdominal cavity, doubling it upon itself, and putting a ligature around it on each side. Others cut the entire canal to the internal ring, and make their fastening at this point. The objection to tying at the external ring has been raised that hernia is liable to follow. In drawing the cord out we draw with it a cuff of peritoneum; and if pains is taken to sew the

peritoneum and set up sufficient inflammation to form adhesions back to the internal ring, I presume it would prevent hernia, still I have seen a report where three per cent. has been followed with hernia.

DR. ROBINSON, Manchester: The Alexander operation merely confines the uterus to the position it generally occupies — anteversion. After a few days the patient can retain urine longer, because the inflammation of the uterus has subsided. The ligaments will stretch in some cases, but why should there be any more danger of the uterus becoming retroverted after pregnancy following the Alexander operation, than after pregnancy in a uterus which has never been displaced? The shortened ligaments retain the uterus in the position of anteversion, provided there is a good perineal floor to support the uterus. The round ligaments cannot be expected to hold up the whole abdominal contents. In Alexander's operation the peritoneal cavity is not entered. Hernia has followed in some cases after the operation, but the Alexander operation has been used as a cure for hernia.

ON ELECTRICITY IN THE HANDS OF THE GENERAL PRACTITIONER,

by DR. G. H. SALTmarsh, Lakeport.

Removal of Facial Blemishes. — The process is very easy, requiring but little skill, and a comparatively inexpensive outfit, consisting of a galvanic battery, milliamperè-meter, two conducting cords, a sponge electrode, needle-holder, needles, and a pair of depilatory forceps. The patient should be seated or semi-reclining before a well-lighted window, holding in the hand the sponge electrode, previously moistened and connected with the positive pole of the battery. The operator, with the needle-holder in the right hand, introduces the needle into the follicle beside the hair until it has reached the base; the circuit is then completed. A few seconds' time is allowed, during which the forceps are applied by the left hand, slight traction is made, and if the follicle is destroyed no particular force is required to remove the hair from its bed. It is better not to remove several hairs that are in close proximity, but over a scattered area, as this will prevent the possibility of lighting up any inflammatory action. Usually from twenty to fifty hairs may be removed at one sitting. The eyes of the operator will tire of this somewhat trying process if continued too long, and the patient will, although suffering no pain, get restless. The current need not be stronger than three or four milliamperès.

The removal or destruction of papillomatous growths and small nevi may be accomplished in much the same manner. The sponge electrode is held by the patient or placed firmly against some part of the body. A single needle of somewhat larger size than the one for the former work is used, or the double conducting cord with two needle-holders attached, and the latter seems preferable, especially if the base of the growth is of any considerable size, as one needle may be removed and reinserted while the other is doing its work, and the patient will hardly realize what is being done. The needle should enter at the junction of the growth with the healthy skin, or slightly beyond it, carried through and out at the opposite side at the same line. It should remain in position from twenty to forty seconds, or until electrolytic action is thoroughly accomplished. The number of punctures necessary will depend upon the size of the growth and

strength of the current. The distance between them should be about one-sixteenth of an inch. From three to five milliamperès is sufficient for ordinary cases. The cicatrices remaining after this procedure are noticeably less than after the use of the knife. The total obliteration of the supplying vessels causes the immediate death of the excrescence if the operation has been carefully done; and in a few days the mass falls off, leaving a smooth, healthy tissue.

Urethral Stricture. — In regard to the treatment of urethral stricture, the method of Dr. Newman, one of the most enthusiastic as well as successful operators, was described.

Prostatic Hypertrophy. — Although not having applied electrolytic treatment to hypertrophied prostate according to the strictly scientific method, the results from rather a crude process would tend to show that it is a potent remedy.

Uterine Fibroids. — With reference to the treatment of uterine fibroids, the methods and rules of Apostoli were described.

DR. GILMAN D. FROST read a paper on

CANCER.

Dr. Frost described at length several cases of cancer, each of which was to be taken as the type of its class, taking first, cancer of the lip as an example of the epidermoid. Such an ulcer if left to itself may cause but little trouble for months, perhaps years, but sooner or later it will attack deeper and adjacent structures. The progress of growth and breaking-down then becomes rapid, the general health suffers, and death finally ensues. The whole process may have lasted from two to five years.

The seat of the columnar-celled cancer is usually the rectum, the intestines or the uterus. Unless removed, such a cancer grows steadily worse, involving other organs; and death ensues either from a general failure of vital power on account of the discharge from the cancer, from hemorrhage, or from worry. The patient seldom lives more than three years from the first appearance of the disease.

It is difficult to distinguish between the three forms of spheroidal-celled cancers, and in some cases it is quite impossible to say which form we are dealing with; but in all cases the progress of the disease is very rapid and attended by much pain, great swelling and a profuse discharge. As in other cases, death comes finally as a result of the drain made on the general health, hemorrhage, pain, anxiety, loss of appetite, improper food supply, and want of sleep. The time required for the development of such cancers varies from a few months to two years.

After mentioning various theories as to the cause of cancer, Dr. Frost recommended excision as the best treatment, whenever that was possible. In case of cancer of the lip statistics vary much, but are on the whole more favorable than for mammary cancer. Rectal and uterine cancers are little affected by operation, and are sure to recur. Lately many cases of cancer, otherwise inoperable, have been treated by giving the patient erysipelas in the region affected, and still more lately with toxines of the bacillus prodigiosus.

DR. DOUGLAS, of New York, advised the use of a very simple remedy, a preparation of white cedar. He did not claim that it would cure all cases of cancer, but in his own practice he had met with very good

results where an ointment of white cedar had been faithfully used.

DR. E. E. GRAVES, of Boscawen, had used sulphate of magnesia (Epsom salts) with good results.

This paper was followed by a dissertation on

DIARRHEA,

by DR. BENJ. CHEEVER, of Portsmouth.

SOME OF THE USES OF STROPHANTHUS,

by DR. W. K. WADLEIGH, of Hopkinton.

The physiological action of strophanthus may be said to be similar to that of digitalis, but there are some points of difference. Unlike digitalis it has very little power to contract the small blood-vessels. As a diuretic it is much more sure and certain than digitalis. The effect produced by strophanthus is almost immediate, though not so prolonged as that of digitalis, and it almost never produces any unpleasant stomach symptoms, no matter how long administered. Strophanthus may be used with more or less benefit in most cases where digitalis is indicated, but it is more especially in a few conditions in which digitalis is not so generally applicable, that strophanthus finds its chief usefulness. Strophanthus is well adapted to the treatment of aged people, especially in vertigo caused by cerebral anemia, in angina pectoris, in general anemia accompanied by weakness of the heart, and in the so-called irritable heart characterized by palpitation and more or less pain.

The best preparation of strophanthus is the tincture prepared from the seeds, given in doses of one to ten minims. It is rarely necessary to give larger doses than five drops three or four times a day.

SECOND DAY.

The following officers were elected: President, Dr. E. F. McQuesten, Nashua. Vice-President, Dr. A. P. Richardson, Walpole. Treasurer, Dr. M. H. Felt, Hillsboro. Secretary, Dr. G. P. Conn, Concord. Executive Committee, Dr. Charles R. Walker, Concord; Geo. D. Towne, Manchester; F. A. Stillings, Concord; W. F. Smith, Hanover; F. E. Kittredge, Nashua. Anniversary Chairman, Dr. A. N. Smith, Dover. Committee of Arrangements, Drs. Stillings, Sullivan, Day, Lovejoy, McMurphy, Adams, Concord; also a council consisting of twenty members and a board of censors having ten members.

At the conclusion of the business session the regular order of papers and discussions was taken up as follows:

ON BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA,

by DR. HERBERT C. EMERSON, Concord, N. H.

The fact is now attested that diphtheria is due to a specific micro-organism, which can be readily isolated, and demonstrated by culture from swabbings of the mucous membranes affected. The specific bacterium of this disease was first recognized by Klebs in 1883, and cultivated and described in 1884 by Löffler, and is called the Klebs-Löffler bacillus. This organism is rod-shaped, two or three thousandths of an inch in length, and has a characteristic morphology. It appears generally as a rod swollen at either end or in the middle. It grows freely in the presence of oxygen at the body temperature, and in separate fragments of diphtheritic membrane preserves its vitality

for months. It may be found not only in the exudate of pharynx, larynx or nose, but also in almost any morbid condition which may be concurrent.

The technique of its identification is as follows: Sterilized cotton swabs are wiped across the mucous membrane affected, and are then wiped over the surface of the sterilized culture media. Various culture media may be used for the cultivation of the bacilli. Löffler has suggested a mixture of blood serum and sugar bouillon, and this is now commonly used in making cultures of Klebs-Löffler bacilli. This medium consists of three parts beef-blood serum, and one part of a one-per-cent. sugar bouillon, solidified in slanting test-tubes at a low temperature, and sterilized by steam. Having inoculated a test-tube of the serum with the swab, the tube is then placed in an incubator, and kept at a temperature of 37° C. for twenty-four hours. At the end of this time numerous aggregations or colonies of Klebs-Löffler bacilli appear on the surface of the serum, as small, raised, rounded, dry-looking elevations. With a sterilized platinum needle a cover-glass is smeared with a single colony, stained with one of the aniline dyes — methylene-blue in an alkaline solution being the best — and the cover-glass then mounted in balsam and examined under a microscope, using an oil immersion lens of at least one-twelfth of an inch power.

The evidence to-day is stronger than ever that the bacterium in question is the specific infecting agent of diphtheria. Löffler, in his demonstration of 1890, says: "First, it is found in all undoubted cases of diphtheria. Second, the Klebs-Löffler bacillus is found only in diphtheria. Third, pure cultures of this bacillus induce characteristic diphtheritic inflammation when inoculated into the mucous membrane of certain lower animals."

Continued study of the micro-organisms found in the various affections of the throat, has given us the following *résumé* of the etiology of diphtheritic and pseudo-diphtheritic inflammations. The mouths of most people always contain a variety of micro-organisms, two of the most common being the streptococcus and the staphylococcus pyogenes aureus. Under favorable conditions either one or both of these germs become greatly increased in number, and infecting the mucous membrane at some point, produce the condition of inflammation, varying in degree from one of simple congestion to that of the clinical appearance of diphtheria. These cases should always be isolated, and treated as mildly infectious affections.

Infection by the Klebs-Löffler bacilli may produce almost no signs or symptoms, these cases being of very short duration, the non-susceptibility of the patient accounting for the lack of disturbance. Such cases are to be regarded as sources of danger, and persons in charge of diphtheria cases whose throats may temporarily show these bacilli are also to be so regarded. Daily bacteriological examinations are to be made in all doubtful cases until the diagnosis is clear. Patients convalescent from diphtheria are to be regarded as sources of danger as long as Klebs-Löffler bacilli are found to be present by bacteriological examination, and they have been found in such cases from a few days to three months after the disappearance of all membrane. The early bacteriological examination of all suspicious cases cannot be too strongly urged.

This paper was followed by a report on

SERUM TREATMENT OF DIPHTHERIA,

by DR. C. P. FROST, the discussion opened by Dr. EDWARD SULLIVAN, M.D., Concord.

MODERN METHODS OF TREATING DISEASES OF THE NOSE AND THROAT,

by DR. O. B. DOUGLASS, New York.

Of the two hundred and fifty, more or less, distinct diseases that flesh is heir to, a large percentage show effects in the throat, not mere complications, but as a part of the disease. That which in common parlance is termed catarrh is but a symptom, an expression or effect of a diseased condition. Patients will tell you that they have pain in the nose, over the eyes, in the temples, or back of the ears; that they have a hacking cough and a frequent desire to clear the throat. These ills may result from one and the same cause. Having determined the cause, we seek to remove it. If it be a syphilitic sore throat, positive results will often be gained from the use of large, increasing doses of potassium iodide. Locally spray the diseased parts with peroxide of hydrogen and insufflate aristol.

The underlying principle in the treatment of tuberculosis of the larynx is to destroy the germs by curetting, and applying either pure lactic acid three times a week, pure ichthyol (Dr. Bereus's method), or a twenty-grain solution of silver nitrate. A later method, the injection of creosote, which promises excellent results, is described by Dr. Chappell in the *New York Medical Journal*.

Sarcoma and carcinoma are best treated by extirpation, if that is possible. Dr. Coley reports some wonderful results from the injection of the specific germ of erysipelas into the tissues surrounding these tumors in cases where they cannot be removed.

In treating diphtheria and all acute inflammations of the throat, mild medicines given often will give better results than harsh and heroic treatment at longer intervals. It is doubtful if antitoxin has come to stay. Professor Winters gave recently, at the New York Academy of Medicine, an *exposé* of its use in the Willard Parker Hospital for Contagious Diseases. It seemed to do more harm than good.

The most widely spread and destructive of the diseases of the throat and nose is that which causes catarrh. To find the cause of this disease first examine the mouth and throat. A typical case of catarrh will show a relaxed uvula, enlarged tonsils, follicular pharyngitis, thickened and inflamed tissue back of the posterior pillars of the fauces. There will be some hoarseness and tendency to cough. The vocal bands will be slightly colored; the whole larynx congested. In the superior pharynx the adenoid growth will be enlarged, the posterior ends of the turbinate bodies hypertrophied, the septum thickened, and the whole passage bathed in a thick, tenacious fluid. Upon examining the nose, the inferior turbinate body will be seen to be enlarged, the septum more or less deflected. Above the inferior body will be a mass filling the fossa and pressing upon the septum. The application of a ten-per-cent. cocaine solution blanches and contracts the tissues about the lower turbinate body, but reveals clearly the stubborn persistence of the middle turbinate body, which is still tender. It is difficult to believe that the little mass we saw pressing the septum is the cause of all the suffering attendant upon catarrh. It is now believed that the hypertrophied middle turbi-

nate body is capable of more mischief and can cause more suffering than any other mass of its size in the human body. It will not contract; it must be removed. Anesthetise it as thoroughly as possible; then with scissors adapted to the work shear off such portion as must come away in order to leave the space clear, not cutting away more than is absolutely necessary, but being sure to get just enough. This cannot be cut off at the other end, and the mass must be twisted off with forceps. A pledget of cotton wound loosely upon an applicator moistened in a solution of aceto-tartrate of aluminum is inserted, and a cotton tampon placed in the nostril anterior to the first. This is to be changed as often as it becomes moistened. The former may remain twenty-four hours or longer, as aluminum is one of our best antiseptics. This operation is the one most frequently required, but any persistent contact of surfaces in the nose that ought not to touch will certainly cause trouble, and must be relieved. The question arises how a mere contact of surfaces in the nose can cause so much trouble. First, the immediate local effect upon two sensitive surfaces must be irritating. Second, the nose being an important organ directly communicating with the brain, must be carefully guarded; hence there are numerous reflex irritations resulting from this primary cause. Third, secretions, which are profuse in the nose, are retained by this artificial dam, become acrid, overflow their bounds, and produce congestions and inflammations. Fourth, by extension of these induced troubles to other organs — the lachrymal ducts, Eustachian tubes and middle ears — acrid secretions are forced into the orifices of the tubes, and deafness results in many cases.

This paper was followed by a dissertation on the

PHYSICAL BASIS OF CRIME,

by DR. JOHN J. BERRY, Portsmouth; discussion opened by DR. C. P. BANCROFT, Concord.

CONSERVATISM IN MEDICINE AND SURGERY,

by DR. G. P. CONN, Concord; discussion opened by DR. CHARLES R. WALKER, Concord.

PRESIDENT'S ANNUAL ADDRESS.

The following is an abstract of the Annual Address delivered by the President of the Society, DR. DAVID P. GOODHUE:

New ideas should not be accepted because they look well, or coincide with ideas we had previously formed, nor because they were promulgated by our friends, but they should be taken on their own merits, and stand or fall as the case may be. A good many of our patients are like Naaman of the Old Testament; they want some mighty work done for them. They forget the cleansing effect of good air and pure water.

The population of our country towns is fast decreasing, and many of those who stay on the farms barely make a living, and when sickness comes they are easily discouraged, and are in no condition to pay for medical attendance if it is of long duration. Other expenses arise, and the physician's bill goes on until it is outlawed, or settled by death, as many physicians' bills are settled.

Why should the physician be called on to contribute for every object, to give liberally for the support of some pastor to whose teaching he does not subscribe, and then be expected to attend that pastor and

his family professionally, without receiving any pecuniary compensation for it? The days are fast passing when "reverend," "elder," "minister," "evangelist," "salvationist," etc., carry the weight with them that "reverend" did in years gone by. Neither do "professor," "doctor," "clairvoyant," "faith cure," "mind cure," carry the weight that "physician" did in those days. The truly reverend man that has shown by his life-work that he is a godly man, will justly be revered, and so also will the true physician be respected and trusted.

People should be made to understand that medical men are not obliged legally to respond to professional calls where their bills have not been paid for a long time, unless they are made sure of their pay. We are all imposed upon at times by people who say that they are poor, and need our services but have not the means to pay us. In such cases most of us give our services for a time, and then if we find we have been deceived, I presume most of us will treat the next case that comes, just the same, so as not to let any one really deserving be neglected by the wrong-doing of others. If there is a physician who can preserve his equanimity of mind under all the perplexities and trials to which he is subjected, he must be a man after God's own heart.

If we expect people to employ us, and, I may say, pay us, we must be willing to protect them in every possible way, by doing our part as good citizens, by attending to all professional calls as promptly as possible, by carefully keeping all professional secrets entrusted to us, by giving intelligent and conscientious treatment. We should try to protect people against the class of irresponsible and itinerant doctors, so-called, who are travelling about the country, though there is no doubt that we sometimes make more money by having these persons come into the State, as they leave a train of ills behind them that we are called upon to treat. We should see that the public is protected against contagious diseases. If people are willing to pay for being protected against the small-pox, why should they not pay for being protected against diphtheria and scarlet fever, from which diseases many more people die than from small-pox?

Country doctors often have great difficulty in getting good nurses, and they should therefore be very careful about giving directions so they will be understood, both in regard to medicine and diet. It is not necessary that patients should know everything they are taking. If they have not confidence enough in your judgment to take what you give, let them employ some one else.

The physician has a duty to perform to his family as well as to the community in which he lives, and that is, to care for them by collecting his bills from those who can pay, for it is his just due. From the honest poor, God's poor, turn not away under any circumstances, remembering that if you are not rewarded here, you will be hereafter.

THE ANNIVERSARY BANQUET,

was served at the New Eagle Hotel at one P. M., and was attended by nearly one hundred. Dr. Robert Burns of Plymouth presided, and the guests of honor were Governor Busiel, Drs. Foster and Douglas, of New York, and Drs. Morgan, Lee and Warren, representing the Maine, Vermont and Massachusetts Medical Societies.

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THE TREATMENT OF DIABETES.

DR. ALBERT ROBIN, editor-in-chief of the *Bulletin de Thérapeutique*, affirms in late numbers of that journal that the essence of saccharine diabetes is "over-activity of nutrition in general, and of the hepatic cell in particular, dominated by a continuous nervous excitation, direct or reflex," and describes the "alternating treatment" of this disease as it is carried out by him.

He would begin by a week of dietetic regimen, in which the rigorous principles laid down by Bouchardat are enforced. Then a careful quantitative analysis of the urine is made, and the amount of sugar noted. In case the sugar has entirely disappeared, no medical treatment is instituted; the patient is directed not to vary for a long time from the prescribed diet *régime*.

Generally the glycosuria (along with the azoturia and polyuria) is only diminished, and the patient then begins the medicine of the "first stage," namely antipyrin, of which one gramme (fifteen grains) is given one hour before breakfast and dinner. His formula is as follows: antipyrin one gramme, bicarbonate of soda one-half gramme; to be taken in a little Vals water. This medicine is given only five days, and then suspended, as its continued use might cause the appearance of albumin in the urine. If the patient is albuminuric, the antipyrin is almost contraindicated, and the same may be said of cases of grave diabetes, where it does no good. Its action is almost *nil* in pancreatic diabetes. If the sugar does not diminish rapidly after four days of treatment by antipyrin, it is of no use to return to this medicament. If, however, during this first trial, there is a marked decrease in the sugar and in the polyuria, it is a sign that the medicine is proving beneficial.

The "adjuvants" of this first stage of treatment are cod-liver oil (one or two tablespoonfuls per day), alkalies and laxatives. The Rochelle salt, of which half an ounce may be given in the morning fasting, is

one of the best purgatives, in the event of constipation.

On the fourth, or at the latest, the fifth day of the "alternant treatment," the antipyrin is suspended, and the patient begins on the medicines of the "second stage." These medicines are sulphate of quinine, arsenic, the alkalies and alkaline earths, and codeia. Quinine is believed to lessen organic destruction; arsenic "reduces the general oxidations and the nitrogenous mutations"; the alkalies "diminish the functional activity of the hepatic cells, the general activity of all the tissues, retard the formation of urea and uric acid, in a word, retard nutrition." Codeia possesses the general properties of the opiates, "diminishing the total disassimilation, the nitrogenous disassimilation, the azotized oxidations and the nervous oxidations. In a word, it retards the nutritive mutations through its influence on the nervous system."

These medicaments are given in the following manner:

(1) Before the noon meal, a cachet of sulphate of quinine 0 gr. 40 (6 grains). Continue six days; cease four days; resume during six days.

(2) Before breakfast and dinner, a cachet, the composition of which is as follows:

Arsenate of soda	0.002 to 0.003
Carbonate of lithia	0.10 to 0.15
Codeia	0.02 to 0.04
Theriacal powder	0.25
Dried extract cinchona (pulv.)	0.04

M. [The "theriacal powder" is peculiar to the French ph. and owes its properties principally to the small quantity of crude opium which it contains.]

The "adjuvants" of the second stage are the same as those of the first, cod-liver oil (given when it is well borne), wine of quinine, Rochelle salts (when there is constipation), and some sodic bicarbonated mineral water at meal-time.

After fifteen days, the medicines of the second stage are dropped, and the patient commences those of the third, namely, opium and belladonna, bromide of potassium, the alkalies and valerian, all being "moderators of the exchanges."

The opiates have long had repute in the treatment of diabetes. But they must not be given in large doses or during a long time, nor to patients threatened with acetoneamia, nor to feeble diabetics becoming cachectic, or affected with grave renal complications. Opium does better when associated with belladonna. Valerian, under the form of the extract, has a powerful retarding effect on the nutritive exchanges, and lessens polyuria. Bromide of potassium "diminishes the elimination of earthy phosphates . . . and the mutations in the nervous system," but must not be given in large doses, because too depressing. Its use should be limited to "nervous subjects," and never in doses exceeding two or three grammes per diem for eight or ten days at the most.

The medicines of the "third stage" are associated as follows:

(1) For eight days administer the thebaic extract,¹

¹ Extract of opium.

belladonna and extract of valerian, according to the following formula:

Extract of belladonna	0.005
Extract of opium (thebaic)	0.01
Extract of valerian	0.10
Powder of cinchona bark	4. 3.
M. Fiat pil. una. •	

During the first and second days, a pill every six hours; the third and fourth days, a pill every four hours; the fifth and sixth days, a pill every three hours; the seventh and the eighth days, a pill every six hours.

(2) During this (third) period require the patient to drink during the day and at meals, boiled water containing to every litre eight grammes (two drachms) of bicarbonate of sodium.

(3) Discontinue the cod-liver oil; continue the cinchona wine at meal-times.

If the patients present a particular intolerance for the opium and belladonna, or if very nervous, substitute for the above-mentioned pills, bromide of potassium in the dose of one gramme (fifteen grains) every eight hours for three doses.

If there is still considerable sugar in the urine after the three stages are finished, the series is commenced over again. But whether the sugar disappears or not after this second series, there must now be a respite of at least a month from all medicinal treatment and reliance on diet alone. During the month of interruption, the patient, if still azoturic, may continue the use of the alkaline waters. If, however, the proportion of urea falls below the normal, the alkaline waters are stopped, and some ferruginous preparation given instead. If, during the treatment, the sugar totally disappears from the urine, the patient must still for a long time observe the same care about diet, abstaining from starches and from sweets. In general, in the most simple cases the return to an ordinary diet must be very gradual, demanding at least six months or a year.

Dr. Robin has tried this plan of treatment (which has taken several years in its elaboration) on 100 cases of true diabetes, that is, patients who were voiding at least 100 grammes of sugar in the twenty-four hours. Considerable and permanent amelioration (conditional on careful dieting and occasional resump-tions of the treatment) has been noted in 33 of these patients; cures, "still problematical," 25 cases; definitive cures, 24 cases; result *nil*, or only temporary, 18 cases.

THE MILITARY EFFECTIVENESS OF THE MODERN SMALL-BORE PROJECTILE.

In our editorial of August 15th on this subject, based on the investigations of Surgeon-Lieut. Jay Gould during the Chitral campaign, the conclusion arrived at as the result of his investigations was that the modern Lee-Metford rifle projectiles did little harm in comparison with the old-fashioned, heavy, leaden bullets, to the various tissues of the body. The editor

of the *British Medical Journal* was led even to doubt the efficacy of a volley from these rifles in stopping a charge at short range. It will be doubtless remembered that owing to the custom of the natives of carrying off their dead from the field of action and burying them immediately, Lieutenant Gould was able to observe the effect of these missiles only in the slightly wounded. The fact that these cases did almost uniformly well, has apparently led to needless alarm on the part of the *British Medical Journal* lest the modern projectiles would prove ineffective in stopping charges of murderous natives upon the Queen's troops.

In the opening address before the Surgical Section of the British Medical Association, Sir William McCormac, basing his remarks on the careful and thorough experiments conducted by the German Kriegs-Ministerium on the effect of these projectiles propelled by full charges and at long and short range, comes to far different conclusions with regard to the value of the modern projectiles. At short range the shattering effect of the nickel-coated missiles upon the skull and long bones is terrific; "at 100 yards the entire vault of the skull is shattered, fissures extend from both entrance and exit wounds and a gaping line of fracture was constantly found extending between them." At ranges up to 600 yards the shattering of the long bones is extreme, and for ranges up to 2,000 yards the damage to the long bones is very great. The danger of primary hemorrhage from the wounds inflicted by the modern bullet is also greater, for the new projectile, instead of bruising an artery or pushing it aside, is apt to cut a piece clean out of the vessel wall, thus incompletely dividing it and preventing retraction, a condition of things which is obviously in the highest degree favorable to hemorrhage. The enormous effective range of the new projectiles and their penetrating power will also add materially to their liability to produce severe injuries, while, on the other hand, the fact of the impossibility of maintaining for any length of time a conflict at short range with such murderous weapons, will increase the distance between the lines of battle, a circumstance which will in the future tend to diminish the seriousness of the injuries produced.

In summing up his address, Sir William comes to the following apparently fair and judicious conclusions on the subject of the effect of modern projectiles upon future wars:

It would appear probable that in a future war many of the wounds produced by the new projectile will be surgically less severe and prove amenable to effective surgical treatment. Probably also the number of severe injuries will be very great when we consider the enormous range of the new weapon and the penetrating power of the projectile, which enables it to traverse the bodies of two or three individuals in line, including bones, and to inflict serious or fatal wounds at a distance of 3,000 or 4,000 yards. It is impossible to say what the proportion between these two is likely to be. At near ranges the explosive effects will be much the same as before, but at long range the narrow bullet track, the small external wounds, which often approach the subcutaneous in character, and the

moderate degree of comminution and fissuring of the bone will be surgically advantageous. These will form the bulk of the gunshot injuries of the future for it would seem impossible with magazine quick-firing rifles to maintain a contest at close quarters without speedy mutual annihilation.

We may take it for granted that the number of wounded in proportion to the numbers engaged and actually under fire will be greater than before. The supply of ammunition will be larger, the facility for its discharge greater, and smokeless powder will increase accuracy of aim.

I think we are justified in believing, although there is high authority for a contrary opinion, that the next great war will be more destructive to human life, "bloodier," in fact, than any of its predecessors, and that the number of injuries, and in many cases the severity of the injury, will be largely increased. But very many cases will remain less severe in character, more capable of successful treatment, and less likely to entail future disablement, while improved sanitation and antiseptic methods will enormously increase the proportion of recoveries.

It is the unceasing effort of modern surgery to provide antiseptic protection in an effective form in time of war; and I may be permitted to recall that the medical organization during our last war in Egypt was so complete in this respect that not a single case of infective wound disease occurred during the whole campaign.

As a temporary dressing some form of antiseptic occlusion will prove most generally applicable. The small wounds of entrance and exit render this plan comparatively easy of application, and the chances of septic infection will be diminished by the less frequent necessity for probing or searching for a lodged projectile, and indeed the ascertained presence of the bullet is no sufficient indication *per se* to attempt its removal. The eye rather than the hand is the best thing to employ at a first dressing station, as Fischer has well said.

If only asepticity can be ensured — and this is the great difficulty — we may expect a large measure of success to follow the treatment of wounds of the soft parts, many forms of fracture — notably also wounds of the joints, and very especially wounds of the lung.

MEDICAL NOTES.

THE CHOLERA SITUATION IN RUSSIA AND CHINA.

— Recent cable advices indicate that from very small beginnings in the Russian province of Volhynia, cholera has suddenly made an expanding break in several directions, notably to the south and west. Various dispatches from Cracow, Lemberg, and other points show that it is spreading rapidly in Austrian Poland. Still more circumstantial stories come from southern Russia, where the epidemic has reached the vicinity of Kief, and even, it is rumored, the city itself. There can be merely guesses as to the extent to which the disease prevails in China. In the dispatches there are occasional references to its existence in the Liao-Tong peninsula, and in the kingdom of Corea, and there is every reason to believe that it has been very destructive in these regions. From the trustworthy statistics that are kept by the Japanese authorities, it is learned that up to the close of July there had been 9,500 cases of the disease in Japan more than one-half of which had proved fatal.

India has been remarkably free from this disease this year up to the present time.

NEW MEXICO ADOPTS THE ADVANCED STANDARD.—The New Mexico Territorial Board of Health at its meeting, June 19, 1895, adopted this standard for medical colleges: Examination will be required from all applicants to practise medicine in New Mexico who shall graduate after July 1, 1897, from any medical college not requiring preliminary examination of its matriculants, or equivalent evidence of satisfactory general education, and, for graduation, evidence of four years' study of medicine and four terms of lectures occurring in four separate years. Meanwhile, the present standard of three years' study, three terms of lectures in three separate years, and preliminary examination of matriculants will be maintained on all applicants who have graduated since July 1, 1890.

THE RESULT OF A LIBEL SUIT IN AUSTRALIA.—Mr. C. B. Elliott, Government Medical Officer in Geraldton, West Australia, sued the Victorian Express Newspaper Company for libel. The libel was contained in the form of a letter, asserting that the large number of cripples in Geraldton was owing to the incompetence and neglect of the hospital medical officer, Mr. Elliott. After a trial which lasted eight days, the jury awarded Mr. Elliott £500 and costs, the editor being also sentenced to fourteen days' imprisonment for some contempt of court occurring during the trial. — *Medical Record*.

THE FIRST CHINESE WOMAN GRADUATE.—The first Chinese woman graduate of an American medical college is Dr. Hu King Eng, who is now on her way to her native land, where she expects to practise her profession. She received her doctor's degree a year ago in Philadelphia, at the Woman's Medical College, and has taken a year's post-graduate course at the University of Pennsylvania. The success of women physicians in India is well known; there can be little doubt that there is a still wider field in more benighted China.

PERSISTENCE REWARDED.—Miss Bogolubska, of Merchinsk, a mining village in East Siberia, is a lady of great determination, who deserves the thanks of her sisters in other lands. She was one of a number of Russian women who had sought in foreign countries the advantages of a medical education denied them in their own land. After obtaining her degree from the University of Berne she returned to her native village, and, not being allowed to practise medicine, worked for eight years as a nurse. She was specially allowed by the authorities, however, to labor among the peasants who were stricken down in the cholera outbreak of 1892. This year she returned to St. Petersburg, where she obtained permission from the Czar to take a Russian degree, which confers the right of practising in any part of the empire. This privilege is now to be extended among her countrywomen generally, and the Woman's Medical

School in St. Petersburg, which was closed for political reasons in 1887, is soon to be reopened. — *Medical Record*.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, August 28, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 75, scarlet fever 41, measles 2, typhoid fever 48.

THE AMBULANCE SERVICE AT THE KNIGHTS-TEMPLAR PARADE.—The headquarters of the Auxiliary Militia Ambulance Corps for service at the Knights-Templar parade were on Clarendon Street, near Boylston. There were 30 men in the corps on duty, under the efficient command of Captain Myles Standish, M.D. Excellent service was performed in the case of the accidents which were fortunately mostly of a minor nature. The eight cot-beds were occupied during the day chiefly by ladies who had succumbed to the heat while watching the procession. The only serious casualty connected with the procession was the unfortunate death from "apoplexy" of a Sir Knight from Palestine Commandery, of Connecticut.

OPENING OF THE BOSTON CITY HOSPITAL'S DEPARTMENT FOR CONTAGIOUS DISEASE.—On Monday, August 26th, by invitation of the trustees of the Boston City Hospital, Mayor Curtis and the members of the City Council visited and inspected the wards and hospital buildings of the new south department on Massachusetts Avenue. On Wednesday, August 28th, the physicians of Boston visited the new institution by invitation of the trustees. On Friday a reception will be given to those of the general public who are especially interested in hospital matters.

THE NEW DEPARTMENT OF THE BOSTON CITY HOSPITAL.—At the reception tendered the City Government at the new department of the City Hospital, that for Contagious Diseases, President Shuman gave the following sketch of the buildings and history of their construction:

"These buildings were begun in December, 1892, and are shown for your inspection to-day, ready for occupancy with their accommodations for 210 patients, which can, if necessary, be extended to 250. We feel that the city of Boston has just reason to be proud of the new hospital department which opens to-day. The buildings were planned and constructed after careful consultation not only with our own staff and Superintendent Rowe, but with the most eminent authorities on hospital construction in the country, including City Architect Wheelwright, who designed the plans and succeeded most admirably in carrying them out.

"The trustees have pursued what they believe to be a wise policy; namely, that the buildings should be thoroughly constructed, fire-proof and of materials suitable for the treatment of infectious diseases; that is to say, that the walls, floors, furniture and furnish-

ings should be such as science teaches us are the best applicable for that purpose. The expense of such a hospital is much larger than that of a hospital devoted to the treatment of general medical and surgical cases.

"The trustees and medical staff confidently believe that there is no hospital, not only in this country but in the world, better adapted in general ways and in many details, for the treatment of infectious diseases, than the South Department of the Boston City Hospital.

"Without exception the opinion has been expressed that no other city has a hospital for infectious diseases equal to ours or that in any way approaches it. The trustees believe that this hospital will be taken as a standard from which other hospitals devoted to infectious diseases will be constructed, and not only congratulate your honor and the members of the city council but the citizens of Boston generally in the fact of this possession.

"I also mention the fact that another important group of buildings has been added to the hospital, consisting of a scientific laboratory, mortuary and mortuary chapel. The chapel affords an opportunity which has never before been possessed of having funeral services of patients of any nationality or creed, conducted in a fitting manner.

"Next to the new South Department, the trustees take especial pride in the scientific laboratory. There is already a pathological staff of seven physicians whose work in the hospital is exclusively in these laboratories, not counting the 30 house doctors who will do special work. There is no other hospital, outside of a medical college, which contains such appropriate and well equipped laboratories for scientific medicine as our own hospital."

With regard to the new buildings now under construction for the Surgical Department, President Shuman said:

"There are also under construction, two other buildings, — one the enlargement of the surgical operating-building, and the other a two-storied ward for surgical patients. The plans and details of the new surgical buildings have been seen by eminent surgeons in America, and they have been pronounced unique, and without a superior. They will add a capacity of 60 more beds for the treatment of surgical cases. Although we have 260 beds for surgical cases, the emergencies and accident cases have been so large that at times no cases other than injuries have been admitted, solely on account of room.

"Ten years ago the capacity of the hospital was 420 beds, while now, when the new surgical wards are completed, the total capacity will be 832 beds, or double what it was in 1885.

"Right here, I desire on behalf of the trustees, to call the attention of your honor and the city council to the urgent necessity for the completion of the hospital plan by taking by right of eminent domain, the houses on Massachusetts Avenue, and adding them to the

present Nurses' Home, as some of the nurses are now occupying beds in the hospital that are sorely needed for patients, besides which, 31 nurses are obliged to room outside."

NEW YORK.

A MEDICAL MARTYR OF THE LAST CENTURY.—The *Herald* recently published some of the inscriptions on the tombstones in the old Jewish burying-ground in New Bowery, and among them is the following: "To the Memory of Walter J. Judah, Student of Physic, who, worn down by his exertions to alleviate the sufferings of his fellow-citizens in the dreadful contagion that visited the City of New York in 1798, fell a victim in the cause of humanity the 5th of Tishri, A. M. 5559 (September 15, 1798), aged 20 years, 5 months, 11 days." The quaint sculpture on the head of the stone represents the Angel of Death waving his sword over the city, and an inscription in Hebrew gives a more extended tribute to the worth of the devoted youth.

Miscellany.

FAITH-HEALING OR SUICIDE.¹

AN inquest was recently held upon the body of a girl aged seventeen, who died in Brixton of acute tuberculosis and peritonitis from a perforating gastric ulcer, having been very ill since last Easter. She had no medical advice because, according to the evidence of the woman in whose house she had stayed, "she trusted in the Lord to heal her without medical aid." It is useless to point out to people of this cast of mind the falsity of their theological reasoning, but we do think that the legislature, which takes care to prevent people jumping off the monument or going on to ice too thin to bear their weight, might step in and prevent peculiar people and faith-healers from murdering their children by neglect. We should be the last to deny the power of faith, but, as a recognized authority says, "faith without works is dead," and it is a canon of theology that the Almighty works by means, and those means humanity is bound to use. The *New Science Review* for July contains an article entitled "Has Mental Healing any Scientific Basis?" We do not quite understand this question, but we gather from the article that help need not always come from without, but there is a broad field for "auto-suggestion and systematic concentration with happy results." The ways and means to become properly auto-suggestive is as follows: You say mentally to yourself — even mechanically at first — until the habit is formed, "I [the real ego] am well. I am strong. I am pure. I am perfect. I am one with the Divine Spirit of Wholeness." The next step is, "To ensure progress special times and seasons should be set apart for focalized thought and affirmation. . . . At times when the objective world, with all its cares and anxieties, may conveniently be barred out, the full glare of the consciousness is turned upon the divine ideal within, which thereby gradually becomes graphic and ruling." It is evidently quite easy to become a

¹ The Lancet.

mental healer, but we seem to remember that this process is not new. There was once a sect in the Eastern Church called the *Ομφαλοφύχοι*, who by steadily gazing at their navels were at length rewarded with a sight of the light (created or uncreated) which shone at the Transfiguration. This method, we suppose, is what Mr. Henry Wood, the writer of the article in question, calls "keeping company with his inner ideal." However, he does not seem to have much faith in the process he recommends, for he concludes: "As related to illnesses, prevention is the end to be sought, so that in time cures may be unnecessary." If any one by "keeping company with his inner ideal" can cure a gastric ulcer he would be a most valuable addition to our present therapeutic agents.

Correspondence.

SUBSCRIPTIONS TO THE INDEX MEDICUS.

WASHINGTON, D. C., August 22, 1895.

MR. EDITOR:—I enclose herewith a list of subscriptions to the *Index Medicus*, in accordance with the accompanying form, which I have thus far received. This is exclusive of subscriptions sent to Mr. George S. Davis, the former publisher of the *Index Medicus*. When the physicians return from their summer vacation I hope that this list will be largely added to.

Very truly yours, J. S. BILLINGS, M.D.

FORM FOR SUBSCRIPTION.

The undersigned hereby agrees to subscribe for one copy of the *Index Medicus* for . . . year.. at \$25.00 per year, subject to the following condition, namely, when 200 subscriptions have been received by the editors, the publication is to commence, and on notification of this I will send twenty-five dollars to them. If, by December 1, 1895, the 200 subscriptions have not been obtained, the attempt to revive the publication will be abandoned.

Address,

Address of Editors: Dr. J. S. Billings, Dr. Robert Fletcher, Library of the Surgeon-General's Office, Washington, D. C.

LIST OF SUBSCRIPTIONS FOR THE "INDEX MEDICUS" RECEIVED BY DR. BILLINGS TO AUGUST 21, 1895.

Albany, N. Y.: Dr. A. Vander Veer.
Baltimore, Md.: Dr. William Osler, Dr. H. A. Kelly, Dr. L. McLane Tiffany, Dr. I. E. Atkinson, Dr. W. S. Halsted, Dr. Henry M. Hurd.
Brooklyn, N. Y.: Medical Society, County of Kings.
Cincinnati, O.: Dr. P. S. Conner, Dr. F. Forchheimer, Cincinnati Hospital Library.
Denver, Col.: Colorado Medical Library Association.
Galveston, Tex.: Dr. J. P. Johnson.
London, Eng.: Royal College of Surgeons, England.
New Orleans, La.: Dr. S. E. Chailié, Dr. John B. Elliot, Dr. Edmond Souchon, Dr. Rudolph Matas.
New York City, N. Y.: Dr. G. T. Jackson, Dr. J. S. Thacher, Dr. John A. Fordyce.
Ogdensburg, N. Y.: St. Lawrence State Hospital.
Philadelphia, Pa.: Dr. J. C. Wilson, Dr. Wm. Pepper, Dr. De Forest Willard, Dr. S. Weir Mitchell, Dr. Geo. M. Gould, Dr. H. C. Wood.
Quincy, Ill.: Quincy Public Library.
Richmond, Va.: Dr. Hunter McGuire.
Rochester, N. Y.: Dr. John O. Roe.
Salt Lake City, Utah: Dr. S. H. Pinkerton.
Saranac Lake, N. Y.: Dr. E. L. Trudeau.
Washington, D.C.: Medical Department, U. S. Army, 10 copies, Library Surgeon-General's Office, 2 copies, Medical Department, U. S. Navy, 2 copies, U. S. Marine-Hospital Service, 1 copy.

AN IMPORTANT EARLY SIGN OF TABES.

BOSTON, August 24, 1895.

MR. EDITOR:—A number of years ago, while trying the effect of hyperflexion of the legs for relief of pain in tabes, I observed that it was frequently possible to flex the

leg at the hip, without bending it at the knee, so far that it would almost touch the ear without exciting the painful sense of popliteal tension which is so speedily felt by a person in health.

Since then I have once seen a brief reference to this fact, but I have never seen the sign described in the textbooks nor commented on at any length.

I have, however, convinced myself that it is not only an interesting feature of advanced cases of the disease, but that it may help one out at an early stage where the diagnosis is doubtful. I have recently seen a gentleman who presents no other signs of tabes beyond the presence of characteristic pains which have followed him for the past three years. The knee-jerks are both present, though one is less well marked than the other, and the same may be said of the reactions of the pupils to light. The patient has been seen by an eminent physician of New York who assured him that he had not tabes, and although I thought myself that the diagnosis could be made with confidence, yet I felt strengthened in this opinion by the presence of the sign referred to.

So far as I can now judge, the degree to which the hyperflexion is possible without exciting pain is proportionate rather to the pain than to any other symptom, and is not proportionate to the ataxia. The sign is certainly one which deserves study, though it is not invariably present.

Yours truly,

JAMES J. PUTNAM, M.D.

THE UTAH BOARD OF MEDICAL EXAMINERS REVOKE A LICENSE FOR UNPROFESSIONAL AND DISHONORABLE CONDUCT.

SALT LAKE CITY, UTAH, August 10, 1895.

MR. EDITOR:—At the July quarterly meeting of the Utah Board of Medical Examiners, a recent graduate of the Missouri Medical College, Dr. Robert W. Renwick, appeared before the Board for license to practise medicine in the Territory, and passed the required examination. Immediately thereafter he billed the town, alleging the wonderful and extraordinary powers of two human magnets, by free lectures and other advertisements.

At once the Board served notice upon Dr. Renwick to appear before them and show cause why his license should not be revoked for unprofessional and dishonorable conduct. The other parties to the fraud were arrested for practising without a license; they pleaded that they were only in the employ of Dr. Renwick, a licensed physician, which Renwick substantiated to the satisfaction of the court, and proposed to shield the party by the license of the said Board.

After resorting to all the strategy possible to gain time in the courts, it was brought to trial, and the license promptly revoked by the Board. The result is that Renwick & Co. moved on to Nevada and California.

The Supreme Court of the Territory has affirmed the validity of the Utah Medical Bill, and the powers of the Board to decline, revoke or withhold licenses to practise medicine, for cause; and the court further says, it is absurd to expect the judiciary to be the judge of respectable medical colleges of good standing, or of unprofessional conduct. Such powers rightfully belong to the Board of Medical Examiners.

It is thus seen that the Utah Medical Board are ready to uphold the honor of the profession without fear or favor. The Board consists of seven physicians—four regular, two homeopathic, and one eclectic. The requirements are second to none in the country, and are most rigidly carried out, as is seen by the large number of applicants refused licenses at each examination. At a recent examination only two candidates were successful out of ten applicants.

We heartily congratulate the Utah Board on their prompt discharge of a duty which, although disagreeable, is yet necessary for the good of the public and the profession.

Yours truly,

P.

METEOROLOGICAL RECORD.

For the week ending August 17th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.		Daily mean.	Maximum. Minimum.	Daily mean.						We'th'r.			
					8.00 A. M.	8.00 P. M.					8.00 A. M.	8.00 P. M.		
S...11	29.89	72	79	64	46	61	54	N.	S.E.	3	9	C.	F.	.40
M...12	29.81	68	73	63	92	90	91	S.E.	N.E.	11	5	R.	O.	
T...13	29.88	68	73	62	96	92	91	S.E.	E.	4	4	O.	O.	
W...14	29.98	70	79	62	59	76	68	N.	S.	9	9	C.	C.	
T...15	30.04	74	82	66	49	73	61	N.	S.W.	13	9	C.	C.	
F...16	30.10	72	76	69	65	53	59	N.E.	S.	7	9	C.	C.	
S...17	29.99	72	80	64	84	86	85	S.E.	S.	4	12	C.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 17, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,956,000	916	446	28.82	8.80	20.02	.99	3.41	
Chicago	1,000,000	—	—	—	—	—	—	—	
Philadelphia	1,139,457	558	175	25.20	10.26	15.84	2.88	2.70	
Brooklyn	1,043,000	520	274	28.12	8.36	20.52	.76	3.80	
St. Louis	540,800	—	—	—	—	—	—	—	
Boston	501,107	254	140	25.74	6.24	20.28	1.56	2.73	
Baltimore	500,000	—	—	—	—	—	—	—	
Cincinnati	325,000	—	—	—	—	—	—	—	
Cleveland	325,000	89	49	32.48	4.48	30.24	1.12	—	
Washington	285,000	135	62	25.16	5.92	11.76	5.18	.74	
Pittsburg	272,000	—	—	—	—	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	36	12	22.24	8.34	11.12	2.78	—	
Charleston	65,165	41	15	19.52	4.88	14.64	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	100,410	33	19	33.33	12.12	24.24	—	—	
Fall River	92,233	42	26	45.22	—	38.08	4.76	—	
Lowell	90,613	—	—	—	—	—	—	—	
Cambridge	79,007	32	18	34.34	—	21.91	—	9.39	
Lynn	65,123	22	11	22.75	9.10	13.65	4.55	—	
Springfield	50,284	—	—	—	—	—	—	—	
Lawrence	43,900	—	—	—	—	—	—	—	
New Bedford	47,741	21	11	38.84	14.28	38.08	4.76	—	
Holyoke	43,948	—	—	—	—	—	—	—	
Brockton	33,939	8	0	25.00	12.50	25.00	—	—	
Salem	33,155	20	7	40.00	10.00	40.00	—	—	
Haverhill	32,925	9	6	11.11	11.11	11.11	—	—	
Malden	30,209	7	5	14.28	42.84	—	—	—	
Chelsea	29,406	18	10	22.22	—	—	—	11.11	
Fitchburg	29,383	14	11	57.12	—	42.84	7.14	—	
Newton	28,837	10	4	10.00	10.00	10.00	—	—	
Gloucester	27,293	—	—	—	—	—	—	—	
Taunton	26,954	16	11	—	—	—	—	—	
Waltham	22,098	6	3	33.33	—	33.33	—	—	
Quincy	19,642	—	—	—	—	—	—	—	
Pittsfield	18,802	6	5	66.66	—	66.66	—	—	
Everett	16,585	7	5	42.84	—	14.28	—	28.56	
Northampton	16,331	7	5	42.84	—	42.84	—	—	
Newburyport	14,073	6	2	50.00	16.66	16.66	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,995; under five years of age 1,385; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 825, consumption 243, acute lung diseases 186, diarrheal diseases 600, diphtheria and croup 82, typhoid fever 50, whooping-cough 39, measles 20, cerebro-spinal meningitis 17, scarlet fever 10, malarial fever 9, erysipelas 5, small-pox 3.

From whooping-cough New York 19, Brooklyn 8, Philadelphia 7, Nashville 2, Cleveland, Providence and Newburyport 1 each. From measles New York 10, Philadelphia 8, Brooklyn 2. From cerebro spinal meningitis New York 5, Worcester 3, Washington and Chelsea 2 each, Philadelphia, Fall River, Lynn, Somerville and Fitchburg 1 each. From scarlet fever Boston 3, New York 2, Philadelphia, Providence, Cambridge, Malden and Woburn 1 each. From malarial fever Brooklyn 5, Charleston 2, New York and Nashville 1 each. From small-pox Philadelphia 3.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 24, 1895.

S. H. DICKSON, surgeon, detached from the Medical Examining Board to temporary duty in Bureau of Medicine and Surgery.

H. T. PERCY, passed assistant surgeon, detached from the Washington Navy Yard to duty as member of Medical Examining Board, Washington.

C. P. BAGG, assistant surgeon, detached from the "Monterey" and granted two months' leave.

H. D. WILSON, assistant surgeon, on arrival of "Monongahela" at Annapolis, detached from that vessel and ordered to temporary duty at the Washington Navy Yard.

APPOINTMENT.

DR. ABNER POST has been appointed visiting surgeon to the Long Island Almshouse and Hospital.

RECENT DEATH.

DR. KURT SCHIMMELBUSCH, Privat-Dozent in surgery at the University of Berlin, died on August 1st, of embolism of the lungs following a thrombosis of the left iliac vein. He was only thirty-five years of age, but owing to his original work in surgery and pathology had won for himself a high place as a scientific investigator. His researches on coagulation of blood and thrombosis carried on in conjunction with Eberth, and his later important work on the aseptic treatment of wounds are especially well known. He was for many years assistant at Billroth's clinic.

BOOKS AND PAMPHLETS RECEIVED.

Hæmatoblasts and Blood Platelets. By Dr. M. L. Holbrook, of New York. Reprint. 1894.

Credulity and Skepticism in Modern Medicine. By George Henry Fox, M.D., New York. 1895.

Transactions of the Medical Society of the State of California, Session of 1895. San Francisco: Printed by the State. 1895.

Epithelial Changes Produced by Irritation. By D'Arcy Power, M.A., M.B. (Oxon.). F.R.C.S. (Eng.). Reprint. 1894.

Modern Medicine and Homœopathy. By John B. Roberts, A.M., M.D. Philadelphia: The Edwards & Docker Co. 1895.

On Movable Kidney. Imperforation of the Rectum. By George Ben. Johnston, M.D., Richmond, Va. Reprints. 1895.

The Medical Library for the Medical School or the Small Community. By Bayard Holmes, B.S., M.D., Chicago. Reprint. 1895.

Washington University, Medical Department, The St. Louis Medical College, Fifty-fourth Annual Announcement 1895-96, and Catalogue for 1894-95.

Washington University, Dental Department, Thirtieth Annual Announcement and Catalogue of the Missouri Dental College, St. Louis, Session of 1895-96.

Verlässliche Methode der arzneilosen Behandlung der chronischen Obstipation. Von Dr. J. Schreiber, kaiserlicher Rath, Aussee-Meran. Wien und Leipzig, 1895.

Address on the Founding of the Illinois Hospital. The Dilator in Diseases of the Air Passages and the Ear. By Seth Scott Bishop, M.D., of Chicago. Reprints. 1895.

A Report of the Abdominal Sections in the Gynecological Department of Mercy Hospital from July 1 to October 1, 1894. By Hubert A. Royster, M.D., Resident Physician, Pittsburgh, Pa. Reprint. 1894.

The Operative Treatment of Fistula in Ano. The Treatment of Anal Fissure, or Irritable Ulcer of the Rectum. The Treatment of Fistula in Ano by Lange's Method of Immediate Suture of the Tract. Extirpation and Colotomy in Cases of Carcinoma of the Rectum. By Lewis H. Adler, Jr., M.D. Reprints. 1892-93-95.

Abdominal Section in Ectopic Gestation where the Fetus is Living and Viable, with Report of a Successful Case. A Case of Didelphic Uterus with Lateral Hematocolpos, Hematometra and Hematosalpinx, with some Remarks on the Treatment of these Conditions. The Treatment of Chronic Endometritis. By X. O. Werder, M.D., Pittsburg, Pa. Reprints. 1894-95.

The Pocket Materia Medica and Therapeutics, a *Resumé* of the Action and Doses of all Official and Non-Official Drugs now in Common Use. By C. Henri Leonard, A.M., M.D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynecology, Detroit College of Medicine; Member of the American Medical Association, etc. Second edition, revised and enlarged. Detroit: The Illustrated Medical Journal Co. 1895.

Lecture.

METRITIS AS A CAUSE OF MISCARRIAGE.¹

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,
Instructor in Clinical Gynecology, Faculty of Medicine, Tufts
College; Member of the Société Française d'Electrothérapie, etc.

LECTURE II.

GENTLEMEN:—In this lecture, I propose to study the different varieties of metritis that produce miscarriage. The subject is a long but interesting one, and I trust that you may find it so.

According to the modern theories, it may be said that all inflammations of the uterus are of infectious origin. It is now a long time since Schroeder put forth this idea; but it was not generally accepted until the writings of Steinschneider and Winter on gonorrhea, and those of Goenner, Doederlein, Straus, Sanchez Toledo, Peraire and Widal on puerperal fever had appeared. The most frequent infection is either exogenous or hetero-infection by germs coming from without. It is also an established fact that in some cases, more infrequent however, the infection comes from the uterus or vagina, in which case you have a real auto-infection. In the healthy female, the vagina affords a home to a host of virulent bacteria which enter into action whenever favorable circumstances are present, as, for example, any *débris* that may remain *in utero* after a labor or miscarriage.

According to the part attributed in the etiology of the abortion, the metrites may be divided into two groups. The first have an undoubted and marked influence in predisposing patients to abort; these are puerperal and gonorrheal infection. Those of the second group are not so characteristic in the production of miscarriage, either on account of their nature or the degree of their influence on interrupting pregnancy. In this class I include syphilis, tuberculosis and the general infectious diseases.

We will now proceed to the study of each one separately, and will begin with puerperal metritis. It is now generally admitted that a great number of metrites have their origin in a septic inflammation brought on by a labor or miscarriage, and have for their agent the streptococci coming from the vagina, and usually brought from without by means of unclean instruments or hands.

After labor, the uterus even when normal, or after an abortion, presents a most favorable soil for culture to all infectious bacteria. At the same time the organ is in a particular condition of hyperplasia and congestion, which demands certain special hygienic conditions in order to progressively disappear. Now, these conditions are unfortunately very often neglected, and it is for this reason that post-puerperal metritis is so frequently met with. It occurs especially when the labor or miscarriage, as the case may be, has been abnormal, and may continue forever in a chronic form if an antiseptic treatment of the most rigorous kind is not immediately put into action. As after labor, there is only a thin layer of mucosa made up of a stratum of young cells, and the bottoms of the glandular culs-de-sac are widely open, it is evident that an infection which is deep in its origin, will remain deep.

In post-partum endometritis, if the uterine muscles

contract promptly, thus reducing the surface of the cavity of the organ, the mucosa is massed together, giving it the appearance of thickness, and little by little during reparation, it will enclose in its depth the tissues primitively invaded by septic inflammation, and a chronic condition is set up from the beginning. This metritis often produces sterility; but you must not think for a moment that conception or pregnancy is not possible in these cases. However, it is exceptional that labor takes place normally or at term, and from my observation, miscarriage is extremely frequent, and I do not hesitate to say that metritis is the cause of the greatest number of abortions.

I must not forget to mention, as an important factor in the production of endometritis post-partum, the too hasty getting up of the patient after labor. It is a hard matter to decide what pathological type a post-partum endometritis due to infection will assume. I have met with many varieties, most generally diffused, with tendency towards the plastic, catarrhal or hemorrhagic types, although I am inclined to believe that the latter only occurs when there remains some *débris* of the decidua in the uterine cavity after an abortion, and that in this case there is no infectious process.

Beside puerperal metritis, there are other metrites which occur after attenuated septic conditions, and probably have their starting-point in the vagina, in which altered secretions or the blood of menstruation form the culture media for the development of the pathogenic agent; and a traumatism or severe congestion which causes a disturbance or lesion of the lining epithelium will start up an inflammatory process that rapidly extends over the entire mucosa. This form of metritis will also facilitate miscarriage.

We now come to the important subject of gonorrheal metritis; and although it is only recently that this type of uterine inflammation has been admitted by pathologists, still Barnes and Schroeder taught that gonococci infection played an important part in the etiology of miscarriage. Richard and Bousquet consider it as very frequent. The uterus is a more favorable medium for the growth of Neisser's organism than the vagina, on account of the special epithelial lining of the latter, as has been demonstrated by Steinschneider and Eraud.

Gonorrheal metritis is often primary, while the specific vaginitis is the consequence, the latter condition being rather a desquamation or maceration than an inflammation proper. This, I repeat, is often the case, but not always so, for I have seen cases in which the vaginitis was certainly primary, and under proper treatment the uterus was not infected.

The cervix is the primary seat of infection of the uterus, and from this the gonococcus invades the remainder of the organ. The infection may remain for a long time localized in the cervix in an attenuated and latent state, and then after traumatism, fatigue or labor, the infection lights up and quickly invades the entire organ, even extending to the tubes and peritoneum.

Noegerrath even went so far as to say that 75 per cent. of women infected with gonorrhea had endometritis and perimetritis following labor. Pozzi does not think this proportion too large if perimetritis be replaced by salpingitis. Sterility is a common consequence of this form of metritis and especially so if the adnexa are involved. However, gonorrheal endometritis is met with in pregnant women. It often

¹ Being four Clinical Lectures delivered at the Suffolk Dispensary, Boston.

begins before pregnancy, and the presence of the fecundated ovum in the cavity of the uterus, only aggravates the pre-existing inflammatory lesions; and Veit is even of the opinion that this always happens, the endometritis only showing itself for the first time during pregnancy, although it was there before this took place. But let me add that a healthy uterus can be infected during gestation, and this certainly does sometimes occur.

The pathological type that this form of metritis takes in pregnant women is, in the majority of cases, pyogenic; and there are also, perhaps, certain hyperplastic forms. Whatever this may be, it often interrupts the pregnancy, and Müller considers it a frequent cause of habitual abortion. Winckel believes that with the progress of the disease a similar pathological process takes place on the surface of the ovum, which results in rupture of the membranes.

Of all infectious diseases which complicate pregnancy, syphilis is the most important, especially on account of its great frequency. Its influence on gestation has been known for a long time, and it is exceptional that gestation goes on to term without some mishap. According to Blaise, the proportion of miscarriage and premature labor is 36.8 per cent.; while Legrand has found about the same, namely, 35.2 per cent.; in other words, about one miscarriage out of every three full-term pregnancies. Syphilis varies greatly in its effects, according to its age and whether the subject has followed a regular course of treatment or not. If the woman was syphilitic before conception, Fournier believes that she is more predisposed to miscarriage than if she contracted the disease during pregnancy. It is a fact that a large proportion of abortions follow a syphilis contracted before conception. In this case several miscarriages will succeed one another; but as the disease becomes attenuated, the fetus will develop to a greater age, and dies more and more late in gestation, and may even go to term, being born with or without syphilitic symptoms, and only die later.

It is also a fact that the severity of the syphilitic accidents and the abortions vary in an inverse relation to the age of the syphilis; but it is impossible to calculate how much time it will take for an untreated maternal syphilis to lose its effects on the ovum. If the subject becomes infected at the same time as conception the danger is about as great, and, as a rule, she will abort; but when the disease is contracted during gestation, and especially during the last three months, there is much less chance of the pregnancy being interrupted.

Syphilis in the father may not only infect the mother and through her the fetus, but may, although exceptionally, infect the child directly, as Fournier has observed; and in this case, if the mother contracts the affection, it will be from the fetus through the placental circulation. The majority of writers attribute the production of abortion in syphilis to the fetus. The syphilitic virus, whose nature is still unknown, passes from the mother to the fetus and infects it, while the serious organic lesions produced by the infection, death, maceration, finally produce its expulsion from the uterus. There are many cases of this kind, but I am of the opinion that they are not as common as those in which syphilis has produced lesions of the uterus. We have many cases on record of syphilitic metritis when there was no pregnancy,

and I believe that when we shall have at our disposal the same means of diagnosis for syphilitic-metritis that we possess for the tubercular variety, recognition of the affection will become of ordinary occurrence. Bonnet records many cases of syphilitic metritis in his thesis, and even mentions some in which the subjects who had always had a normal uterus, were suddenly seized with an acute metritis at the time that the syphilis appeared. He concludes that these uterine symptoms met with in the very early stage of syphilis are the result of a characteristic anatomical lesion of the uterus, which develops by the presence of the general infection.

Secondary syphilis acts on the uterus in the same manner as on the liver, kidney and other viscera; and as the uterus is the principal organ of woman, and for that very reason is, like all active organs, subject to disease, it is one of the first to undergo the bad influence of this general infection. It becomes diseased and the symptoms of this anatomical change are leucorrhea, metrorrhagia and pain, symptoms which are not to be directly attributed to the syphilis, but to a well-developed metritis, which has been produced by the syphilitic infection. The case of a young syphilitic woman is recorded by Petit, who developed a typical endometritis during the secondary stage, while the genital organs presented no signs of specific accidents.

I have recently had a young married lady under my care, who consulted me for great pain and swelling in her nose. Another surgeon had told her she had polypus and advised removal. Not finding any polypus, and after careful examination, I made the diagnosis of syphilitic necrosis of the bones of the nose and placed the patient on protiodide of mercury and iodol. She did so well that in ten days' time the lesions of the nasal bones had about disappeared. I then sent her to Schintznach in Switzerland for the summer. She returned in the fall perfectly free from any manifestation of the disease, when early last winter she developed as acute a type of metritis as you could wish to see. Under mercury and iodol internally and a little local treatment this metritis subsided, and according to my advice, the young lady is at present taking a cure at Luchon. Now, this patient who had been divorced some two years before she came to me, had never had any skin or other accidents until those of which I have spoken, and knowing the social position and reputation of my patient, I feel certain that the metritis in her case could have no other explanation than that of the tertiary form of a syphilis which she had contracted from her husband soon after their marriage.

Heitzmann believes that the proliferation of the internal lining of the vessels is a characteristic sign of syphilitic metritis.

Admitting that the non-pregnant uterus may be the seat of a syphilitic metritis, it will be all the more susceptible to this affection during pregnancy, which renders it a *locus minoris resistentiæ* in the true sense of the term. It is true that in order to prove this, we have no histological or bacteriological data, but there are clinical facts on which we can base this hypothesis. When the feticide action of syphilis is severe, when both parents are infected to a high degree, the fetus is generally killed by the syphilitic virus, and is expelled sometime afterwards in a macerated condition. In this case the endometritis is no longer a

cause; it may even occur after the death of the fetus, according to Duncan and others. But if, for example, the mother is alone infected, especially if syphilis was contracted after conception, and if pregnancy is troubled by pains, leucorrhea and slight hemorrhages, the fetus will come away living, and there will be a retention of the hypertrophied decidua with well marked changes in the decidua serotina. Here, gentlemen, I do not see how this condition of affairs can be explained in any other way than by a syphilitic endometritis.

Infection of the fetus and endometritis may also coexist, in which case pregnancy is interrupted, the fetus being expelled in a macerated state, and the hypertrophied placenta is retained. This hypertrophy of the placenta, which is so often related to endometritis of pregnancy, has been put forward by Pinard as symptomatic of syphilis; and I have seen this pathological condition in several syphilitic subjects whose children were born with evident syphilitic lesions, but this question will have to be studied, since as yet nothing is established regarding the histology of syphilitic placenta. The existence of primary genital tuberculosis is no longer doubted. In 1884 Fernet demonstrated it in women, showing its sexual origin following coitus with a tuberculous male. The tubes are most always the starting-point of tubercular lesions; but tuberculosis of the uterus is also known, and it is a positive fact that it can be primary, following direct inoculation.

Pozzi considers it an infrequent disease, while Jouin and others believe that tubercular endometritis is more common than tuberculosis of any of the other genito-urinary mucosa, for the reason that the endometrium is soft, spongy and very rich in tubular glands, all of which conditions are especially favorable for the development of an essentially anaerobic bacteria. The disease is, in the first stage, a tubercular degeneration of the uterine mucosa, but the parenchyma of the organ may also be invaded.

There are two types of tubercular endometritis, one is of tubal origin or descending endometritis, the other is ascending and probably sexual in origin; the first type is by far the most frequent. The diagnosis has often been verified by microscopical examination and by the inoculation of guinea-pigs or rabbits. Sterility is very common as long as the tubercular inflammation exists in the mucosa, although Cooper mentions a case in which conception took place in a tuberculous uterus, the woman dying in the third month of gestation from a spontaneous rupture of the organ.

When endometritis or salpingo-endometritis occurs during pregnancy, abortion is nearly always unavoidable. The following case, due to Gusserow, is instructive. A woman was afflicted, after conception had taken place, with a descending salpingitis and a tubercular endometritis, and aborted at the fifth month. The post-partum was complicated by a puerperal infection and acute miliary tuberculosis, whose progress was found to be due to a thrombus derived from a large vessel in the uterine walls, in the centre of which was found Koch's bacillus.

Secondary tuberculosis is much more frequent, that is to say, a tuberculosis developing during a tubercular degeneration in some other organ, especially the lungs. You consequently can have a secondary tubercular endometritis in pulmonary tuberculosis, as well

as a pulmonary infection following tuberculosis of the uterus and tubes.

We have recently had a case at this clinic of what I considered and diagnosed as tubercular salpingo-endometritis. The history is as follows: A. W., age twenty-one, married. She is a pale, thin and sickly-looking subject. Complains of pains between the shoulders. Husband decidedly tuberculous. The patient coughs a good deal. Appetite poor, bowels irregular, tongue and mucosa pale, pulse-beat weak, 81 to the minute. No bladder symptoms. Sleeps well. Menstruated at fourteen, regular, no pain until married at seventeen, shortly after which menstruations ceased. First child three years ago, labor normal; second child sixteen months ago, precipitated labor, post-partum hemorrhage, and retained placenta which was removed manually. Since last labor the menses have not appeared. There is profuse leucorrhea, pain in left ovarian region, the latter rendering the patient incapable of doing anything. Examination of chest shows the heart to be small, while in both apices of the lungs fine crackling râles are heard; dulness of apices on percussion. Examination of the genital organs showed a lacerated perineum, uterus anteverted, slightly tender and enlarged, and rather bound down by adhesions, right adnexa apparently normal, left tube about the size of a small sausage and very tender.

Since the above notes were taken the patient has had a hemoptysis, and the lung symptoms are decidedly worse. In the case of this patient I would not like to say whether the tuberculosis of the organs of generation were the primary seat of the disease, from direct inoculation from the husband, or whether the infection was secondary to the lungs.

As to whether there is a secondary tubercular endometritis in phthisical pregnant women, or what part it plays in interrupting gestation, I am not prepared to say; but if it is found consecutively in the non-pregnant female, or primarily after conception, it appears to me that its existence is a well-founded possibility, and the case that I have just related seems to bear out this opinion. If it is present during pregnancy, I think it probable that it would not remain without influence in the production of abortion, although Lop thinks that tuberculosis does not fatally interrupt pregnancy, but that it is a continual menace for both mother and fetus. It is of common observation that as long as a phthisical woman remains in fairly good condition, pregnancy goes to term; but if the affection becomes worse, miscarriage is pretty certain to occur.

Intoxication of the organism is generally admitted to be the cause of miscarriage in these cases. As you know, Koch's bacillus, although it has been reported to have been found in the blood of the living, does not often invade this tissue, for I consider the blood as a tissue; it is the toxins secreted by the organism that do the harm. That the bacillus of tuberculosis can pass from mother to child is an established fact and Herrgott, of Nancy, demonstrated the tuberculous virulence of the amniotic fluid obtained from a phthisical woman.

The knowledge of the fact that various pathogenic organisms can pass from mother to fetus is a great scientific conquest, but there are various opinions regarding the part played by the placenta in this process. For many authorities, changes in the placenta are

not considered as essential for the transmission of bacteria, and Chambrelent is of this opinion, for in his experiments on female rabbits he never found that organ pathologically altered, but Malvos believes that in order that a mother can directly inoculate the fetus with micro-organisms there must be a lesion of the placenta, while Schmorl and Birch-Hirschfeld found small granulations and Koch's bacilli in the placenta of tubercular guinea-pigs.

Last summer Charrin and Duclert reported a series of experiments, showing, on the one hand, that intoxication by the toxines, and, on the other, external poisonous material, as lead, mercury or substances derived in certain cases from cellular life (as lactic acid) aid the passage of bacteria through the placenta in a variable degree. According to these writers, the glands which are often excellent fortresses are after a time destroyed by the secretions of the bacteria, as, for example, the kidneys, the organisms then penetrating, going from the capillaries into the tubuli, especially after the epithelial structures are deteriorated. And they conclude that at present they would say that the toxines act more on the cells of the organism than on the virus itself. Rémy examined the placenta of phthisical women who had had premature labors, and found their uterine surfaces whitish in color while there was a degeneration of the decidual cells.

Consequently, I think it safe to hold that in some cases tubercular endometritis is consecutive to a pulmonary infection, and may interrupt a pregnancy as well as producing lesions of the placenta, and by this means infecting the fetus.

Original Articles.

THE ETIOLOGY OF DIPHTHERIA AND THE USE OF ANTITOXIN.¹

BY HAROLD C. ERNST, M.D., BOSTON.

THE etiology of diphtheria may be said to be so firmly settled at the present time that it is not necessary to rehearse the proofs that have been brought forward to demonstrate it; but the difference between diphtheria and those processes that resemble it do not seem to be any too clearly impressed upon the minds of the general profession.

The recent advances in our knowledge of the infectious diseases have not met with ready belief, possibly because of a lack of understanding of the changes that these advances impose. It is not an easy matter to learn that not all processes presenting similar clinical pictures are due to the same cause; and it appears to be equally difficult to bear in mind that entirely different series of phenomena may be produced by the same infective agency, acting on individuals with different personal peculiarities, and even in the same individual in different localities.

Now the recognition of these facts and the bearing them constantly in mind is absolutely necessary for understanding the present position in regard to the etiology of diphtheria. This disease is no longer to be considered to be one set up usually in the throat, to be detected by a certain definite chain of symptoms, but the name must be confined to that series of changes

in which the bacillus first seen by Klebs, and first studied by Löffler, is active as a causal factor.

The history of the long series of experiments by which this has been established would be tedious to rehearse in this place, but since the very beginning, with the publication of Löffler's work, the evidence has been accumulated, until now there can be no doubt of this fact, that the bacillus frequently called by his name is the cause of by far the larger number of cases having the clinical aspect of diphtheria, and that, therefore, this name should be given to the processes set up by this bacillus and to none other.

At the same time, it should be very carefully borne in mind that there are other changes, occurring not infrequently, that resemble diphtheria as thus defined very closely, and that at present are indistinguishable from true diphtheria by any practicable test but that of the cultural examination. Practically such cases may be just as severe and probably just as infectious as true diphtheria, although not usually so, so far as my knowledge extends; but this fact does not in the least lessen the importance of an exact diagnosis; it should rather serve to arouse an increased enthusiasm in the study of what these other processes are.

The facts being these, it is natural that the question should be asked: "What difference does it make if my patient has a 'bacillus' sore throat, or any other kind of sore throat, if the clinical picture be the same?" But such a question can hardly be repeated in earnest after the events of the last year. Of course, it makes as much difference as it does whether it be true tuberculosis or not in a person with a destructive process in the lung.

We are supposed to be entering upon an era of "specific" medication based upon the knowledge gained by our studies of the bacteria and other micro-organisms; and surely, if specific treatment is to be carried out, a specific diagnosis must go hand in hand with it. This may appear to be an unnecessary reiteration of facts known to us all, but these facts are not always borne in mind—the best example of what I mean being found in connection with the disease under discussion to-day. It is the custom abroad, in many of the hospitals, to inject *all* cases of sore throat with the antitoxin of diphtheria, without waiting for the result of the cultural diagnosis; and from one point of view, this method of procedure is perfectly justifiable and has been adopted at least in some instances in this country. It is right to do this, for the reason that all experience and analogy show that the earlier the antitoxin is used the better the results; and the claim is still made in Berlin that no case has been lost when the injection has been made on the first or second day of the disease—of course, after that time the mortality increases. If, as it is supposed, the antitoxin has no deleterious effect in non-diphtheritic cases, then, of course, no risks should be run by delay in its administration. On the other hand, it is difficult to see how the antitoxin can have had a beneficial effect in cases of recovery in non-diphtheritic cases in which it has been used. It either is or is not a specific against diphtheria, and so far as we yet know it has no specific action upon the bacteria or their products that are concerned in the production of the non-diphtheritic processes in the throat. We must conclude, therefore, that in the cases in which its use has apparently been beneficial the results are merely coincidences, or else true diphtheria was present after all.

¹ Read at the Annual Meeting of the Massachusetts Medical Society, June 12, 1895, and recommended for publication by the Society.

This conclusion seems necessary, for the reason that the whole of "serum-therapeutics" depends upon it, for which statement some explanation may be found in the lines of modern research. These are almost wholly towards the question of immunity. What this is supposed to be it is not necessary to discuss at length, but we may recall that there is a "natural" and an "acquired" form; the former existing in certain races of animals or in single individuals of a race, rendering them insusceptible to the attacks of certain infectious diseases. The latter is the insusceptibility to a second, acquired by individuals who have passed successfully through a first attack of an infectious disease, and is of very varying duration.

Now it has been known for some time that this acquired immunity may be artificially induced in animals by varying procedures connected with manipulation of the bacteria or their products, or, occasionally of the animals themselves. Of course, the discovery of the possibility of successfully accomplishing this object in a manner free from danger was, to the medical man, like a burst of sunlight through a fog to the sailor; and the literature of modern experimental medicine is largely made up of the record of efforts to this end. Thus far, diphtheria is the disease in which these efforts give the greatest promise of success, but at the best this success cannot be said to be complete until some better means of preparation and administration has been devised for the remedy used.

The exact methods by which the antitoxin is produced will be treated later; the consideration of the steps that have led up to its use at all may, however, be of interest, and these steps include all of those that have been taken in the attempts to secure the artificial immunity just spoken of.

The theories of the causes of immunity are many, and we do not yet know whether one or all of them are to be considered active in producing the result; the truth appears to lie between the extremes, and the facts seem to show that immunity can be explained only by a combination in varying degrees of activity of the several causes that have been suggested, and that at one time one of these is the more prominent, and at another time, or in other individuals another takes the more prominent part.

The important theories that have been advanced to explain the production of immunity may be briefly stated as follows: First, and especially upheld by the French, is that of "phagocytosis," due, so far as its elaboration is concerned, to Metschnikoff. According to him, the phagocytic power is exercised by the leucocytes, of which he distinguishes several varieties. The *lymphocytes* are small leucocytes with a large nucleus, that are surrounded by a small quantity of protoplasm; they are very numerous in lymph, and present all degrees of shape in their transformation into large leucocytes called *mono-nuclear leucocytes*, whose nucleus is frequently in the shape of a kidney or bean. The *eosinophilic leucocytes* of Ehrlich have a lobulated nucleus, and their protoplasm contains certain granules that stain intensely with the acid aniline dyes, especially with eosine; they are supposed to develop at the expense of the bone marrow. The most numerous of the leucocytes are called *polynuclear*, for the reason that their nuclei are most frequently separated into several parts by exceedingly fine lines of division; their protoplasm contains granules that most frequently stain with a mixture of the acid and

basic dyes only, and they are therefore often called *neutrophilic* leucocytes; they develop in the blood from the small cells furnished by different organs. All leucocytes throw out protoplasmic appendages that enable them to move, but not all of them are capable of englobing foreign bodies, that is to say of "phagocytosis"; this property belongs only to *mono-nuclear* and *neutrophilic* cells, and permits them to englobe the bacteria with which they find themselves in contact, and these bacteria are often englobed in the living condition. This property of englobing and destroying virulent bacteria has been said by one set of observers to be the cause of immunity; but many experiments, those of Charrin especially, have shown that there occur substances, in the fluids of immunized animals, that modify the bacteria and their action, independent of the presence of the leucocytes, showing that phagocytosis cannot explain all the phenomena of immunity at all times.

The bactericidal power of the blood serum is another of the causes of immunity that has been put forward. Grohman and Fodor first demonstrated that when bacteria were grown in the blood their vitality was diminished, but the final result of the work of Buchner, Ogata, Lubarsch, Nissen, Hankin, and many others, is to show that the destruction of the bacteria in the serum is much more active out of the body than in the vessels; if the cells and proteid materials of defibrinated blood be allowed to settle, the bactericidal power is found in the sediment and not in the serum; when the leucocytes remain intact outside of the body, the serum is not bactericidal, but becomes so when the white globules are destroyed. As a conclusion from all the work upon this line of research, it would appear that the phagocytes destroy the bacteria by digesting them, and that the feeble bactericidal power of the living serum exists as a result of the breaking up of some few phagocytes in the body (Cheron).

Third, and most important to our present subject, is the theory of the "antitoxins," claimed by the French to be a rejuvenation of the old theories of Chauveau. These antitoxins have been worked out for but a few diseases at all, and farthest in diphtheria, and we do not even yet know precisely what they are.

One theory of their formation is this: The bacteria produce, during their growth, a new compound, a toxine, which is hurtful in varying degrees to the tissues in which it is formed, and which excites a new functional activity in the tissue cells. This new functional activity results in the secretion by these cells of a new product that has a neutralizing effect upon the toxine. This process goes on in all cases of diphtheria, for example, and as the formation of the neutralizing substance progresses more rapidly than the production of the toxine, recovery occurs; and, on the other hand, if the toxine is produced sufficiently to prevent the appearance of the new functional activity of the cells, recovery does not occur. Precisely how the neutralizing effect of the antitoxin takes place is not known. It is not by a direct chemical action, at any rate in tetanus, for it has been shown (Buchner) that a prolonged contact of the tetanus toxine with the antitoxin does not destroy the former. It would seem, therefore, that these two substances are antagonistic only in the sense that one — the antitoxin — deprives the tissues of their receptivity for the toxine. However that may be, the experimental evidence shows conclusively that it is possible to produce an immunity

to an infectious disease by artificial means, and that this immunity may be produced in various ways.

The attempts to secure immunity have been carried on for years; they were begun before the object aimed at was even fairly understood. From the substitution of a milder disease for a malignant one of the same type, as is done in vaccination against small-pox, the chain of experiments has extended through the use of the various forms of attenuated virus and bacterial products to this last one which gives so much promise. The use of the serum containing the antitoxines is but the natural growth along the line in which experiment has been directed since the study of the bacteria began under modern conditions, and the whole history is better illustrated in the case of diphtheria than in any other disease. Beginning with Löffler's cultivation of the bacillus (1883), our knowledge of the etiology and management has steadily advanced. Roux and Yersin marked an epoch by their classical monograph, clearing up many things from a clinical standpoint and emphasized by their hospital statistics the need of a greater reliance upon the bacteriological diagnosis. These authors, with Frosch, showed that the bacilli are not always confined to the seat of the local manifestations, but are frequently distributed, although often in small numbers, throughout the internal organs. Brieger and Fraenkel (1891) began the special study of the toxine. Wassermann and Proskauer (1892) apparently isolated it, although Fraenkel failed to secure any immunizing results with the dry powder of this substance. Behring began in 1891 his investigations on diphtheria, which apparently led the way to what has already been spoken of as a "System" of Blood-Serum Therapeutics. His enthusiastic work, together with that, among others, of Wernicke, Aronson, Ehrlich, Kossel, Wassermann and Roux, have led us through the slow and dangerous immunizing of the lower animals, by means of the cultures and toxines of the bacillus of diphtheria, to the rapid and safe immunity following the use of the antitoxin contained in the serum of immune animals.

It is this point that we have now reached; that we have come thus far, all the evidence tends to show, although no one should suppose for a moment that there has been discovered a remedy for all stages of the disease. Nor should the general profession feel that the end is reached; much more is to be done before it can be said that more than a beginning has been made. We know that the serum of immune animals, and even the milk of some of them, possesses this mysterious property of neutralizing the effect of the poison elaborated by the bacillus, but we hardly know anything more. This is notably the case as far as regards the dosage and the methods of testing the strength both of the toxine and of the antitoxin. The standard, or rather the standards of the Germans appear to be unnecessarily complicated, and my personal experience has been such as to emphasize the difficulty of carrying out the comparatively simple method of Roux. Because of what I believe to be the unavoidable variability of the standards employed, there cannot be any exact dosage given, and it is fortunate that a few cubic centimetres in excess does not make any practical difference, so that, given a specimen of antitoxic serum, a slightly larger quantity than that directed may be used with safety. Something may be hoped for, in the direction of exactness, by the method of evaporating the serum to dryness and

then testing its power, but even this is but a makeshift, as compared with the chemical accuracy possible in the management of the known compounds. We must look to chemistry for aid in this direction, and some method of extracting the antitoxin must be devised before we can face the problem of exact dosage with any prospect of its proper solution.

The results of the practical application of the facts that we have learned will be stated by those following me this morning, but there are a few points that I may speak of before closing.

As is fairly well known, the bacteriological diagnosis of diphtheria has been made for the general profession for some time at the Harvard Medical School, in the bacteriological laboratory. For over a year it was done by us—mainly by Dr. McCollom—as an experiment, for the purpose of testing its value and the desire for such an investigation by the medical profession. Systematic work of the kind, however, was first done in this vicinity at the Boston City Hospital, and of course is still carried on there. Since last fall we have acted for the Boston Board of Health, and for many of the communities lying in close proximity to us, and, so far as we can judge, there is a constant increase in the importance attached to this method of diagnosis. Since the first of November, 1894, there have been sent in nearly five thousand cases for diagnosis, and in the neighborhood of one thousand for re-examination. Of course, all of the primary examinations are voluntary on the part of the physician, and would hardly have been sent if there had not been much reliance placed upon the method. We are not able to follow each case, but where inquiries have been possible the results have even surprised ourselves by their accuracy. Of course nothing is infallible, and here is no exception to the rule, but there has not yet been given evidence to show that this is not by far the most accurate method of diagnosis at our command. Whether due to the wide use of this method and the consequent detection and isolation of otherwise unsuspected cases, or whether due to this in connection with the systematic inspection of the schools, certainly the great epidemic of diphtheria in Boston this last winter has diminished in a very gratifying manner. The disease was at its highest at the beginning of the systematic use of the bacteriological diagnosis and the inspection of schools, in December, 1894. From that time, month by month there was a steady fall, sharper than occurred in previous years, until the slight rise that apparently always appears in May just before the schools are closed for the summer.

Of the inspection of schools, it may be said that it has happened more than once that a child has been sent home for a slight sore throat, and that cultures have shown the presence of virulent bacilli from one to three days before the clinical diagnosis of diphtheria was in any way justifiable, so that it would seem advisable for the cultural diagnosis of diphtheria to become even more a matter of routine than at present.

The preparation of the antitoxin of diphtheria is a matter of so much importance, requiring so much special knowledge, that we are especially fortunate in this State in having the supply under proper control; that for the City of Boston is at least in part provided for by the City Board of Health,—that for the State outside of the city by the State Board of Health.

THE PATHOLOGY OF DIPHTHERIA.¹

BY WILLIAM T. COUNCILMAN, M.D., BOSTON.

In speaking to you on the pathology of diphtheria it is impossible for me to give any new facts, or even to present the subject in a new way. Diphtheria to-day is probably the best known of any of the infectious diseases. Even in tuberculosis there are more problems to be solved by investigation. No other disease illustrates better how much a knowledge of the etiological factor has served to clear up the obscure points, both in the pathological anatomy and in the clinical features. At present the only obscure points in the pathology of the disease have reference to general pathology, and apply to other diseases as well.

By diphtheria we mean a disease produced by the action of a bacillus with definite morphological and biological properties which distinguish it from other micro-organisms, and which is known as the Klebs-Löffler bacillus. The anatomical lesions of the disease produced by this organism vary so much in their character, situation and extent, that these alone are not sufficient to characterize the disease. Moreover, similar anatomical lesions may be produced by the action of other causes. Usually, in every disease due to a definite cause, we are able to recognize the character of the disease by the character of the anatomical lesions produced by the action of the cause. In tuberculosis, for instance, we find certain alterations of tissue which are due to the action of the tubercle bacillus, and which have the same general character whether found in man or in animals. In other diseases, particularly in those in which the lesions have the general type of inflammation, similar lesions may be produced by a variety of causes. The recognition of the etiological factor thus becomes the only true basis for a scientific nomenclature of disease. It is also of the greatest practical importance for the hygienist and the clinician that the etiology should be made clear. Similar lesions, as we have said, may be produced by a variety of causes. In one case by an organism having little power of infectiousness when transferred to another individual, in another by an organism which under almost all circumstances carries with it the power of infecting other individuals. Treatment and hygienic measures based on a recognition of the cause are more intelligent and more efficacious than when simply directed against the lesions or the clinical symptoms. In diphtheria a special method of treatment has been found which is efficacious only against the conditions produced by the diphtheria bacillus.

In the pathology of an infectious disease we have to consider lesions of various sorts. In the first place, there is some point where the tissues have been invaded by the organisms and where lesions due to their direct action on the tissues will be produced. These are primary lesions of the disease. From this place the organisms may be carried to other parts of the body either along the same surface or by means of the blood or lymphatic circulation, and lesions similar in character may be produced in remote parts. In certain diseases which are distinguished as the toxic infectious diseases, and the best types of which are found in diphtheria and tetanus, certain soluble chemical substances, are produced where the micro-organisms

are localized, and these are absorbed and produce various lesions, some of which can only be recognized by the disturbances of function which they produce; others are apparent on careful examination. A third class of lesions may be produced by other organisms than the one causing the disease. These find in the primary lesions conditions favorable to them, and by their action may intensify the primary lesions or effect other parts of the body. The action of these other organisms makes many diseases mixed infections, and in the infectious diseases they play an important rôle. In an advanced case of pulmonary tuberculosis, only a part of the lesions which we find are due to the action of the tubercle bacilli. Many of the inflammatory conditions are due to the action of the pyogenic micrococci which find suitable conditions for their growth in the lesions produced by the tubercle bacilli. In diphtheria the death of the individual is frequently due to the action of these extraneous organisms, against whose action the specific treatment of the disease has no influence.

In diphtheria, in almost all cases, the primary lesions are found in the mucous membrane of the mouth, pharynx or larynx. The name of the disease is derived from the character of the primary lesions. There is an intense inflammation of the part affected, and it becomes covered with a membrane. The macroscopic appearance of this membrane is familiar to you all. Its situation and its character varies. It usually appears first over the tonsils, and from here extends over the adjoining mucous membrane, and may invade the soft palate, the base of the tongue, the pharynx and air-passages. In the air-passages it may extend from the larynx into the trachea, and even into the ramifications of the bronchi. Sometimes the membrane extends in an almost continuous layer over all these parts, sometimes only small isolated patches are seen. Large continuous masses of membrane may be formed by confluence of smaller patches. The color of the membrane, and its connection with underlying tissues, varies. In a well-marked case it has a dirty grayish or brownish color and cannot be easily removed from the surface. When it first appears it is thinner, of a whitish color, and may be removed from the surface. After death its connection with the tissue beneath is less firm, and it may be stripped off in large shreds. The adhesion of the membrane to the tissue beneath varies in different places. In the air-passages it is less adherent than in the pharynx, and not infrequently during life large masses of the membrane may become separated and coughed up.

The epiglottis also shows a varying degree of involvement in the process. There may be only small foci scattered over the surface of this, or the entire epiglottis may be converted into a dense, hard mass covered and infiltrated with fibrin. When the membrane is forcibly removed during life a raw surface remains. The mucous membrane in the vicinity is deeply injected, and there is swelling and edema of all the adjacent tissues.

On microscopic examination of the membrane it is found to consist largely of fibrin, in the meshes of which leucocytes and remains of the epithelial cells are found. The membrane does not consist of a homogeneous mass, but certain differences in structure may be recognized in it. Usually on the surface there is an indistinct granular mass which contains various sorts of bacteria. Beneath this a more regular mesh-

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work of fibrin appears, and below this again we find the fibrin in large, more or less regular meshes. In this mesh-work the character of the fibrin varies. In some cases the filaments are very fine, in others there are broad hyaline-looking masses. The surface beneath the fibrin is uncovered by epithelium. In some cases the epithelium is entirely destroyed, in others here and there, a few cells still adhering will be found. If the section has been made at the edge of the patch the fibrin may be seen extending over the epithelium.

A marked difference will be found in the relation of the membrane to the surface beneath, in the larynx and trachea as compared with the pharynx. In the trachea especially the connection of the membrane with the surface is much looser. It will usually be more or less separated from the surface by the necessary manipulation in hardening and cutting the sections, and a space will be found beneath it. The membrane is sharply separated from underlying tissue by the basement membrane of the epithelium. This basement membrane is swollen and hyaline, and more or less necrosis in the tissue immediately beneath it is seen. The blood-vessels are dilated, surrounded by numbers of leucocytes, and some of them contain masses of fibrin. The walls of many of the more superficial vessels are hyaline. In the pharynx, and particularly over the tonsils, there is a close connection between the membrane and the subjacent tissue. The dense basement membrane which forms the limit of the membrane in the trachea is not found here. There is some formation of fibrin in the loose interstices of the connective tissue, the filaments of which may be continuous with that on the surface. The membrane extends directly into the depressions and crypts of the tissue and into the mouths of the mucous glands. The tissue changes are similar to those described in the trachea. There is the same congestion of the blood-vessels, cellular infiltration, thrombosis and fibrin formation. In the later stages of the disease in both the pharynx and air-passages the membrane may become separated by a cellular exudation beneath it. After death it is softer and more easily removed.

The relation of the Klebs-Löffler bacilli to the membrane is interesting. The bacilli are most easily stained by the same method which stains the fibrin. Immediately on the surface of the membrane great numbers of various bacteria will often be seen. These are principally streptococci and other forms of cocci and bacilli. It is probable that these organisms find a suitable place for their development in the membrane, and to their action may be ascribed the breaking down of the fibrin reticulum to a granular mass. Among these various organisms the Klebs-Löffler bacilli can be recognized. They occur in definite groups, and can easily be distinguished from the other forms. Immediately below the surface the other organisms become less abundant and the groups of the Klebs-Löffler bacilli more numerous. In the lower portion of the membrane where the fibrin net-work is more dense, all of the bacteria are less numerous and often entirely absent. The subjacent tissue, even when intensely inflamed, rarely shows any organisms.

This description holds for the typical cases of diphtheria, but most cases seen at autopsies are not typical. In the majority of cases at the autopsy we do not find an extensive and definite membrane extending over the pharynx and uvula. In many

cases only here and there small patches of fibrin are seen on the swollen dark-red mucous surface. Superficial ulceration and necrosis often mark the place occupied by the membrane during life. In some cases the only membrane seen is on the under surface of the epiglottis. The membrane is often so loose that it may be washed off.

There are various views held as to the formation of the membrane. These views are of importance in diphtheritic processes generally, and do not hold exclusively for diphtheria. The view most generally accepted is that of Weigert, in accordance with which the process consists primarily in a necrosis of the epithelial surface. The exudation from the vessels beneath comes in contact with this necrotic material, coagulates and forms fibrin. In support of this view we know that fibrin is always formed when an exudation comes in contact with necrotic tissue. No matter how the necrosis is produced, whether by chemical or mechanical injury, or by the primary action of bacteria, fibrin is always deposited in and around the necrotic cells. This view of primary necrosis is also held with some modification by Virchow. In his last publication on the subject he defines the diphtheritic process as necrosis of tissue. This does not necessarily lead to the formation of a pseudo-membrane, but when this is formed it is after necrosis has taken place. The epithelium is destroyed and removed, and the fibrinous exudation forms on a surface deprived of epithelium. Another view is that of Wagner, which has been accepted with certain modifications by Recklinghausen, and which is more fully expressed in the work of Smirnow on membranous gastritis. According to the view of Wagner the changes consist in a more or less marked hyperemia and inflammation of the tissue beneath. The membrane is formed in the place of the epithelial layer and is not an exudation from the vessels beneath. It is due to a fibrinous metamorphosis of the epithelial cells themselves. The cells are directly transformed into fibrin, the appearance of a network being given by vacuoles in the centre of the cells, with fibrinous processes proceeding from them. Wagner figures epithelial cells so metamorphosed that the cell is converted into an irregular vacuolated mass, with long processes proceeding from it, giving to the cell an appearance of branching antlers. Recklinghausen has modified this view of Wagner's in that he makes the formation of the diphtheritic membrane a part of the general process of hyaline degeneration. The epithelial cells undergo a hyaline degeneration, the hyaline material is formed in the cells and exuded from them, forming the reticulum. The process also extends into the tissue beneath, in which there is a similar hyaline degeneration of the walls of the vessels and of the tissues. According to Recklinghausen this hyaline degeneration of the tissues is the primary, and the inflammatory processes are superadded to this.

Oertel, in his great work on diphtheria, believes that the formation of the membrane is due to the coagulation of the exudation, and that the epithelial cells themselves take no part in it. The most careful of the recent investigations as to the nature of the diphtheritic membrane is that of Heubner. Heubner investigated the membrane during life by stripping off small pieces which were hardened in various ways and examined. He examined in this way portions of the membrane in various stages of the disease, commencing

on the second day. He found that in the beginning of the disease the membrane was formed in the most superficial layer of the epithelium, and was due to coagulation between the cells. The epithelial cells themselves were not always necrotic and their nuclei could be recognized. With the extension of the membrane formation the lower layers of the epithelium were gradually implicated in the process, and here also coagulation of the exudation coming from the subjacent vessels could be made out. According to Heubner the Klebs-Löffler bacilli are not found in the membrane itself before the third day of its appearance. It would seem most probable, from what we have observed of the membrane formation, that all these views are more or less correct. The membrane is formed both by a coagulation of the exudation and by a fibrinous metamorphosis of the cells themselves; not only of the epithelium, but also of the leucocytes which, in the early stages of the process, make their way from the subjacent tissue into the epithelium. We know that under other conditions from the cells themselves a material can be formed which has the micro-chemical reactions of fibrin.

This membrane formation, as we have said before, is not a property which exclusively belongs to the action of the diphtheria bacilli. The diphtheritic process, an inflammation with the formation of a fibrinous exudation, is one of the most common of pathological processes. We find it on all of the surfaces of the body. It is more commonly seen in the action of certain bacteria than others. Among the bacteria the pneumococcus is probably more apt to produce a fibrinous exudation than any other. The most typical fibrinous exudation may be produced by chemical irritants; the application of croton oil or of the vapor of ammonia to the mucous membrane of the pharynx or trachea will produce a typical fibrinous exudation.

The writer once saw a case in which an extensive membrane, extending into the larynx and trachea, was produced by the accidental application of croton oil. A man was brought into the hospital unconscious, in a condition of uremic coma. A few drops of croton oil were applied to the back part of his tongue. The patient accidentally made an inhalation at the same time, and the croton oil was aspirated into the air-passages. After death the entire surface of the trachea and larynx extending down into the finer bronchi was covered with a dense membrane which could not be distinguished from the membrane of a marked case of diphtheria.

A great deal of interest has come from the study of the cases of diphtheria at the autopsies at the City Hospital. It is known with regard to many bacteria, while their action is exerted more particularly at certain places, this being due to external conditions favoring their entry into the organism at certain places, and to the fact that in these places they find more suitable conditions for their existence, they may be found also in other uncommon situations. This is notably the case with the pneumococcus. There are few pathological conditions found in any part of the body which may not be associated with this organism. While the diphtheria bacilli are always found associated with the typical disease having its local manifestations in the pharynx or air-passages, they are more rarely met with in other parts of the body and associated with other processes.

It is our habit to make bacterial cultures at all autopsies from all of the principal organs of the body. In one case of acute endocarditis, typical Klebs-Löffler bacilli were found in the heart valves. These bacilli, morphologically, and in all of their cultured relations, were identical with the ordinary bacilli, but were devoid of virulence. They were associated with pneumococci, and the lesions were probably due to these. A similar case has been reported by Howard. His case was also one of endocarditis. The bacilli were found in the vegetations on the cardiac valves and in all of the organs. They were identical with the Klebs-Löffler bacilli with the exception of being non-virulent. In another case they were obtained from the lungs in a case of disseminated tuberculosis. There was a tuberculous ulcer of the trachea from which no cultures were made, nor were any made from the pharynx. In the culture from the lungs numerous colonies of diphtheria bacilli and streptococci developed in addition to a few colonies of staphylococcus aureus and other organisms. Streptococci were also found in the spleen. The bacilli killed a guinea-pig in thirty-six hours with the lesions of experimental diphtheria. From another case of a lung in a state of gray hepatization, the culture made from a consolidated area of the lung gave a few colonies of the Klebs-Löffler bacilli along with other organisms. A guinea-pig inoculated died at the end of three weeks. In a fourth case, one of extensive phthisis, the autopsy made at one of the insane asylums, a few colonies of Klebs-Löffler bacilli developed from the lungs. Unfortunately in but one of these four cases were the throat organs examined. The circumstances of the autopsy forbade the examination of the throat, but there was nothing clinically which directed attention to the throat. In the one case in which the throat was examined a typical tuberculous ulcer was found, from which, however, no cultures were made.

These cases are interesting, and it is difficult to fully explain them. The general result of cultures at autopsies shows that in most diseases there is a poly-infection when death takes place. Not only are the specific organisms of the disease found, but there are other organisms whose presence is more or less accidental and which have had little to do with the production of the lesions. They are usually the more common organisms which find opportunity for entering the tissues in the reduced resistance preceding death. It is probable that these four cases should be so regarded. Other organisms were present, and the lesions were not of such a character as to lead us to believe that the diphtheria bacilli had any part in their production. These cases are to be distinguished from true mixed infections in which distinct lesions due to the action of various organisms have been found. In the cases investigated at the City Hospital such mixed infections have been seen in typhoid fever, scarlet fever and measles; the lesions in these diseases being accompanied by throat lesions due to the diphtheria bacilli.

Diphtheria bacilli may be found at other places on the surface of the body. The intact epidermis of the surface of the body probably is an efficient protection against their action, but superficial abrasions or ulcers on persons with diphtheria are apt to become infected. The bacilli have been found in an anal fistula, in an ulcer on the arm, in excoriations on the face, and in a number of other places on the surface. The mode of

infection is by the hands which may be assumed to be always infected from contact with the secretions of the mouth and nose containing the bacilli. Wright calls attention to the slight degree of virulence of the bacilli which are found in these places. In twelve cases in which the virulence was tested the bacilli from three had no effect on guinea-pigs, and in three other cases the inoculated animals lived more than a week. Wright states that a mild degree of virulence or none at all has been found in 50 per cent. of the organisms obtained from these places.

In some of the infectious diseases the organisms causing the disease are only found in connection with the primary lesions. In others there may be a general invasion of the blood and tissues with the organisms. In the early investigations on diphtheria the bacilli were only found in the primary lesions, and it was supposed that no general invasion of the body took place. More recently, Frosch and others have found the bacilli in the internal organs by the usual methods of culture. They are present in such small numbers that they are only found by using large quantities of the substance of the organs for the cultures. Wright's statistics of cultures show that they are most frequently found in the lungs, and more rarely in other organs; but they may be found in any of the internal organs. It is natural that they should be more often present in the lungs, from the close connection of these with the larynx and pharynx. The bacilli are present in these internal organs in such small numbers that they cannot be found on microscopical examination of the tissue, nor can they be shown to have any relation with the lesions in the organs. So far as we know at present the diphtheria bacilli are only capable of producing typical lesions on epithelial surfaces. It is to be expected that a few in the course of the disease may get into the blood or lymphatic circulation, and thus be deposited in the internal organs. When directly injected into the subcutaneous tissue of rabbits they induce extensive necrosis of tissue and inflammation.

We come now to the second class of lesions found in diphtheria, those produced not by the direct action of the bacilli on the tissues, but by the action of soluble chemical substances which are produced by the bacilli in the primary foci, and absorbed from there and carried to the tissues everywhere. Some of the lesions so produced are evident on macroscopic examination, others are only found on microscopic examination. Oertel, in his classical monograph on the disease, was the first to call attention to these lesions. Welch and Flexner have called attention to similar lesions in experimental diphtheria, and have shown that they may be produced by injecting into animals the soluble toxins derived from cultures of the bacilli. The most obvious of these lesions are found in the lymph glands of the body, and consist in hyperplasia of the lymphatic tissue. The lymph glands of the neck into which the lymphatics from the throat enter are the most affected, but all the lymphatic tissue, including the follicles of the spleen, take part in it. In the intestinal canal both the solitary follicles and the Peyer's patches are greatly enlarged, and the latter may present the appearance of the early stage of typhoid fever. The swollen glands are red and soft.

The spleen is somewhat enlarged, this being due to hyperplasia of the follicles and of the pulp. It is never so soft as in some of the other infectious diseases. The liver rarely shows much change to the naked eye.

It is somewhat paler than normal, and occasionally small opaque spots may be seen in it. The kidneys are rarely affected. In forty-one autopsies on diphtheria, in but one case an acute interstitial nephritis was found. Diphtheria has not the same tendency to produce nephritis as have the other infectious diseases of children. Slight degenerative changes are found on microscopic examination sufficient to explain the albuminuria commonly present. In two of our cases ecchymoses were found in the mucous membrane of the stomach, and the bacilli obtained from them on culture.

On microscopic examination lesions consisting in small areas of necrosis, with nuclear fragmentation, may be found in all the organs. They are more common and more marked in the lymph glands than elsewhere. Oertel was the first to call attention to them. From our experience it would seem that they are more common in the experimental diphtheria produced in animals by inoculation than in man. These foci are not produced by the action of the bacilli. On microscopic examination no organisms are found in connection with them, and they may be produced by the soluble toxins obtained from cultures. They are of the same general character as the small necrotic foci found in the liver in typhoid fever, and which are produced not by the bacilli but by toxic substances absorbed from the alimentary canal.

We come now to the consideration of the third class of lesions, those due not to the action of the specific bacteria and their soluble products, but to other organisms which find favorable conditions in the primary lesions produced by the diphtheria bacilli. There is little doubt that in most cases, particularly in the later stages, there is a mixed infection in the primary lesions of the disease. It is very seldom that a pure culture of the diphtheria bacilli can be obtained from the throat. The most common pathogenic organism found with it is the streptococcus pyogenes, one of the pyogenic organisms. We do not know what part this organism plays in the primary process. It is quite capable of itself of producing a diphtheritic inflammation, which cannot be distinguished from that produced by the diphtheria bacilli. It is possible that it assists in the production of the membrane, or it may in some way favor infection with the bacilli. These other organisms act in two ways. They may be taken up from the throat by the blood and lymphatic vessels, enter into the circulation and produce a general septicemia, or they may pass from the primary foci into the lungs. Wright has found in twenty-six out of forty-one autopsies a more or less general invasion of the blood and tissues with the pyogenic organisms, among which the streptococcus was the most common.

Broncho-pneumonia is one of the most common conditions met with in the infectious diseases of children. It has been present in greater or less degree in twenty-four of the forty-one autopsies. Its cause must be attributed to the action of the streptococci. It is true that the diphtheria bacilli are found in the lungs in nearly all autopsies on diphtheria, and they may produce a typical membrane in the fine bronchi. On microscopic examination of the tissue they are not found in the alveoli in connection with the lesions, and from what we know of the pathogenesis of the bacilli it is not probable that they could produce such lesions. The streptococci or pneumococci in these cases are found in cultures made from the lungs and, on micro-

scopic examination, in connection with the lesions. Moreover, similar lesions are found in scarlet fever and in measles. In many of the autopsies these pulmonary lesions are so extensive that death may be directly attributed to them. It would not be possible in the limits of this paper to consider the very interesting questions of the comparative virulence of the diphtheria bacilli and the characters pathological and clinical of those cases of angina which resemble diphtheria and are not produced by the diphtheria bacilli. Such cases are not infrequently met with. On the other hand, it should be remembered that inflammation produced by the diphtheria bacilli does not always lead to the formation of a pseudo-membrane. Cases have frequently been seen in which a simple angina has been associated with the bacilli. From the anatomical and experimental study of diphtheria we may regard as certainly established:

That there is a definite infectious contagious disease produced by the diphtheria bacilli.

Other organisms may produce lesions in the throat which are similar to the primary lesions of diphtheria.

The primary lesions of the disease are due to the action of the diphtheria bacilli. They are always found associated with these lesions, and are chiefly found on the surface or in the upper layers of the membrane.

There may be a more or less general invasion of the tissues by the bacilli. They are found in the internal organs in small numbers, and do not appear to have any relation to the lesions.

Lesions are produced in the internal organs by the action of soluble toxic substances which are produced by the bacilli in the primary lesions and absorbed. Similar lesions can be produced in animals experimentally by the injection of the germ-free filtrates of cultures.

Cultures made at the autopsies have shown that in most of the fatal cases there is a general invasion of the tissues by some of the pyogenic organisms, of which the streptococcus is the most common.

Infection with other organisms plays a considerable rôle in the pathology of the disease, and some of the most important lesions, as the broncho-pneumonia, are due to these other organisms.

There is not the same tendency to renal affections in diphtheria as in scarlet fever and other infectious diseases of children.

Abrasions of the skin in patients with diphtheria are apt to become infected with the bacilli.

THE PREPARATION OF DIPHTHERIA ANTITOXIN.¹

BY JOSEPH L. GOODALE, M.D., BOSTON.

THE general principles involved in the preparation of diphtheria antitoxin have recently become familiar to all medical men. Their recapitulation does not therefore seem essential for the purposes of the present paper, which are, first, to note the events of interest occurring during the prosecution of some recent work on the subject; and second, to direct attention to certain points of difficulty which have been encountered.

In view of the limited time at my disposal it appears

preferable to omit detailed reference to the preparation of culture media and to the selection of special bacteriological apparatus. It will be sufficient to state that full accounts of the former are to be found in numerous recent works, while complete catalogues devoted solely to this subject have been issued by several manufacturers of scientific supplies.

The acquisition of a culture of diphtheria that will yield the requisite amount of toxine under specified conditions is a matter of the first importance. One culture may be a hundred times as productive of toxine as another, although both are grown under the same conditions. My own experience indicates that a satisfactory culture is something of a rarity. Cultures were tested from eight cases of severe clinical diphtheria in the following way: From each case a flask of bouillon was inoculated, and the virulence of the fresh twenty-four-hour culture tested by injecting into a guinea-pig one cubic centimetre. From the two pigs which died first, within two days, pure cultures of the diphtheria bacillus were again recovered, inoculated into bouillon, and grown under proper conditions for three weeks. At the end of that time the bouillon of one flask was found to be nearly twice as rich in toxine as the other, and this culture was used exclusively in the subsequent work. The virulence of this bacillus and its toxic productiveness have remained unimpaired after more than a hundred re-inoculations, covering a period of eight months.

When a flask of bouillon is inoculated with the diphtheria bacillus the following phenomena occur: At the end of a day or two the bouillon is generally turbid throughout, but with little or no sediment. Although the bacilli are now at the stage of maximum virulence, yet no appreciable amount of toxine is to be found, as may be shown by filtering off the bacilli, and injecting the clear filtrate into guinea-pigs. Large doses of this produce often no more effect than an equal amount of ordinary bouillon. At the end of a week a distinct sediment settles, and a thin translucent layer of bacilli can be seen floating on the surface of the liquid. Microscopical examination shows what is taking place: The sediment consists of dead bacilli, disintegrated, and no longer identifiable, while the surface layer is composed of living, rapidly multiplying bacteria of characteristic appearance. Toxine can now be demonstrated in the fluid.

During the next few weeks the sediment increases, often forming more or less coherent flakes and lumps, the superficial layer becomes thicker and more opaque, and is composed of scaly particles. If these be once separated by shaking they show no tendency to coalesce, but remain discrete while the intervening surface becomes covered with a film, slowly and progressively increasing in opacity. After five or six weeks the surface layer often sinks and disappears; examination shows very few living bacilli, but the fluid is rich in toxine.

It has been stated that toxine is not secreted by the living bacilli, but is the product of their disintegration after death. Whether this be so or not, the amount of toxine in a given bouillon culture is proportionate to the amount of sediment, that is, to the number of bacilli which have completed their cycle in the liquid. Multiplication of the bacilli is favored by access of oxygen, and it has been consequently recommended to grow the bouillon cultures in a current of air. It is unquestionably true that a bouillon culture three

¹ Read at the Annual Meeting of the Massachusetts Medical Society June 12, 1895.

inches deep yields proportionately less toxine at the end of a month than one one inch in depth, there being in the latter instance a proportionately greater air surface. While oxygen is thus shown to be required, probably but a small amount is made use of, and I have not found that bouillon cultures one-half inch deep, grown in a current of moist air, yield more toxine than when grown in the ordinary cotton-plugged flask. Provided the layer of fluid be shallow the interchange of air through the cotton plug is probably sufficient for the needs of the bacteria. The risk of contamination is always greater even with the strictest precautions where there is a current of air entering the flasks; and, provided there is sufficient incubator space, the ordinary method seems to me preferable.

The toxic strength of each lot of toxic bouillon is to be carefully determined. If of standard strength, one-tenth of a cubic centimetre should prove fatal to a guinea-pig in about thirty-six hours. The amount of toxic bouillon constituting the minimum fatal dose for a guinea-pig under these circumstances is a toxine unit. Since in the course of this work the toxic strength of the bouillon employed has not been constant, it seems preferable to designate the doses injected into horses, as toxine units, rather than so many cubic centimetres of toxine. Thus at the outset one cubic centimetre of bouillon contained five toxine units, and was consequently of half the standard strength, while later the standard strength of ten toxine units to the cubic centimetre was obtained.

For the filtration of the toxine from its detritus and still living bacilli, the Pasteur filter was used.²

The filtrate thus obtained from the bouillon is absolutely clear and sterile, but is, however, an excellent culture medium for bacteria that may find entrance. I have used as a preservative a ten-per-cent. solution of thymol in chloroform, which, added to the toxine in the proportion of one per cent., has efficiently checked the development of foreign germs.

With reference to choosing horses for the purpose of immunization, my experience is too limited to justify the formulation of definite rules. It is impossible to tell at the outset what horses will stand the process sufficiently well to be brought to a high degree of immunity, and what, on the other hand, will prove of only moderate value. A horse somewhat thin, with soft muscles, is easier to manage than a stout one, since the injections are more readily made, and the jugular vein easier of access. A horse of a

vicious or nervous disposition is neither agreeable nor safe for the operator. The mallein test should be made before beginning treatment.

The process of immunizing the horses requires good judgment and extreme care. As to their feeding, it seems to me that until they have been bled they should not be treated very differently from any horse leading an inactive life. After each tapping a generous diet should be allowed. The weights and general condition are to be most carefully watched, and on any falling off the injections are to be suspended. As will be shown later this is a point of extreme importance.

For the injection of large amounts of toxine into the horses a syringe was used holding 100 c. c. The interposition of a short bit of rubber tubing between the needle and the syringe was found necessary to allow for sudden movements of the animal during the process. The short, stout tuberculin needle of the veterinarians causes practically no pain on being introduced, if the animal's attention be distracted by the application of an implement known as a "twitch" held on the nose or ear by the assistant. The loose skin just back or in front of the fore-shoulder are most suitable places for injection. It is also easy to introduce the toxine intravenously by compressing the external jugular vein, and thrusting the needle into the distended vessel.

The immunization of five horses for the Massachusetts State Board of Health was begun in the second week of December, 1894. During the first month of the inoculations the animals exhibited essentially similar and uneventful clinical histories. The initial dose of one-half the normal toxine unit was gradually increased every other day until at the end of four weeks fifteen units were injected. Up to this time no reaction of any sort was apparent. This gradual commencement seems justified by clinical and experimental analogy. The sudden introduction of diphtheria poison into the organism of an animal totally unused to such toxic shocks may be productive of tissue changes apparent only after the lapse of considerable time. I have repeatedly observed that a minute dose of toxine in a guinea-pig, scarcely sufficient to cause malaise, has been followed after two or three weeks by paralysis of the extremities, cachexia, and progressive emaciation. On these theoretical grounds, therefore, the attempt was made to avoid any marked reaction at the outset.

After the first month the animals began to show widely differing degrees of susceptibility. The clinical histories of two horses will illustrate respectively the extremes of tolerance and of sensitiveness.

A small mare of good appearance, with soft muscles, received fifteen toxine units at the end of the first month with absolutely no reaction. The doses were then rapidly increased twice a week till at the end of seven weeks she was receiving 500 units, at nine weeks 1,500 units, with slight local reaction, and a week later a dose of 2,500 units, with but slight local, and no constitutional symptoms. On March 5th a preliminary tapping was made, and the serum was found to possess an immunizing value of at least 1-50,000.

During the next two weeks 5,000 toxine units were introduced without ill effect, and on March 23d six litres of blood were withdrawn. The value of this serum was found to be not under 1-75,000. This

² A large stout glass cylinder is constricted abruptly at one end to a diameter of an inch, and this drawn out to a tapering extremity. A Pasteur filter is fitted by a rubber stopper to the constriction within the cylinder, and the tapering end of this adjusted to a filtering flask. When now the cylinder is filled with liquid, and suction applied to the filtering flask, atmospheric pressure forces the liquid through the porous porcelain, and the filtrate falls drop by drop into the filtering flask. As the level of the liquid in the cylinder falls below the top of the bougie, less and less filtering surface is at work. To obviate this disadvantage a large test-tube of such a diameter as to fit easily over the bougie is filled with the liquid, and by a sudden movement inverted over the bougie, its lower end resting upon the projecting shoulder of the bougie. The bougie is thus surrounded by a column of fluid which is sustained by atmospheric pressure.

The remainder of the fluid is now poured into the cylinder and air exhausted from the filtering flask. Filtration now proceeds with the whole of the filter actively at work, until the last few cubic centimetres of liquid in the cylinder are reached and the level sinks to the bottom of the test-tube. Bubbles of air are then drawn into the test-tube, the column in it falls, and the filtration is complete. The apparatus admits of ready sterilization in separate pieces, and is exceedingly easy to manipulate. The filtering flask may be connected by a Y-fork with a glass tube inserted into a bottle of mercury, thus enabling one to judge, by the height of the column of mercury in the tube, of the amount of vacuum obtained. I have found an air pump more satisfactory than the water aspirator. By interposing a large stout bottle between the air pump and the filtering flask a single exhaust will produce a vacuum sufficient to filter a litre of toxine.

strength had therefore been attained in a little over three months from the beginning of the inoculations.

In contrast with this rapid immunization, another horse equally sound, but more irritable and difficult to handle, began to experience at the end of the first month after each dose of 15 units, local swelling lasting several days. At six weeks 100 units were followed by considerable swelling lasting a week. At the end of two months 500 units were followed by enormous swelling of the fore-shoulder, with general edema of the whole extremity. In a week this had gone, and a repetition of the dose was followed by much less reaction. During the third month injections of 1,000 units were followed by very hard indurations about eight inches in diameter, each requiring for subsidence about ten days. The injection of 3,000 units at the end of four and a half months was followed by enormous reaction, a rock-like induration eighteen inches across, with sharply defined edges, showing no tendency to central softening or suppuration, disappearing after three weeks irregularly, leaving several discrete masses which finally vanished. Then 4,000 units excited but moderate reaction, which disappeared in a week.

The horse was tapped at the end of five months and a half, and showed a serum of the strength of 1-75-000.

Between these two extremes the intermediate spaces could be filled in by the histories of the other animals. A detailed account would involve much repetition, and it seems preferable to state in the form of a summary the phenomena which have been observed.

In the first instance the local reaction appears to stand in direct relation to the susceptibility of the animal at the moment of injection. In a sensitive animal an injection of toxine is followed by a pronounced reaction lasting from a few hours to several weeks. If the injection is made into the subcutaneous tissue the tumefaction is soft and of the nature of an edema, while if made into the muscle it is firm, at times of rocky hardness. This swelling may remain small, being not more than two or three inches in diameter, or it may increase in size, attaining a diameter of two feet or more, extending beyond the shoulder and even travelling along the trunk as a well-defined edematous area. A reaction of this extent is generally sufficient cause for grave anxiety. These extensive reactions are especially apt to occur after an animal has been bled and his powers of resistance consequently diminished. It is common for a horse which has shown no especial sensitiveness during the process of immunizing to manifest, after tapping, a marked reaction from the injection of one-half or one-quarter of the amount previously given without ill effect. Furthermore a horse which has begun to lose weight may, if the injections are continued, unexpectedly develop one of these pronounced and serious disturbances. These local reactions may be complicated by the entrance of foreign bacteria. Abscesses have occasionally formed and healed after evacuation without untoward incident. A more serious event occurred in a horse which had been immunized rapidly and easily. After the second tapping, an injection of 2,500 toxine units was followed by enormous firm swelling of the fore-shoulder, edema of the extremity and neighboring portion of the trunk, death supervening in four days without characteristic symptoms. Incision into the tumefac-

tion at the shoulder showed at the depth of an inch below the skin a collection of reddish serous fluid and large quantities of foul-smelling gas. Undoubtedly some foreign organism had gained entrance and found a suitable field for development in the exudation consequent upon the injection, but from lack of facilities for anærobic cultivation its nature was not determined.

Constitutional disturbances have been much less pronounced than might be expected. Even with the most severe local reactions no general symptoms could be perceived beyond a loss of appetite and spirits. In one instance, however, the intravenous injection of toxine was followed by pronounced effect. A horse that received without ill effect 3,000 units subcutaneously, exhibited on the introduction of an equal amount into the jugular vein, in the course of half an hour, sweating, trembling, faintness, and loss of appetite. The symptoms passed off in a few hours, and the horse appeared as usual by the following morning.

This procedure appeared to be attended with some risk and was not repeated.

The process of tapping is comparatively simple, and may be completed in fifteen minutes. One or two assistants, skilful in the management of horses, are needed. The animal submits most readily to the operation if not confronted with elaborate preparations for securing him. He is backed into a short narrow stall, so arranged that his neck protrudes from it, and he is unable to move sideways or backwards. The head is firmly held, a rope is passed around the neck low down and a wedge thrust beneath the rope so as to compress the external jugular vein, which is immediately seen to stand out for several inches below the angle of the jaw. A syringeful of two-per-cent. cocaine is injected over the vessel where it appears most superficial, and a short incision made, exposing it. It is generally recommended to thrust a trocar into the vein and conduct the blood into a jar through a rubber tube. I have found it more simple and expeditious to incise the vein directly; the blood then spurts in a steady stream for several feet. The receiving jar is placed close to the incision, and the blood allowed to flow into it without splashing, which is apt to alarm the horse. When four to eight litres are collected, the tourniquet is withdrawn, and the flowing generally ceases. To insure safety a pin is thrust through the skin flaps, which are then brought together by a thread in figure-of-8 loops. The horse is not allowed his head for a day, but is fed from a rack to avoid the danger of hemorrhage.

The amount of serum that separates is dependent upon the completeness of the contraction of the fibrin in the clot. If the clot adheres to the sides of the jar, contraction of the fibrin is prevented, and at the end of several days the clot is still firm, and but a few drops of serum have separated. If, however, the clot is separated from the sides of the jar, contraction immediately begins with a simultaneous forcing out of serum.

The one factor that more than any other promotes contraction of the clot, is the presence of a large surface in proportion to the volume of blood. Thus a jar, half filled, yields proportionately more serum than one entirely filled. The same point is shown by the fact that a partially-filled jar, in which the blood has coagulated at a sharp incline, yields more serum than the same amount of blood coagulated in an upright jar.

After many experiments the following method was found to yield the most satisfactory results. Cylindrical jars of one litre capacity are used, and vaseline is thoroughly applied to the interior to prevent adhesion of the clot to the sides. A large test-tube filled with cracked ice, closed at the top by a perforated rubber stopper, is placed in each jar before receiving the blood. When filled the jar is placed on ice, and the blood slowly coagulates, becoming a firm mass in the course of several hours. The test-tube is then withdrawn from each jar, leaving a cylindrical deficiency in the clot. At the end of twenty-four hours the result is striking. The clot has shrunk to a soft, flabby mass, and is surrounded by abundance of clear yellow serum. This is removed by carefully pouring off, and constitutes about two-thirds of the total amount obtainable. If the jars are placed on the ice another twenty-four hours, about one-third more may be obtained. This remainder is colored by solution of pigment in varying degrees, but is equal in all therapeutic qualities to the first yellow serum. The strength is ascertained by either the French or German method. The former was adopted at the beginning of the work, but I have recently come to regard the latter as more scientific and accurate.

The serum is next passed through a Pasteur filter to ensure sterility, and the filtrate shaken with the chloroform-thymol solution previously mentioned. It is, however, not allowed to stand long in contact with an excess of the solution, since a precipitate readily forms, but is immediately transferred to sterilized bottles, and aseptically sealed, being then ready for use.

DIPHTHERIA AND THE ANTITOXIN TREATMENT.¹

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THE current medical literature is super-saturated with antitoxin. Many times are given the mode of manufacture, the experiments on the lower animals, the way of using for diphtheria in children, statistics showing the results of its use and its probable great value as a remedial and preventive agent. Little is said in connection with all this of the comparatively new science of bacteriology of which antitoxin is the last and greatest discovery and the greatest achievement. From lack of experience I am not at all fitted to discuss the advantage of the new over the old treatment for diphtheria. I am but little better prepared to give briefly the facts in the science in the order of their discovery, which have made antitoxin possible. This latter, however, I have attempted to do, feeling the need of renewing my acquaintance with some of the elementary facts in bacteriology and feeling the need of gaining at least an understanding of the most important parts of the recent work in this line, hoping all the time that some of you, perhaps all, feeling this need to some degree, may be interested in following me. I shall give, at the out-start, some definitions which seem to me to be so axiomatic as to need no discussion or qualification. If you are disposed to argue them, their brief statement may seem dogmatic; if you already know them, it may seem unnecessary that they are stated at all; but this seems to me to be

the only way to present the whole subject briefly enough for this occasion.

Bacteriology is the science of bacteria. Bacteria, or germs, are microscopic members of the vegetable kingdom. There are several principal varieties, classed according to their form: micrococci, or round bacteria; bacilli, or rod-shaped; spirilla, or spiral-shaped. Streptococci, or round bacteria connected like the links of a chain; diplococci, or round bacteria in pairs; and staphylococci, or round bacteria clustered like grapes, are various arrangements of micrococci. Some bacteria live in the air, are *aërobie*; some live in the absence of air, are *anaërobie*; some thrive on dead matter, are *saprophites*; some thrive on living matter, are *parasites*. An obligate *saprophite* is obliged to live on dead matter; "their number is unlimited and they are the scavengers of creation." A facultative *saprophite* has the faculty of living on dead matter under favorable circumstances, though by nature parasitic, for example, the tubercle bacillus of Koch. An obligate parasite is obliged to live on living matter, for example, the germs of syphilis and leprosy; and a facultative parasite has the faculty of living on living matter, for example, the anthrax bacillus.

Bacteria multiply in two ways: (1) By fission, which is simply division, one bacterium forming two or more. Bacteria multiplying in this way are quite readily destroyed. (2) By spores, in which the spore or bud develops at some part of the parent bacterium, and when sufficient development is reached becomes detached from the parent. Bacteria multiplying in this way are destroyed with difficulty.

Pathogenic bacteria cause disease. Non-pathogenic bacteria do not cause disease. Many diseases are caused by bacteria. To prove that a given bacterium produces a given disease we must conform to the four rules of Koch, and show (1) that the bacterium is present in every case of the disease; (2) we must isolate the bacterium; (3) we must produce the disease in healthy animals by inoculating them with this bacterium; (4) we must then find the bacteria growing and working the special changes in these animals.

Diseases already proven to be caused by bacteria are tuberculosis, tetanus, anthrax, glanders, progressive edematous gangrene, gonorrhea, croupous pneumonia, diphtheria, etc. Diseases practically proven to be caused by bacteria are typhoid fever, Asiatic cholera, malaria, influenza, etc. Diseases which we have many reasons to believe are caused by bacteria are syphilis, leprosy, meningitis, erysipelas, septicemia, puerperal fever, measles, scarlet fever, whooping-cough, small-pox, yellow fever, etc.

Different bacteria produce different products, some poisonous, some non-poisonous. The tubercle bacillus produces tuberculosis. The Klebs-Löffler bacillus produces diphtheria. The yeast plant or germ produces alcohol. It was early observed, that, in this latter case, when the yeast plant had formed a twelve-per-cent. solution of alcohol, the plant died and made room for the germ which produces acetic acid. In time this germ died and another took its place, and so on, each germ being destroyed by a poison formed by itself.

From these and other observations a truth has been discovered, namely, that every living thing, plant or animal, may be poisoned by the products of its own metabolism. This fact has been the basis of the

¹ A paper read before the Miller's River Medical Society.

bacteriological treatment of disease. After many theories and much contention it has been settled that bacteria produce disease by forming, in the process of their life changes, poisonous chemical compounds. Some years ago certain of these were isolated and they were named ptomaines or putrefactive alkaloids. After a time it was discovered that other poisons were formed, more obscure in nature but much more virulent than the ptomaines. In recent years much time has been spent in attempts to discover these unknown poisons, and Hankin, an Englishman, succeeded in isolating the first poisonous albumin of known bacterial origin from cultures of the anthrax bacillus, though poisonous albumins had been discovered some time previously by Mitchel and Reichert. Many of these albuminoid bodies have now been isolated; and, though little is known of them, we know that they are all intensely poisonous and that they will, when injected into an animal, cause some or all of the symptoms of the disease of which the germ from which each albumin is derived is the cause. Such is the toxin of diphtheria.

It has long been known that some animals are not susceptible to certain diseases, and that some diseases, particularly the acute infectious diseases, leave the one that has suffered from them proof for a longer or shorter time against them. It had been known since antiquity that one attack of small-pox gave immunity against subsequent attacks; and when, in 1795, Jenner discovered vaccination, this gave rise to much thought and experimentation for the purpose of finding out in what way vaccination gave protection against small-pox. To make the question general, Wherein is the power which protects one animal from a disease which other animals are subject to, and what is the reason that one attack of certain diseases confers immunity against subsequent attacks? At first a partial explanation was based on the fact that certain cells — leucocytes or phagocytes — were more numerous in one animal than in another. These cells were thought to be so numerous in some cases that they could absorb all the poison or destroy all the bacteria which gained admittance to the body. Later, the blood of some animals not susceptible to anthrax was freed of all cells of every kind, and the fluid was found to kill the anthrax germ. In the case of animals susceptible to the disease the germs would thrive on the fluid elements of their blood. This proved that the germicidal properties are present chiefly in the fluid elements of the body. When this fluid was heated to 60° or 70° F. all germicidal properties disappeared at once. The fluid being largely albuminous, it was conjectured that the heat had coagulated the albumin, and that this albumin in its natural state had been the protective element.

It is now proven beyond a doubt that the albumins or albuminoid substances possess this protective power, or, in other words, the susceptibility of an animal to a germ disease depends upon the relative amount of certain albumins in the blood. Acting on the generally known fact that one attack of an infectious disease gives immunity for a longer or shorter time against the disease, the foremost investigators sought to give protection by producing in the person a mild form of the disease, just as, for centuries, people had sought to avoid a severe attack of small-pox by inoculating themselves with the poison during a mild epidemic.

Pasteur secured immunity in fowls against chicken-cholera. He allowed the bacteria to grow on gelatine in a tube to the thirtieth generation. He then injected into the tissues of the fowl this modified form of the bacterium, and produced a form of the disease so mild as to be entirely without danger, but sufficient to protect against future attacks of the disease. He tried to produce immunity against anthrax in the same way, but failed. Later, by allowing the bacterium to grow at a temperature above 42° C. to the twenty-fourth generation, he obtained a substance which he called primary vaccine, which, when injected beneath the skin of the animal, produced a slight effect. He followed injections of this in a few days with injections of a secondary vaccine, or what he obtained after allowing the bacterium to grow to the twelfth generation, and this gave protection against the inoculation form of the disease. His next experiments were for the purpose of finding a protection against hydrophobia. Knowing that the lesions of the disease were in the brain and spinal cord, he made an extract of the fresh cord of an animal dead from hydrophobia, and injected this extract beneath the skin of another animal. This produced the most virulent form of the disease. He finally secured a protective vaccine in this way. He dried for forty days, in the air, the spinal cord of an animal dead from this disease. The cord of another dead from the same disease he dried thirty-five days; of another, thirty days; and so on. He then made separate extracts of the dry cords. He then injected beneath the skin of the animal which he wished to protect some of the extract of the cord that had been dried forty days; in a few days he injected some of the extract of the cord dried thirty-five days; and so on, till at last he injected an extract of fresh cord. The animal was thus accustomed to the poison and, after the last injection, was proof against the disease. This is the principle of the successful preventive treatment of hydrophobia used at the Pasteur institutes in Europe and in this country.

Brieger isolated from cultures of the tetanus bacillus a toxine which, when injected, produced the symptoms of the disease. An antitoxin has also been discovered in the blood of animals which have had the disease. If such blood be injected into animals suffering from tetanus, if it be early enough in the course of the disease, they will get well. It will also confer immunity against the disease in the animal receiving it.

Many other experiments have been conducted on these lines, with varying results; but by far the most sensational and the most widely known were those of Robert Koch, with the substance known as tuberculin. Precisely the same principle is involved here, and the tuberculin is made by growing the tubercle bacillus under unfavorable conditions, in the presence of moisture or under pressure or with varying degrees of heat and cold. The culture is filtered, and the filtrate is the tuberculin. In treating some diseases or in conferring immunity against them, it has been the custom to inject a modified culture of the bacillus, thus allowing the bacillus to grow and to develop in the organism, making the changes in the blood which would render the person immune; and in some diseases, not the bacteria themselves but a modified and weakened form of the poison obtained by filtering a culture of the organism is repeatedly injected until the system becomes saturated with the poison. Then if the bacteria

gain admittance they cannot live, or, if they are already present, they are destroyed by the antagonizing power of the poison. Koch followed the latter method, and the fact that the remedy has failed to meet his expectations and those of the medical profession, and that it did, for a time, apparently place discredit upon the whole science of bacteriology, was not due to wrong methods but to the nature of the disease with which he had to deal. Tuberculosis is characterized by the formation of a degenerate form of tissue known as tubercle. Tubercles are full of the characteristic bacilli constantly producing their poisons. Tubercles are continually breaking down and the dead tissue, mingled with the poisons formed by the bacilli, goes into the circulation, producing the constitutional symptoms — exhaustion, emaciation, hectic fever, etc. When there is injected a poison like tuberculin, though it may be directly opposed to the poisons in the system and able to destroy the pre-existent poisons under proper circumstances, will it not, since it must cause a reaction and a sloughing of more tissue and cause the blood to be more completely saturated with the very elements, dead tissue and the germ-produced poisons, which had brought on the constitutional symptoms of the disease in the first place — will it not, in reason, often cause an increase in these symptoms and, at times, collapse? At any rate such has been the case, and, though tuberculin has been classed as a failure as a cure for tuberculosis, it has shown to scientific workers the limitations of the old bacteriological methods of treatment and has awakened the most enthusiastic efforts to find a safer and more sure treatment involving the same fundamental principles but going one step further. It was found to be a dangerous process to antagonize in the human system the growth of poisonous bacteria by the introduction of poisons deadly to the bacteria.

I will re-state that the germicidal elements in an animal are chiefly in the blood. An animal can be made proof, for a time at least, against a bacterial disease by having the disease and recovering; for the bacteria produce and leave in the blood the poisons which are deadly to themselves; or we may accomplish the same thing by giving the animal subcutaneous injections of the poison made by the bacteria in the course of their growth upon various culture media. Both of these methods are, as we have seen, at times dangerous. Fränkel first secured immunity against diphtheria by injecting beneath the skin of animals a substance prepared from cultures of the bacillus.

Behring, the discoverer of antitoxin, began his experiments some years ago. While I was in the medical school I learned that he had isolated two albuminoid substances from cultures of the Klebs-Löffler bacillus; and that he had found that ordinary cultures of the diphtheria bacillus heated to 60° or 70° F. and then injected beneath the skin of animals had the power of conferring immunity; and that he had also found that the addition of iodine trichloride to old cultures of the bacillus also gave immunity when injected subcutaneously. If he had stopped here, we should have had for diphtheria a remedy analogous to tuberculin for tuberculosis; but he went one step further. He injected subcutaneously the poison or toxine made from cultures of diphtheria bacilli into various animals. Large quantities injected at first would kill the animal, but small quantities repeated

from time to time would be borne, and after a time the animal became accustomed to the poison and larger doses could be used. This was kept up for months. Then blood was taken, and the serum was injected into animals suffering in varying degrees from the diphtheritic poison, or into animals exposed to the poison. He found that animals which had received injections of this blood serum in sufficient quantities would not develop diphtheria under any circumstances for some time after the injections. This immunity would always be temporary, but would last from several days to several weeks, according to the amount of serum injected. The amount of serum which would protect a guinea-pig would not protect a rabbit. This showed that the serum did not destroy the toxine, but either rendered the cells of the animal insensible to its action or made their power of resistance to it greater. When the poison was injected alone, there were diphtheritic symptoms and death. When a mixture of serum and poison in right proportions was injected, there was no effect, or but a slight fever. When the poison was previously injected and the disease well developed, recovery generally resulted if the serum was injected repeatedly.

To approach as nearly as possible to diphtheria in the child, Roux and others inoculated the mucous surfaces of various animals with the germs of diphtheria. Practically the same results were obtained. When serum was injected before inoculating with the germ there would be local redness, fever and some general disturbance; but no membrane would be formed. When the serum was injected after the formation of false membrane, the swelling began to diminish in a few hours; the fever abated on the following day in moderate cases — after repeated injections in severe cases — and the false membranes were detached during the first or second day. When the trachea of a rabbit was inoculated with the bacilli of diphtheria, there was, within forty-eight hours, fever, false membrane formed and difficult breathing. If the serum was injected before the germs, there were none of these symptoms; or if it were injected in too small quantities, there were late symptoms. If the serum was injected after the membrane was developed, the disease was arrested. When streptococci and other toxic bacteria were present with the diphtheria germ, the disease as had been previously noticed by others, was found to be more severe, as the diphtheritic poison was increased, and there was a tendency to broncho-pneumonia. If the serum was injected early after the mixture of diphtheria bacilli and streptococci, a portion of the animals were saved; but if there was much delay the disease terminated fatally.

In preparing the serum for man the horse was found to be the best animal to accustom to the poison or toxine. Young and healthy animals are selected; and they are so little susceptible to the toxine that there is little danger of killing them if moderate care is taken. The toxine is prepared by growing the Klebs-Löffler bacilli in a medium of peptonized broth. The cultures are made in flat-bottomed glass flasks into which a current of moist air is passed. The temperature must be 37° C., and the time required is at least three weeks. The cultures are then filtered, and the filtrate, to which is added a little camphor, is the toxine ready for use. From two to five cubic centimetres of this are used as an initial dose. A larger dose proportionately can be used if the trichloride of iodine is mixed with the

toxine. This is injected subcutaneously. The horse is given another dose in a few days and the amount is gradually increased until he can bear large quantities of the poison. Four months or more is necessary before a very active serum can be obtained. Then blood is drawn from the jugular vein, and the serum separated from the other elements. When a little trikresol is added to it, we have the antitoxin ready for use.

The serum obtained from the horse is now tested as to its strength. It is first found how much toxine is necessary to kill an animal of a known weight. Then it is found how much antitoxin is needed to bring about a good recovery, or to neutralize the effects of the toxine in an animal of the same weight. The amount of the antitoxin taken, divided by the weight of the animal, gives the strength of the antitoxin; for example, if one cubic centimetre is used and the animal weighs 1,000 grammes, the strength of the solution is 1 to 1,000, or one part of serum to one thousand of body weight is needed for a curative dose.

In treating diphtheria in man the serum is injected into the tissues of the flank or between the shoulders. A large hypodermic syringe is used, preferably one made with fittings of asbestos and linoleum, and holding from 10 to 20 c. c. Before using, this should be sterilized by boiling. The serum should all be injected in one place, and there should never be massage of the part after the injection. Different operators use a different initial dose. As the serum varies so much in strength, it is hard to tell the dose unless the strength of the serum is known. For a child moderately sick, 10 c. c. of the stronger serum seems to be the most common dose; for one seriously sick, 20 c. c. If no improvement is noticed the dose may be repeated in twelve hours, and in some cases the amount is increased. One child received 125 c. c. of the serum with no bad effect.

Diphtheria, as you all know, is an acute infectious disease caused by the action of the Klebs-Löffler bacillus. It is primarily a local disease, cell proliferation and fibrous exudation brought about by the action of the bacillus at the point of invasion going to such an extent that death often results from the mechanical closing of the air-passages. It is secondarily a constitutional disease, the poison formed by the bacillus entering the system and producing many serious consequences — albuminuria, heart-failure, paralysis, etc., and often death. The treatment, formerly expectant and symptomatic, has, in recent years, been rigidly antiseptic and symptomatic. Under the latter treatment are included antiseptic washes and sprays locally, such as hydrogen peroxide, bichloride of mercury, boracic acid, etc., intubation or tracheotomy when necessary, perfect rest, liquid diet, empirical agents, such as mercury in some form and tincture of the chloride of iron, and tonics and stimulants in every form. Under the old treatment the mortality was terrible, varying from 50 to 90 per cent.; under the later treatment, though somewhat reduced, it was very high, varying, in general terms, from 30 to 70 per cent.

So far, under the treatment by antitoxin, we have the almost universal testimony to the following remarkable results. If the disease has not advanced too far, the false membrane ceases to spread within twenty-four hours after the time when the antitoxin is injected, and the membrane becomes detached within forty-eight

hours, as a rule. Therefore, tracheotomy is less often necessary, intubation for twenty-four hours usually being all that the worst cases require. In mild cases the temperature falls very rapidly the day after the injection. In severe cases it begins to fall after the second or third injection and continues to fall slowly. The pulse-rate is lessened, but the action on this is slower than on the temperature. The albuminuria is much less frequent than with any other treatment, and when present is much milder in character. The other complications and sequelæ are more rare and less apt to prove fatal than with any previous treatment.

I have not time to discuss at length the statistics so far obtained. That we must put some confidence in them is certain from the character and scientific reputation of the observers. Some have used the serum in severest cases only. Some have used it in all cases. But all the statistics given, or nearly all, are for cases of true diphtheria, as proven by the presence of the Klebs-Löffler bacillus, and many had complicated with this germ the staphylococcus pyogenes or a streptococcus. These complications are known to be more severe than when the diphtheria germ alone is present. Statistics have appeared in the best medical journals above the signatures of reliable observers, and we have every reason to believe that each observer has made an accurate record of his work. Still the time has been too short to allow of our fixing definitely the future status of antitoxin at this time.

With this history of the progressive work in this wonderful new science of bacteriology before us, and with these eloquent figures, shall we not believe that there has been discovered the germ, at last, of all future treatment for diphtheria and all allied diseases? Reasoning from analogy, shall we not believe that, in the near future, the tuberculin of Koch, or some similar substance, will be used to immunize animals, and that their blood serum will be used in the prophylaxis and in the treatment of the early stages of tuberculosis in man? I believe the time is not far distant when, so far as the germ-produced diseases are concerned — and these diseases will then have been proven to be by far the most numerous and the most dangerous — we shall have, as our homeopathic friends now have, explicit directions in regard to the use of a certain remedy in certain proportions for a certain disease — not in such infinitesimal quantities that the wildest imagination can hardly conceive of the remedy as being present at all, but in definite quantities of a known strength, which will give a definite, satisfactory result when the disease is recognized and the remedy applied in time.

Medical Progress.

REPORT ON CHEMISTRY.

BY WILLIAM B. HILLS, M.D.

ALBUMINURIA.

GLOBULIN is usually associated with albumin in the urine. According to Boyd¹ the proportion varies so much that it is not possible to determine the variety of kidney disease by means of it. Even in amyloid degeneration, the globulin may not be in excess. In the albuminuria of pregnancy, the globulin is present in

¹ Journal of the Chemical Society, London, March, 1895, ii, 82, from Rep. of Lab. R. C. P., Edin., 1894.

larger amount than in other forms of albuminuria. In the albuminuria of heart disease, the globulin is usually more abundant than in chronic interstitial nephritis. In acute nephritis, without hematuria, the two proteids are about equal; but when blood is present the globulin is proportionally more abundant.

Four cases of Bright's disease are recorded in which serum albumin was present, but serum globulin absent, or present only in merest traces; and one case where globulin and albumoses were present, but albumin absent. In no case did the proteid quotient bear any relation to that of the blood. The amount of proteid is often greater than that found in transudations. From these considerations, the presence of proteid in the urine is considered to be due to secretion rather than transudation, and there is some evidence that the lower the state of nutrition of the renal epithelium the greater is the amount of globulin allowed to pass. In this investigation, the total proteids were estimated by boiling, the albumin by boiling after removal of the globulin by half saturation with ammonium sulphate, the globulin by difference.

PEPTONURIA.

H. Senator's² investigations lead him to the conclusion that peptonuria is almost invariably a symptom in croupous pneumonia, as well as in purulent meningitis; less frequently in articular rheumatism; never in leukemia. The author concludes that the proteids secreted in the condition commonly called peptonuria are not true peptones, but albumoses. In one case the proteid was, apparently, proto-albumose, in a second, deuterio-albumose.

W. Robitschek³ finds that the urine contains peptones in many diseases, especially during suppuration, and also in phosphorus poisoning.

L. Sior⁴ has never detected true peptones in the urine of children.

NUCLEO ALBUMIN.

Dr. Sarzin,⁵ working under the direction of Senator, examined 200 urines for nucleo-albumin, with a negative result. The urine of women was avoided, as the presence in such of vaginal secretions might be a source of error. The author does not, however, deny the possibility of the occurrence of nucleo-albumin in the urine in rare cases; for example, in cases in which there is extensive disintegration of the renal epithelium.

URINARY PIGMENTS.

According to Salliet,⁶ normal urine contains a pigment, which he has named *urospectrin*. Its solutions in ether and in alkalis give four absorption bands; acid solutions give two bands. It is similar to hematomporphyrin, but differs from it in some respects. It may be extracted from the urine as follows: the urine is shaken with acetic ether, which removes about two-ninths of the coloring matter of the urine. The residue left upon evaporation of the acetic-ether extract is soluble in ether. The solution is more complete if the extract is protected from the action of light. The ether extract contains the chromogen of urobilin, and the new pigment. Upon exposure to

light, the urobilin chromogen is decomposed, and the urobilin may be removed by shaking with water.

Renewed research by Garrod⁷ confirms his previous conclusion that hematomporphyrin is a scanty but normal constituent of the urine. Twenty cubic centimetres of a ten-per-cent. solution of sodium hydroxide are added to every 100 c. c. of urine; the precipitated phosphates are collected and washed with water. The precipitate is dissolved in rectified spirit and acidified with hydrochloric acid; the solution shows the bands of acid hematomporphyrin. Ammonia is then added to precipitate the phosphates, and acetic acid to redissolve them; chloroform then extracts the pigment completely, and shows the bands of the alkaline pigment.

For the estimation of urobilin in urine, A. Studensky⁸ recommends a process which consists in extracting the urobilin by means of chloroform in the presence of copper sulphate and ammonium sulphate, and in the colorimetric comparison of the colored chloroform solution of urobilin with standard solutions. If the urine to be examined be shaken with chloroform in the presence of copper sulphate, the urobilin will not be entirely dissolved until after repeated shakings. If, however, after the addition of the copper sulphate, the urine be saturated with ammonium sulphate, which precipitates urobilin, the whole of the latter is at once taken up by the chloroform. Without copper sulphate, only a portion of the urobilin is dissolved. The process is carried out in the following way: twenty cubic centimetres of urine are treated with one-tenth solution of saturated copper-sulphate solution, then saturated with crystallized ammonium sulphate, and 10 c. c. of chloroform added. The mixture is shaken for some minutes, and as soon as a copper-red layer of chloroform solution has settled, a portion of it is removed by a separating funnel, placed in a test-tube, and compared with a standard solution of urobilin in chloroform. This solution is prepared by extracting a considerable amount of urine which contains much urobilin in the manner described, evaporating the chloroform solution to dryness, washing with ether, and weighing the residue. A series of solutions is then made up from this residue, and these may be preserved, even as long as two months, if kept in the dark in closed vessels and covered by a layer of saturated solution of ammonium sulphate.

ALCAPTONURIA.

H. Embden⁹ contributes a paper which relates to certain experiments on metabolism, performed with a view of testing the correctness of the hypothesis that homogentisic acid originates by an unusual form of metabolism from tyrosine.

The first experiments were performed on a patient alluded to in a previous publication of the author. It was found that the acid in the urine was increased by a flesh diet; that the administration of tyrosine doubled the excretion of the acid; that phenylacetic and phenylamidoacetic acids had no such influence; that oil of turpentine, kephir, and castor oil, although lessening the combined sulphates of the urine due to lessened putrefaction in the alimentary canal, had little or no influence on the amount of homogentisic acid. On administering the acid by the mouth, about 75 per cent. was excreted in the urine. Another

² Centralblatt für die medicinischen Wissenschaften, 1895, page 467.

³ Chem. Centr., 1894, page 780.

⁴ Jahrb. f. Kinderheilk., 37, page 352.

⁵ Centralblatt für die medicinischen Wissenschaften, 1895, page 413.

⁶ Loc. cit., 1895, page 476; from Bull. de Thérap.

⁷ Journal of the Chemical Society, London, 1895, ii. 55; from J. Physiol., 17, page 349.

⁸ Loc. cit., 1894, ii. 171; from Chem. Centr.

⁹ Loc. cit., 1894, ii. 23; from Zeitschr. physiol. Chem., 18, 304.

point noted in the urine of this patient was an abnormally low excretion of uric acid.

The second series of experiments performed on healthy men and animals showed that after the administration of the acid (by the mouth in man and by subcutaneous injection in dogs), the urine assumed all the characters of the urine of alcaptonuria, the amount of acid recovered in the urine being considerable, but, nevertheless, indicating that some had been destroyed in the living tissues.

CARBOHYDRATES OF NORMAL URINE.

Baisch¹⁰ finds that the carbohydrates of normal urine are three in number: glucose, a dextrin-like substance (animal-gum), and a third, probably isomaltose. The quantity of glucose averages 0.005 per cent. The quantity of total carbohydrate, reckoned as glucose, is about 0.01 per cent.

DETECTION OF SMALL QUANTITIES OF SUGAR IN THE URINE.

A. H. Allen¹¹ recommends the following procedure: Seven to eight cubic centimetres of the urine are heated to boiling in a test-tube, and 5 c. c. of solution of copper sulphate, as used to make Fehling's solution, are added. This precipitates nearly all the uric acid, xanthine, hypoxanthine, phosphates, etc. When nearly cold, 1 to 2 c. c. of a saturated solution of sodium acetate are added, which will render the precipitation complete. After filtering, 5 c. c. of the usual alkaline tartrate solution are next added, and the mixture boiled for fifteen to twenty seconds. In the presence of more than 0.25 per cent. of sugar, separation of cupreous oxide occurs before the boiling point is reached, but with smaller proportions precipitation takes place during the cooling of the solution, which becomes greenish, opaque, and suddenly deposits the oxide as a fine orange-yellow precipitate. The best qualitative test for traces of sugar is, however, the phenyl-hydrazine test.

DETECTION OF BILE-PIGMENT IN URINE.

A. Jolles¹² has ascertained the relative delicacy of twenty tests. Of these, some half-dozen are so little adapted to the purpose that it is necessary to add 10 per cent. of bile to the urine in order to obtain them; and only one (Rosenbach's) of the six modifications of Gmelin's test is as delicate as the original. This requires five per cent. of bile. Two out of the list are so delicate as to be given by two per cent. Of these, Rosin's test is one, and Hupperts's the other.

RARE URINARY CALCULI.

Reported by J. Horbaczewski.¹³ The first stone examined was a fatty concretion, and analysis gave the following result:

	Per cent.
Water	2.5
Ash	0.8
Organic matter insoluble in ether	11.7
Organic matter soluble in ether	85.0
The latter contained	
Free fatty acids	51.5
Fats	33.5
Cholesterol	traces

The organic matter insoluble in ether contained insoluble soaps of calcium and magnesium, and proba-

bly some blood proteid and mucin. The second stone was a cholesterol concretion. It contained

	Per cent.
Water	2.74
Ash	0.55
Organic matter	96.99
The organic matter contained	
Cholesterol	95.87
Organic matter insoluble in ether	0.15

ALKALOIDS.

Prof. T. G. Wormley¹⁴ has contributed two valuable papers: One, "On Some of the Chemical Properties of the Mydriatic Alkaloids"; a second, "On Some of the Tests for Quinine." An abstract suitable for the pages of the JOURNAL cannot well be prepared. Professor Wormley confirms the conclusion reached by others, that the alkaloids in general may undergo a slow and gradual change in the presence of decomposing animal matter. He finds that strychnine, under the conditions stated, after a time loses its property of responding to the color and certain other chemical tests, but still retains its bitter taste and the property of producing tetanic convulsions in frogs.

His experience leads him to believe that when morphine and strychnine are taken in moderate toxic quantity, that portion of the alkaloid which is carried to the tissues by the ordinary process of absorption, entirely loses its property of crystallizing, even when present in quantity sufficient to respond to chemical tests. When the morphine or strychnine is taken in excessive quantity, a portion seems to be distributed to the organs by simple exosmotic diffusion, and this may readily be recovered in the crystalline state. In a case in which 1.68 grammes of strychnine were administered subcutaneously to a dog during a period of four hours, in divided doses, so as to keep the animal paralyzed, 56 mg. of well-crystallized strychnine were recovered from the urine, 26 mg. from the liver, and 14 mg. from the blood.

CARBONIC-OXIDE POISONING.

G. Marthen¹⁵ reports five cases, with clinical details. In all, the body temperature was elevated. As regards metabolism, the decomposition of proteids is enormously increased. There may be slight albuminuria. The pulse is like that of typhoid fever. The red corpuscles of the blood are increased considerably.

N. Gréhant¹⁶ has studied the influence of time on the absorption of carbonic-oxide by blood. When a dog is made to breathe artificially a mixture of air and carbonic-oxide containing 100 c. c. of the latter in 100 litres, after half an hour the blood contains 6 c. c. of carbonic-oxide in 100 c. c.; after an hour, 9.2 c. c.; after two hours, 10 c. c.; and after two hours and a half, 9.3 c. c. With the proportion of carbonic-oxide specified, the volume absorbed by the blood becomes practically constant after an hour. With a mixture containing only 10 c. c. of carbonic-oxide in 100 litres, the law of absorption is different, and the proportion of carbonic-oxide in the blood gradually increases. After half an hour, 100 c. c. contain 1.42 c. c. of the gas; after an hour, 2.05 c. c.; after an hour and a half, 2.9 c. c.; after two hours, 3.15 c. c.; after two hours and a half, 3.6 c. c.

¹⁰ Zeit. physiol. Chem., 18, page 193; 19, page 339; 20, page 249.

¹¹ Journal of the Chemical Society, London, 1894, page 488; from Analyst, 19, 178.

¹² Loc. cit., London, 1894, ii, page 171; from Zeit. physiol. Chem., 18, 545.

¹³ Loc. cit., London, 1894, ii, 24; from Zeit. physiol. Chem., 18, 335.

¹⁴ American Journal of Pharmacy, pages 13, 561.

¹⁵ Journal of the Chemical Society, London, 1894, ii, 360; from Virchow's Archiv, 136, p. 535.

¹⁶ Loc. cit., from Compt. Rend., 118, 594.

CHLOROFORM.

P. Vidal,* employing the very simplest process given below, found, in some cases, traces of chloroform in the urine, after its administration as an anesthetic. A current of pure hydrogen is passed through the urine, or any other liquid containing chloroform; the latter is then carried off as a vapor, and on burning the hydrogen and allowing the flame to play on a piece of fine brass gauze, the wire assumed a black-white color. On drawing off the products of combustion from the gauze, and passing them through ammoniac solution, a bluish coloration is obtained and the solution is found to contain chlorides. The quantity of chloroform found in the urine after inhalation of the anesthetic is always very small, and in some cases none can be detected. After administration of chloroform, the urine always reduces the solutions of Fehling, Trommer, and Boettger. This is not due to the presence of sugar. The author's result is in agreement with those obtained by Koss, v. Maring, and Zeller, but opposed to those of Bruckner.

ACTION OF DEFINITELY-RELATED CHROMAL COMPOUNDS ON ANIMALS.

W. Gibbs and E. T. Baldwin† propose in this and succeeding papers to recapitulate and summarize the results they have obtained in their investigation of this subject.

Starting from phenol, the authors find that the substitution of hydrogen for hydrogen atoms does not materially change, but intensifies the physiological action, although position-isomerism exerts also a marked influence on intensity and sometimes even on the character of the action. With the phenols, those having the greatest reducing action have generally the greatest physiological action. The substitution of aryl radicals for hydrogen changes the mode of physiological action. The substitution of the nitro group for hydrogen tends both to change and intensify physiological action. With mononitrophenols the action is mainly on the circulation and hardly at all on the nervous system, and increases from the ortho- to the para-compound. Further substitution of nitro groups increases the intensity of action. The dinitrophenols are somewhat similar in action to the nitrophenols, but less powerful. The azobenzines all stimulate the peripheral ends of the vagi and alter the permeability of the blood, but have little action on the nervous system; so that in this case, the action of nitroline (mainly nervous) is completely changed by the introduction of the nitro group. In the azobenzines the result of the introduction of nitro is the action is somewhat similar to that of the nitro group, reducing very much the action on the nervous system, and weak increasing that on the vascular system.

A CHECK ON THE RESTORATION OF VENICE.—The Pennsylvania Legislature, at its session which recently closed, passed an act "prohibiting the admission of insane, idiotic, deformed or imbecile persons to any public hall, museum, theatre, seat or building for a pecuniary consideration or reward." The offence is punishable by a fine not exceeding \$1,000 or imprisonment not exceeding six months.

* *Journal of the Chemical Society, London*, 1893, 1, 101, from *Chem. News*.

† *Ann. Sci. Nat.*, 1893, 1, 101, from *Ann. Chem. Journal*, 41, 101.

Recent Literature.

Enlargement of the Prostate: Its Treatment and Radical Cure. By C. W. MANSIELL MULLIN. Philadelphia: F. B. Rothman, Son & Co. 1894.

This work is a most thorough and complete exposition of the subject of which it treats, and is prefaced by a concise description of the anatomy and physiology of the organ, in the course of which the author presents his own views, as well as those of the best authorities, upon the most important points connected with them. Of these we agree with the ground he takes in regard to the function of the gland, namely, that it is purely sexual, and that it only secures the passage of urine by the mechanical support it gives to the urethra. In support of the view that the organ is sexual, the author adduces the following: "If castration is performed in early life, neither the glanular nor the muscular part of the prostate is developed; if later, the prostate atrophies. In neither case is micturition interfered with in any way. Dr. Griffiths has shown that in animals the size and perfection of the prostate rise and fall with the breeding season." He also refers to the evidence offered by embryology and comparative anatomy.

Amongst the anatomical points, the author confirms the view expressed by Sir Henry Thompson and others as to the existence of a distinctive median portion of the prostate, demonstrated by the existence of glanular structure in larger abundance than elsewhere in the organ. He states, however, that in many instances the lobes which demonstrate the distinctive existence of this anatomical median lobe, or portion, are absent; in a few, on the other hand, they are so numerous and so large as to form a definite little mass thicker at its middle than at its borders. The pathological middle lobe has nothing to do with the above-mentioned anatomical median portion; the author considers, that in many instances, if not in all, it originates entirely independently of it.

The second chapter deals with the histology, rate of growth and so forth. Histologically the author considers the prostatic enlargement to be essentially a fibro-adenomatous growth and not a true hypertrophy.

The influence of the enlargement of the gland upon the urethra is interestingly and well described. "So far as the lower half is concerned, the lateral lobes are the dominant force. If they are enlarged the urethra is compressed from side to side, and slightly elongated." We do not agree with the last part of the statement, and believe that the elongation of the prostatic urethra is chiefly due to the enlargement of the lateral lobes. A comparison is made of the observations of Sir Henry Thompson, Daniel Watson, Vignard, and the author, as to the relative frequency of the various forms of prostatic enlargement, which is interesting as showing practical agreement of all but one of them (Vignard) as to the large percentage of cases in which the median portion is the chief element in the disease.

With relation to the causes of prostatic enlargement we are glad to note that the author objects to as untenable all the theories hitherto advanced to explain its occurrence, three of which only are discussed by him; that of the analogy of the disease to the fibroids, supported by White and Thompson; that of Gray who holds that the disease is always associated with, and a

manifestation of general arterio-sclerosis; and that of Reginald Harrison, who considers the enlargement of the gland as a secondary and compensatory development following upon changes of the bladder. Moulton's statement, that we have no satisfactory explanation of the cause of the disease we are entirely in accord with. The author cites ten cases of typical prostatic hypertrophy occurring at various ages from fifty-three to twenty-seven years, to show that the disease is not invariably associated with old age. At the end of this chapter upon causation there is a short reference to the interdependence and intimate relation between the development of the testes and the prostate.

We have not sufficient space to more than mention the many interesting views of the author upon various special matters connected with the subject, which he presents in a clear and interesting manner throughout the work. We would call special attention to the discussion of the secondary effects of the disease upon the bladder and kidneys, and to the methods of instrumental measurement of the urethra and prostate. The chapters upon treatment are particularly full; and this part of the subject is thoroughly treated in all its aspects, including the most recent advances made, amongst them that of castration. The book is certainly one of the most noteworthy and valuable that has been written upon the subject, and should receive careful study at the hands of the profession, to whom we cordially recommend it.

Ectopic Pregnancy: Its Etiology, Classification, Embryology, Diagnosis and Treatment. By J. CLARENCE WEBSTER, B.A., M.D., F.R.C.P., Ed., Assistant to the Professor of Midwifery and Diseases of Women and Children, in the University of Edinburgh. With 80 Illustrations of Naked Eye and Microscopic Appearances. New York: Macmillan & Co. 1895.

This volume of nearly 250 pages is devoted solely to the consideration of ectopic pregnancy, and is a very timely contribution to a subject which has been of the first interest of recent years, and has provoked the production of a vast number of fugitive articles, but has not up to this time received so exhaustive a consideration in any single work. The author is especially successful in the treatment of the scientific side of his topic.

The chapters on the varieties and development of ectopic gestation are of extreme interest, and are the more valuable in that they are largely derived from an extensive individual experience, both operative and post-mortem. The chapter on the symptoms and signs is interesting; that on diagnosis is perhaps open to the criticism that while it is given in detail it is a little wanting in conclusiveness and does not add as much to one's previously acquired clinical picture as might have been hoped from the author's wide experience. The concluding chapter is devoted to treatment. It gives an outline of the form of treatment which the author recommends for every variety of the abnormality in question. It is evident that no single chapter could give more than the briefest outline of so extended a subject, but we could have wished that the author had written this chapter *in extenso*, even though it had doubled the size of his book.

The eighty plates and illustrations are admirable. The book is attractively printed, and is to be warmly recommended.

Urinary Surgery. By HURRY FENWICK, F.R.C.S. London: Hirschfeld Bros. Bristol: John Wright & Co. 1894.

This is a well-illustrated volume of 207 pages, the object of which, as stated in the preface, being to give a *résumé* of the recent literature of the subject. This the author presents in the form of brief summaries under the following seven principal headings: (1) Surgery of the Kidney, (2) Surgery of the Ureters, (3) Surgery of the Bladder, (4) Electric Cystoscopy, (5) Diseases of the Prostate, (6) Diseases of the Seminal Vesicles, (7) Diseases of the Urethra.

The more important points of a great variety of topics are set forth in a clear and condensed form, and in a way that is often novel and calculated to tempt the student to more extended study of the subjects which are here intentionally only outlined, or their essentials briefly stated. As an example of this may be mentioned the last paragraph on page 5, in which reference is made to the interesting experiments of Lewin and Goldschmidt¹ "upon the behaviour of the ureters under intravesical pressure which was tested by observations through an abdominal wound while injecting the bladder with air and various fluids."

The technique of kidney operations is well described in the first division of the book, and some of the matters usually omitted from the text-books are to be found here, such, for instance, as the resection of the ribs in certain cases of nephrectomy, as recommended by Lange, of New York. Statistics of the results of the various operations are also given. Another example of the more rarely considered subjects is that of the differential diagnostic symptoms between renal calculus moveable in the pelvis and fixed in the substance of the kidney.

In some parts of the book the author is open to the criticism of not keeping to the professed character of the work as a compilation. This is especially true of the chapter on Bladder Tumors, which consists almost entirely of a reprint of an editorial by Mr. Hurry Fenwick, of which the writer's personal experience and views form the chief part. We are not prepared to say, however, that it is less valuable on this account.

The chapter on the Surgery of the Ureters is one of the least satisfactory in the book. It contains no reference to Fengers's work, or to the anatomical researches of Cabot to determine the accessibility of the ureters to operative approach through the sacrum. Stricture of the ureter is not mentioned, and the removal of ureteral stone is barely touched upon. The writer is similarly capricious as to his choice of the works of the various authors which he has omitted or included elsewhere in the book. There is nothing said, for example, of Kelly's method of examining the female bladder, and of his treatment, or of Vignard's excellent treatise on Prostatotomy and Prostatotomy.

As would be expected from such a past master in the art of electric illumination of the urinary organs, all that concerns this part of the subject is presented in the most satisfactory manner.

As is suggested in the preface, the advance of modern surgery is so rapid that the text-books cannot keep pace with it, and consequently there are many vacancies in them which such contemporary compila-

¹ Virchow's Arch., Band 134, Heft 1, p. 33.

tions as this one are well suited to fill. Whatever its defects may be, and they are not serious, they are well compensated for by the large amount of valuable information which the author has compressed into it; and the student may gather rapidly from it much useful and practical knowledge of the recent steps of progress in this branch of surgery.

Principles of Surgery and Surgical Pathology. General Rules governing Operations and the Application of Dressings. By HERMANN TILLMANNS, M.D., Professor in the University of Leipzig. Translated from the Third German Edition by JOHN ROGERS, M.D., New York, and BENJAMIN TILTON, M.D., New York. Edited by LEWIS A. STIMSON, M.D., Professor of Surgery in the University of the City of New York, Medical Department. With 441 Illustrations. New York: D. Appleton & Co. 1894.

This work is a translation from the German, edited by Dr. Stimson, and is a result of the special needs of the students of some of the professors of surgery in New York, who desired a work on surgery which would include not alone "the general affections and pathology, but also the pathology and principles of treatment of the injuries and diseases of the various tissues."

It is an attractive book from the clearness of its division. It takes up the operations of surgery and the dressings of wounds and all that concerns them. The illustrations do not compare with many of our American books, either in clearness of detail or as works of art. The chapters upon micro-organisms and inflammation are especially worthy of commendation. The chapter upon fractures is, from a pathological point of view, good, but from the standpoint of treatment is hardly to be commended.

Perhaps as a text-book of surgery the book would be satisfactory to the beginner, and it presents surgery from a pathological standpoint which is very desirable. A great many of the methods are German, and there are a few American.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. By JOHN ATTFIELD, F.R.S. Fourteenth edition. Philadelphia: Lea Brothers & Co. 1894.

The present edition, which corresponds to the fifteenth British edition, contains such additions as seemed to the author necessary for the demonstration of the latest developments in chemical principles and the latest applications of chemistry to pharmacy. On the other hand, some of the matter of the earlier editions has been omitted, in order to keep the book within the limits of a student's manual.

We regret that the author still retains the chapters on Toxicology and Urinary Chemistry, which we have so many times criticized as inadequate and in many respects inaccurate. Excepting these chapters, however, this work of Professor Attfield is, on the whole, an excellent one. It is specially adapted to the requirements of students of pharmacy, and contains much more valuable information than can be found in any other book on general chemistry of the same size.

FATAL QUARREL BETWEEN SURGEONS.—Two surgeons of Portland, Or., who had formerly been partners, quarrelled over an operation performed by one of them at the city hospital, and shot each other fatally.—*Medical Record.*

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FLOATING BODIES IN JOINTS.

HALSTEAD in the September number of the *Annals of Surgery*, reports three cases of operation for this interesting and comparatively frequent lesion. Floating bodies, or joint mice, are bodies composed of bone, cartilage, masses of fat, fibrous tissue or fibrin loose in a joint or attached to some portion of its surface by pedicles. They are most frequently found in the knee-joint, as would naturally be expected from the extent of the joint surface, and its exposure to traumatism. They are next in frequency in the elbow-joint, and rarely in the ankle and wrist.

Their cause has been a much-disputed question, and various theories have been advanced for its solution.

Of late, exact clinical histories and careful histological examinations of these bodies have done much to clear up their etiology, which has been found to be varied, so that they fall into several classes.

According to Volkmann's general classification, they may be divided into two groups: first, those which are found in otherwise healthy joints, the disease, if any be present, being merely that which is caused by the presence of the bodies; second, those which are found in diseased joints.

In the first group we have as a sub-class, first, those which are purely of traumatic origin. These consist either of cartilage or bone, or of cartilage and bone combined, and are comparatively rare, as Halstead has found only three such cases in the literature of the subject, and one of these is doubtful. Semilunar cartilages which are sometimes completely detached by traumatism so as to become loose bodies are not included by Halstead in this group, but only completely separated pieces of the articular ends of the bones. Halstead's reason for not including these detached semilunar cartilages, or their fragments in this class is not apparent. There is no obvious reason for their exclusion from this class, as they are certainly loose bodies of traumatic origin, and nothing else, and their

inclusion would bring up the number of traumatic loose bodies to a much larger total. Of pieces of the articular ends of the bones directly and immediately detached by traumatism, of which alone Halstead constitutes this class, there is only one case reported, that of Volkmann, in which the patient survived the injury, as the trauma which breaks off directly and completely a piece of the articular end of the bone must necessarily be severe.

In the second sub-class are included pieces of bone or cartilage which were not completely detached at the time of the injury, but became separated later. The pathological condition in these cases was recognized by Paget, and called by him "quiet necrosis," and later studied by König, under the name of *osteo-chondritis dessicans*. Its cause is unknown. It may follow a traumatism, or originate spontaneously. It may develop at any period of life. Small pieces of the articular ends of the bone may become detached, becoming floating bodies, or, as sometimes occurs in the hip- and shoulder-joints, the whole articular end of the bone may separate.

The bodies included in this class consist of cartilage or of cartilage and bone, and show a surface corresponding to the articular surface of the joint, covered by hyaline cartilage. A defect is found in the articular surface of the bone at their point of detachment, corresponding in size to the bodies, and in a general way to their shape, though they are usually more smooth and faceted where they have come in contact with the surfaces of the joint. They may be multiple, but are rarely more than three or four in number, and are usually single. Cases have been reported in which they were symmetrical, affecting homologous joints.

No evidence of disease of the joint is found except a recurrent synovitis due to the presence of the bodies.

The third class in the first group consists of loose bodies originating from hemorrhage into a sound joint as the result of traumatism. These are rare, and are found some time after an injury to the joint, attended by evidence of hemorrhages into it. The symptoms are usually severe for a time, but subsequently disappear spontaneously and are followed by complete recovery. Shattock has reported a case in which a pedunculated body was removed from the knee-joint, which was found on microscopic examination to consist of finely intercommunicating trabeculæ, resembling fibrous tissue, containing in their interstices a fine, reddish-brown pigment, with some red and white blood corpuscles. This was regarded as partly-organized blood-clot.

In the fourth class of the first group are included cases in which foreign bodies, such as bullets or bits of steel, have remained in the joint and acted as nuclei for the formation of loose cartilages. These cases are extremely rare.

Of the second group, namely, loose bodies resulting from joint disease, the most frequent class is that of the corpora oryzoida, or rice bodies, found in tubercular joint synovitis. They may originate as pure

concretions, by desquamated epithelium forming nuclei upon which layers of fibrin are deposited, or by the detachment of villi upon which fibrin is deposited in layers.

These, as a rule, do not produce the common symptoms of loose bodies in the joint, partly because of their small size, and partly because the underlying pathological conditions produce symptoms which obscure those caused by the bodies.

The second class under this heading are bodies arising from cartilaginous metamorphosis of the synovial membrane or fibrous layer of the capsule and are subsequently drawn into the joint, and either become entirely free or remain attached by a pedicle. These, as a rule, remain attached to the capsule, but are sometimes found free. They are comparatively common. They consist of bone and cartilage in varying proportions, the smaller being chiefly cartilaginous, the larger chiefly bony. The larger they are the more likely they are to have become detached from their pedicles, which become more and more attenuated, and finally break off. The pedicles, as a rule, contain no blood-vessels.

The third class of the second group consists of normal joint villi which become detached as a result of pathological changes. They arise by proliferation of cartilage cells in the swollen ends of the villi, or sometimes by their calcification. These swollen and altered villi are consequently detached by being caught between the articular ends of the bones. Rokitsansky thought that all cartilaginous joint bodies were formed in this way. Simon observed a sarcoma of a villus which had become detached and formed a loose body.

The fourth class of this group consists of the loose bodies found in arthritis deformans. These are rare, and consist usually of bone, of irregular shape and uneven surface, more or less covered with cartilage.

The growth of loose bodies, which has been actually observed in some cases, may take place in two ways: (1) by the deposition of successive layers of fibrin; (2) by the proliferation of cartilage or bone cells originally present in the body, the nourishment being supplied by the synovia.

The chief and characteristic symptoms of loose bodies in joints is the sudden locking of the joint, usually in the position of nearly complete extension, attended by sharp pain and usually by a peculiar sense of nausea. This may last for several days, any attempt to change the position of the joint causing severe pain and is immediately followed by an acute synovitis. These symptoms recur at longer or shorter intervals, and the diagnosis is completed by palpation of the body, which in the knee-joint is usually found just to the inner side of the patella.

Cases have been reported in the growing period of life in which a lengthening of the femur on the affected side was noted and ascribed to the constant irritation produced by the presence of the body.

The treatment of these cases under the aseptic régime has reduced itself to incision of the joint and

removal of the body. Halstead justly prefers local anesthesia by weak solutions of cocaine for this operation, for the reason that the patient can assist in finding the body if it should slip away from under the surgeon's hand during the operation. That this advantage is of no mean value will be readily acknowledged by any one who has experienced the difficulty which is sometimes found in re-locating the body when the patient is under the influence of a general anesthetic.

It is interesting to note that during the pre-antiseptic period the mortality from opening the knee-joint was so high that Bell recommended amputation in those cases in which an operation was indicated, in preference to opening the knee-joint. The mortality of the operation was then thirty-three per cent., and a large number of those who escaped with their lives got off with a stiff knee-joint as the result of septic infection.

THE USE AND ABUSE OF THE CURETTE.

OF late years the curette has assumed an important place in gynecological surgery. It has largely superseded older methods of treatment in the various forms of endometritis. Medicated applications to the cervical canal and corporeal mucosa are always difficult, and often impossible without dilatation, and when made, are not seldom unsatisfactory, frequent repetition being necessary. A more expeditious and thorough measure for removing disease tissue and septic *débris* seems needed, and doubtless in many cases the curette properly used meets the want. In fact, the curette has come into general favor; and recent writers have spoken of the prevalent fashion of curettement as a craze, and have pointed out numerous failures, disappointments, and even disastrous results from the injudicious use of the curette, or from its application to unsuitable cases. Several articles have appeared in the gynecological journals the past season calling attention to the right and the wrong use of this instrument — the danger of perforation seems not to be as slight as has been represented; and the discussions at the gynecological meetings have brought into prominence the comparative advantages of curettage and other methods of treatment, topical and constitutional. The subject is well presented by Professor Bouilly in the last number of the *Bulletin Général de Thérapeutique*, under the head of "Curetage of the Womb, its Abuses and Failures, its Indications." We shall give the leading points of this article.

In the first place the curette can only be used with benefit in morbid conditions of the uterine mucosa and its subjacent tissue. In those forms attended with more profound alterations of the parenchyma and glands, with sclerous or sclero-cystic degeneration (total parenchymatous metrites, cervical hyperplastic glandular metrites, etc.), there is hardly any good to be expected from curetting, which, however, is particularly indicated in endometritis of the body of the uterus when it is of the nature of a superficial infection, such infection often follows the puerperal state and

abortions, and the curette is the best therapeutic agent at our command, rigid antiseptic precautions being of course taken. Curettage is equally applicable to infections by retained blood and secretions in uterine fibroma and polypus, and where there are multiple polypi of small size, the curette is indispensable.

Marvels are wrought by the use of the curette in caseous or caseiform metritis of aged women, where the secretions accumulate and putrefy, simulating cancer of the body of the uterus.

The hemorrhagic forms of metritis generally belong to the superficial mucous affections just mentioned, and are amenable to curettage. This is, according to Pozzi, the form particularly assumed by *post-abortum* metritis, when simple, almost invisible, particles of the decidua are grafted upon the uterine mucosa; thorough scraping and lavage of the uterine cavity will arrest as by magic the most alarming hemorrhages. In common catarrhal metritis, after the acute stage has passed if the curette be used before sclerotic changes and follicular degeneration have progressed far, before there has been propagation to the Fallopian tubes or perimetrium good results may be expected.¹ Curetting is almost certain to fail in membranous dysmenorrhea, in the parenchymatously thickened sub-involuted uterus, in hydrorrhea, symptomatic of a lesion of the annexes, and when employed for the metrorrhagic and leucorrhœal discharges coming on at fixed date between the menstrual epochs.² The same general statement applies to metritis of the cervix, for "the depth of the lesions seated in the glandular culs-de-sac submucous and intermuscular — puts them beyond the reach of the instrument," in lacerations of the cervix, especially when complicated with cicatricial ectropion, curetting can be but an adjuvant to trachelorrhaphy. Finally, in the acute or subacute infections, blennorrhagic or otherwise, it is a dangerous operation.

As for the use of the curette in perimetritic affections, it may be laid down as a rule that two conditions dominate the indications and may enable one to foresee the success or failure of curettage: on the one hand, the existence of a uterine infection which may be suppressed by the ablation of the mucosa; on the other, the nature and degree of the peri-uterine lesions. Curetting can only do good if performed very early, "before the production of lesions in the annexes well and duly constituted."³

To the same purport were the views expressed during the discussion of the endometrites at the German Congress of Gynecology held this summer. Professor Fehling thought, "there is no question that treatment by curetting is now greatly overdone." He regards curetting as indicated only for diagnostic purposes and as a means of treating fungous endometritis, decidua endometritis *post-partem* and *post-abortum* as well as exfoliative endometritis, that is to say, when it is imperative to remove the diseased mucous membrane. In cases of chronic catarrhal endometritis, it should

¹ Pozzi.

² Bouilly, *Bulletin Général de Thérapeutique*.

³ Bouilly, *loc. cit.*

only be employed "when all other means of treatment have proved unsuccessful." Professor Olshausen "would like to see curetting restricted to fungous and exfoliative endometrites." Professor Skutsch also "desired to protest against the abuse of curetting," and wished that this treatment might never be employed except by persons who are accustomed to gynecological operations.

The results of curetting at the Basle Clinic and for cases there judged suitable according to Vogelbach, are as follows: Complete recovery, 69.2 per cent.; improvement and temporary recovery, 20.1 per cent.; no effect, 10.7 per cent. All these patients were kept under observation from one to six years after the operation.

MEDICAL NOTES.

REPORTED DANGER OF THE INVASION OF THE PACIFIC COAST BY CHOLERA.—It is reported in the New York daily papers that the steamer *Belgie* brought cases of cholera from Hong Kong to Honolulu, where she landed eight cases, and then proceeded to San Francisco, where she presented a clean bill of health, although two deaths had occurred from pneumonia and heart-disease on the way. Eighteen of the Chinese passengers are said to have started East by train.

THE FRENCH CONGRESS OF ALIENISTS AND NEUROLOGISTS.—The French Congress of Alienists and Neurologists will meet in 1896 at Nancy. Professor Pitres, Dean of the Faculty of Bordeaux, has been elected President of the coming session, and Dr. Lallemand, of Nancy, Secretary.

THE EFFECT OF REMOVAL OF THE OVARIES UPON THE SEXUAL APPETITE.—Dr. A. Laphorn Smith, of Montreal, Can., has published in the *Medical Record* an account of a woman who acquired gonorrhea seven years after removal of her ovaries and tubes. According to her testimony her pleasure in sexual intercourse had increased rather than diminished since the operation of removing the ovaries and tubes, which is contrary to the general opinion on this subject.

FALSE REPORTS OF CONTAGIOUS DISEASE.—It is provided by law in Florida, that "any person or persons who shall falsely or maliciously disseminate or spread rumors or reports concerning the existence of any infectious or contagious disease shall be guilty of a misdemeanor, and, upon conviction, shall be punished by a fine in a sum of not less than \$100 nor more than \$1,000, or be imprisoned in the county jail for not less than three nor more than six months."

THE PREVENTION OF BLINDNESS.—The Senate and General Assembly of the State of Illinois at the last session passed a law providing that, should any midwife or nurse having charge of an infant in that State notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or

nurse having charge of such infant to report such fact in writing, within six hours, to the health officer, or some legally qualified practitioner of medicine in the city, town or district in which the parents of the infant reside. Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed \$100 or imprisonment not to exceed six months, or both.

UTERINE FLATUS.—According to the *Medical Press and Circular*, July 26th, an interesting instance of "phantom tumor" of the uterus due to tympanites of that organ, has been reported by Dr. Lichtenstein, of Liegnitz. On account of a chronic metritis, a patient was successfully treated by tamponment with iodoform gauze. A considerable time afterward she suffered from violent pains in the abdomen. On examination, the abdomen was found much distended, and the uterus three finger-breadths above the umbilicus. On examining with the sound it passed into a large empty cavity, and air escaped out of the uterus with a distinct pop. The patient was frequently troubled in this way, the uterine tympany always coming on when the stomach or bowels were disordered. A few days after the attack described there was still pain at the side of the uterus. Massage, rhubarb and charcoal still further improved the condition.

THE QUESTION OF THE EFFECTS OF THE NEW MAGAZINE RIFLES.—The importance of a definite understanding of the effects of the new magazine rifles, discussed in our editorial of last week, and the fact that such an understanding has hardly been arrived at up to the present time, are obvious. We learn from the *British Medical Journal* that when the late war broke out in the East an experienced officer of the British Army Medical Staff, Surgeon-Colonel William Taylor, was deputed to accompany the Japanese army for the special purpose of studying the medical aspects of the campaign in general, and the effects of the new bullets in particular. As his report has probably already been sent in to the War Office, it is to be hoped that its publication will not be long deferred.

THE TONGUE-TRACTION METHOD AS APPLIED TO BIRDS.—Dr. Souloumiac de St. Agnant publishes in *La Tribune Médicale* a rhyme in praise of Dr. Laborde's tongue-traction method as successfully applied in the case of a pet sparrow which had fallen into the water, and was revived by making rhythmic tractions in the tongue:

"C'est moi qui suis content de notre ami Laborde,
Grâce à lui, ce matin, j'ai sauvé mon moineau." . . .

La Médecine Moderne remarks that this is not the first time this method has been successfully applied to birds, as Dr. Raffegau, of Véninet, revived by this method a hen which was apparently dead from exposure to severe cold.

TUBERCULAR INFECTION IN STREET CARS.—Dr. William G. Bissell calls attention to the dan-

ger of tubercular infection in street cars, in an article in the August number of the *Buffalo Medical Journal*. The great danger from the drying and dissemination as dust of the sputum so freely distributed over the floors of street-cars, especially those of the open cars in which smoking is allowed, is a matter well worth legislative attention. Dr. Bissell's article is illustrated by a micro-photograph showing hundreds of tubercle bacilli from a sample of dust taken from a street-car in Buffalo. When we consider the well-known fact that these bacilli in the dried state maintain their virulence for years, we can appreciate the danger from this source in large communities. The education of the public with regard to the danger of indiscriminate expectoration is not enough. Spitting in street-cars and public buildings should be prohibited by city ordinance.

INTELLECTUAL DETACHMENT.—In the *Nineteenth Century* for July, Sir Herbert Maxwell relates the following: "The outspoken ways and caustic sayings of Dr. Jephson, of Leamington, celebrated in the forties and fifties, have furnished the kernel of many anecdotes. One day he was called on by one whom Brantome would have called *une grande dame de par le monde*, the Marchioness of ——. Having listened to a description of her malady, the oracle pronounced judgment: 'An egg and a cup of tea for breakfast, then walk for two hours; a slice of cold beef and half a glass of Madeira for luncheon, then walk again for two hours; fish (except salmon) and a cutlet or wing of fowl for dinner, with a single glass of Madeira or claret; to bed at ten and rise at six, etc. No carriage exercise, please.' 'But, doctor,' she exclaimed at last, thinking he was mistaken in his visitor, 'pray do you know who I am? Do you know — ahem! — my position?' 'Perfectly, madame,' was the reply. 'I am prescribing for an old woman with a deranged stomach.' From this it is clear that it behooved this exalted lady to cultivate detachment as the preliminary to a return to health; to regulate her life without any reference to her rank in the peerage, her station in society, or the number of carriage horses in her stable."

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, September 4, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 71, scarlet fever 23, measles 11, typhoid fever 51.

NEW YORK.

VISIT OF DR. FORBES WINSLOW.—Dr. Forbes Winslow, the eminent English authority on nervous and mental disorders and editor of the *Psychological Journal*, arrived in New York on August 31st. He will remain three or four months, and purposes revisiting this country for a like period each autumn in the future for consultations on his specialty. He presides over the Medico-Legal Congress, which meets on September 4th, 5th and 6th, and the subject of his

address is "Suicide Considered as a Mental Epidemic."

FATAL EFFECTS OF HOT WEATHER.—Dr. Tracy, Registrar of Vital Statistics, reports that during the week ending August 31st there were 851 deaths in the city, the average for the corresponding weeks for the past five years being 775; 114 deaths were due to diarrheal diseases, and of these, 125 occurred in children under five years of age. This comparatively large mortality, while not at all excessive, was no doubt due to the very hot and humid weather which prevailed last week. The physicians of St. John's Guild report that in no week during the summer are so many very ill children under their care. The Sea Side Hospital at New Dorp, Staten Island, was filled to overflowing, so that it was impossible to accommodate many that should have been admitted there, and on the daily trip of the Floating Hospital on August 30th, two deaths occurred among the infants on board.

RECOVERY FROM A SEVERE ELECTRIC SHOCK.—A lineman of the Brush Electric Light Works at Rochester received a shock from a live wire carrying about 1,500 volts on August 28th. When picked up he was apparently dead, but was subsequently resuscitated by artificial respiration and other appropriate measures. In a few hours he appeared to have entirely recovered, except that he was suffering from a very severe burn on the arm.

ANTHRAX IN THE STATE OF NEW YORK.—In reply to a letter of inquiry from the British Vice-Consul-General at New York, Mr. George L. Flanders, Assistant Commissioner of the State Agricultural Department at Albany, has written, under date of August 31st, that anthrax has broken out in sporadic cases in the following counties: Sullivan, Delaware, Chenango, Chautauqua, Wyoming, Oswego and Lewis, and that the attention of the Department was first called to it about the first of August. He then goes on to state: "While it is more severe than it has been before in about seven years, we are not allowing it to spread, but are quarantining the cattle as fast as we find it. Nearly all the cattle that have died from it died before this department became aware of the disease among them. It is thought by our experts to be due to climatic influences, and especially, extremely dry weather." Anthrax has also appeared among the horses and cattle at Rahway, New Jersey, and its vicinity, and during the last few days of August a considerable number of animals died from it. The State Board of Health was promptly notified and inspectors have been sent to the locality for the purpose of stamping out the disease.

THE J. HOOD WRIGHT MEMORIAL HOSPITAL.—Justice O'Brien, of the Supreme Court, has granted permission to the trustees of the Manhattan Hospital and Dispensary to change the name of the institution to the J. Hood Wright Memorial Hospital. This is in acknowledgment of the very large endowment bequeathed to the hospital by the late Mr. Wright, and

of the generosity of Mrs. Wright, who since his death has donated ground for the enlargement of the hospital.

Miscellany.

RESULTS OF THE ANTITOXIN TREATMENT OF DIPHTHERIA IN GERMANY.

THE results of the collective investigation relative to the antitoxin treatment of diphtheria in Germany conducted by the *Deutsche medicinische Wochenschrift*, have recently been published. The following is a summary of the facts set forth in the replies to the schedules issued to practitioners. The observations extended over the period from October 1, 1894, to April 1, 1895.

The total number of cases of diphtheria reported was 10,312. Of these, 5,833 were treated with serum and 4,479 without it; the proportion of deaths in the former group was 9.6 per cent., while in the latter it was 14.7 per cent. In 401 cases of children under the age of two years in which the serum treatment was used early—that is to say, on the first or second day of illness—11.8 per cent. died, the mortality-rate under corresponding conditions when serum was not used being 39.7 per cent. Of 2,556 children between two and ten years of age 4.0 per cent. died after timely treatment with serum, the death-rate among those not so treated being 15.2 per cent. Of 696 patients over ten years of age only 1.0 per cent. died after early treatment with serum, the mortality among the others being 3.7 per cent. This gives a total death-rate of 4.2 per cent. when the serum was used on the first or second day of illness, against a percentage of 14.7 when no serum was used. When the use of the serum was begun late, that is, after the second day, the mortality at the three age periods already indicated was 34.4, 14.9, and 9.9 respectively, giving an average percentage for the three classes taken together of 16.9 per cent.

As regards dosage, the mortality in cases in which 600 units were given was, in children under two, 16.1; in those between two and ten, 5.3; and in those above ten, 1.8 per cent., an average percentage of 6 per cent. for the three groups; when 1,000 units were used, the deaths in the three classes were respectively 33.6, 13.8, and 7.5 per cent., an average percentage of 14.6.

Death from heart-failure occurred in 69 cases, or 1.2 per cent.; albuminuria was noted in 724 cases, paralysis in 343, but no death occurred from this cause.

THE TREATMENT OF TETANUS WITH TETANO-ANTITOXIN.

MARSON¹ gives an account of a case of tetanus in an adult unsuccessfully treated by the tetano-antitoxin at the Staffordshire general infirmary. The treatment was begun on the sixth day of the disease, and on the tenth day the spasms had ceased, but symptoms of septicemia appeared and increased until the man's death, which took place on the seventeenth day.

The writer thinks that the death, which in this case was apparently due to septicemia, should not be used as a basis for unfavorable deductions with respect to

the antitoxin treatment of the disease. He has collected accounts of 38 cases of tetanus treated by antitoxin, from which it appears that there were 25 recoveries and 13 deaths. In 22 cases the particulars are given, and of these 17 recovered and five died. Nine cases of which particulars were given were regarded by their writers as severe; and of these five recovered and four died. Out of 13 cases reported as "not severe," 12 recovered.

The writer regards the average mortality of tetanus untreated by antitoxin in chronic cases as 50 per cent., and in acute cases as 90 per cent., and considers that the decrease in mortality, as deduced from the cases reported of the antitoxin treatment, justifies the statement that "the serum may be justly called a remedy for the disease of such importance that up to the present time no other method of treatment can bear comparison with it."

A CENTENARIAN SURGEON.¹

AT Pesaro, on the Adriatic, Dr. Giacomo Asiari attained his hundredth year on the 29th ult., and a brief biography of him has just been issued by a local colleague, Dr. Carlo Rigoni, with the twofold object of putting on record the career of an interesting professional man, and of establishing, subject to every available check, yet another *bona fide* instance of a centenarian.


Dr. Asiari was born at Forlì on July 29, 1795, at noon. He studied at Forlì, Faenza, Ravenna and Florence; at which latter school, on June 17, 1821, he received his diploma in medicine and surgery. In 1823 he was called to Spoleto as *chirurgo primario* in the hospital there, and distinguished himself as an able and successful operator. His next appointment was in the University of Macerata, where he filled the post of *chirurgo primario* and reader in human anatomy. This readership he succeeded in getting transformed into a regular chair of anatomy, founding, indeed, a *scuola di anatomia*, which was previously non-existent in that seat of learning. In 1829 he was called to Pesaro, once more as *chirurgo primario*, and there his clinical duties and the calls of an ever-increasing *clientèle* kept him actively employed for the next thirty years, during which he took rank with the leading men of the city and province, like Count Cassi, Baldassini, Paoli, Petrucci and Perticari. He attended, among other distinguished patients, Prince Charles Bonaparte when, in company with his brother Louis (afterward Napoleon III), the Prince in alighting from his carriage had gravely injured his knee. In the cholera year of 1855 he rendered invaluable service to the poorer victims of the disease, for which the Pesarese town council awarded him the gold medal of merit. Finally, in June, 1861, he went on the retired list, and the town council, in recognition of his merits as a surgeon and as a citizen, gave him a life pension equal in amount to the salary he drew in office. Dr. Asiari thereupon made over his *armamentarium chirurgicum* to the San Salvatore Hospital, and his fine medical library to the Bibliotheca Oliveriana. Since then he has enjoyed a serene and honored old age, his one complaint being the intercurrent neuritis, to which he has been subject for seventy-eight years.

¹ Lancet, August 10th.

¹ Lancet, No. 3755.

METEOROLOGICAL RECORD.

For the week ending August 24th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
M..19	29.78	70	79	62	64	55	60	N.W.	N.W.	9	12	O.	O.	.02
T..20	29.94	64	73	56	56	73	61	W.	S.W.	7	7	C.	C.	
W..21	29.91	65	73	57	56	50	53	W.	N.W.	12	13	C.	C.	.02
T..22	30.24	61	72	50	53	62	58	N.W.	S.W.	8	11	C.	C.	
F..23	30.06	70	81	58	71	78	74	S.W.	S.W.	17	13	F.	C.	.02
S..24	29.75	79	88	70	76	71	74	S.W.	S.W.	12	17	O.	C.	
S..25	29.92	74	83	66	62	48	55	N.W.	N.	15	8	C.	O.	
	29.94	78	60				64							.04

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☁ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 24, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,956,000	853	4.8	25.48	13.20	17.88	1.68	3.48
Chicago	1,600,000	—	—	—	—	—	—	—
Philadelphia	1,139,467	465	210	27.28	11.66	17.60	1.98	5.06
Brooklyn	1,043,000	438	210	26.68	8.97	19.32	.92	3.22
St. Louis	540,800	—	—	—	—	—	—	—
Boston	501,107	231	106	26.23	10.75	16.77	2.58	5.59
Baltimore	500,000	—	—	—	—	—	—	—
Cincinnati	325,000	—	—	—	—	—	—	—
Cleveland	325,000	95	—	42.00	5.25	26.25	2.10	3.15
Washington	285,000	120	53	26.56	9.13	18.26	3.32	2.50
Pittsburg	272,000	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	40	17	25.00	10.00	10.00	20.00	20.00
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	100,410	37	27	45.90	8.10	35.10	5.40	—
Fall River	92,233	47	24	36.21	6.39	31.95	2.13	2.13
Lowell	90,613	—	—	—	—	—	—	—
Cambridge	79,607	32	16	31.25	12.52	25.00	3.13	—
Lynn	65,123	16	7	25.00	12.50	12.50	—	—
Springfield	50,284	15	8	46.66	6.66	46.66	—	—
Lawrence	49,900	—	—	—	—	—	—	—
New Bedford	47,741	33	20	33.33	—	30.30	3.03	—
Holyoke	43,348	—	—	—	—	—	—	—
Brookton	33,939	9	5	44.44	11.11	44.44	—	—
Salem	33,155	16	7	18.75	6.25	18.75	—	—
Haverhill	32,925	4	4	14.28	—	14.28	—	—
Malden	30,209	9	3	33.33	—	33.33	—	—
Chelsea	29,806	10	5	20.00	10.00	—	—	10.00
Fitchburg	29,383	12	11	74.97	—	74.97	—	—
Newton	28,837	8	5	37.00	12.50	37.00	—	—
Gloucester	27,293	—	—	—	—	—	—	—
Taunton	26,954	5	3	—	—	—	—	—
Waltham	22,058	12	4	—	8.33	—	—	—
Quincy	19,642	9	5	22.22	11.11	22.22	—	—
Pittsfield	18,802	4	3	50.00	25.00	50.00	—	—
Everett	16,585	—	—	—	—	—	—	—
Northampton	16,331	3	1	33.33	66.66	33.33	—	—
Newburyport	14,073	—	—	—	—	—	—	—
Amesbury	10,920	2	2	50.00	—	50.00	—	—

Deaths reported 2,647; under five years of age 1,229; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 790, consumption 280, acute lung diseases 156, diarrheal diseases 509, diphtheria and croup 91, typhoid fever 48, whooping-cough 26, measles 22, scarlet fever 11, malarial fever 9, cerebro-spinal meningitis 8, erysipelas 4, small-pox 3.

From whooping-cough New York 9, Philadelphia and Brooklyn 7 each, Washington, Nashville and Cambridge 1 each. From measles New York 16, Brooklyn 4, Philadelphia 2. From scarlet fever Woburn 5, New York 4, Brooklyn and Boston 1 each. From malarial fever New York 3, Brooklyn and Washington 2 each, Boston and Nashville 1 each. From cerebro spinal meningitis New York, Worcester and Lynn 2 each, Philadelphia and Chelsea 1 each. From erysipelas New York 3, Brooklyn 1. From small-pox Philadelphia 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending August 10th, the death-rate was 20.8. Deaths reported 4,225; acute diseases of the respiratory organs (London) 159, diarrhea 736, measles 109, diphtheria 76, whooping-cough 65, fever 46, scarlet fever 39, small-pox (London 3, Oldham 2, Liverpool 1) 6.

The death-rates ranged from 13.6 in Croydon to 33.8 in Preston; Birmingham 20.3, Bradford 18.2, Cardiff 21.1, Leeds 20.4, Leicester 24.2, Liverpool 30.5, London 19.0, Manchester 27.1, Nottingham 21.9, Portsmouth 15.5, Sunderland 23.9.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending August 17th, the death-rate was 19.1. Deaths reported 3,884; diarrhea 610, measles 115, diphtheria 82, whooping-cough 48, scarlet fever 38, small-pox (Oldham 2, London 1) 3.

The death-rates ranged from 9.1 in Croydon to 31.0 in Preston; Birmingham 19.7, Bradford 19.6, Cardiff 15.4, Gateshead 19.0, Leeds 18.5, Leicester 18.8, Liverpool 27.7, London 17.3, Manchester 25.5, Newcastle-on-Tyne 16.9, Nottingham 22.8, Sunderland 22.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 24, 1895, TO AUGUST 30, 1895.

FIRST-LIEUT. WILLIAM W. QUINTON, assistant surgeon, is relieved from duty at Fort Riley, Kansas, and ordered to Fort Logan, Colorado, for temporary duty, relieving CAPTAIN LOUIS A. LAGARDE, assistant surgeon.

CAPTAIN LAGARDE, on being thus relieved, will proceed to Boston, Mass., and report for duty as attending surgeon and examiner of recruits.

Leave of absence to date from August 21st and to include September 30, 1895, is granted LIEUT.-COL. JOHN S. BILLINGS, deputy surgeon-general, U. S. A.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 31, 1895.

J. E. GARDNER, surgeon, and F. J. B. CORDEIRO, passed assistant surgeon, to temporary duty as members of the medical board at the Naval Academy, September 5th.

SOCIETY NOTICE.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The fifth annual meeting of the Association will be held in the Council Room of the College of Physicians and Surgeons of Ontario, corner Bay and Richmond Streets, Toronto, Can., Tuesday, Wednesday and Thursday, September 3, 4 and 5, 1895. Members of the profession are cordially invited to attend.

RECENT DEATH.

JOHN SYLER BRISTOWE, M.D., Senior Consulting Physician to St. Thomas's Hospital and formerly president of many medical societies, died August 20th. He was the author of a very well-known work, "The Theory and Practice of Medicine," and was distinguished as a clinical teacher.

BOOKS AND PAMPHLETS RECEIVED.

Charter and By-Laws of the Medical Society of the State of Pennsylvania. Reprint. 1895.

Pulmonary Hypertrophic Osteo-Arthropathy. By N. S. Davis, Jr., A.M., M.D., Chicago. Reprint. 1895.

The Liver as an Organ of Elimination of Corpuscular Elements. By Gustav Fütterer, M.D. Reprint. 1895.

The Treatment of Laryngeal Tuberculosis, with a Report of Cases. By Robert Levy, M.D., Denver, Col. Reprint. 1895.

Transactions of the Medical Society of Pennsylvania at its Forty-fifth Annual Session held at Chambersburg, 1895. Vol. XXVI. Philadelphia: Published by the Society. 1895.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army, Authors and Subjects. Vol. XVI. W-Zythus. Washington: Government Printing Office. 1895.

Seventeenth Annual Report of the State Board of Health of Illinois (being for the year ended December 31, 1894). With an Appendix containing the Official Register of Physicians and Midwives, 1895. Springfield, Ill.: Printed by the State. 1895.

Alphabetical List of the Abbreviations of Titles of Medical Periodicals employed in the Index-Catalogue of the Library of the Surgeon-General's Office, United States Army, from Vol. I to Vol. XVI inclusive. Washington: Government Printing Office. 1895.

Lecture.

METRITIS AS A CAUSE OF MISCARRIAGE.¹

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,
*Instructor in Clinical Gynecology, Faculty of Medicine, Tufts
 College; Member of the Société Française d'Electrothérapie, etc.*

LECTURE III.

GENTLEMEN: In this lecture I shall study the metritis of infectious diseases as well as that produced by intoxications of the economy by lead, mercury, etc.

The question of infectious metritis is far from being settled, as many deny its existence, while others describe it as a special and undoubted form.

Massin used eighteen cases who died from general acute infectious processes, such as typhoid fever, relapsing fever, croupous pneumonia, etc., for the study of the pathological changes produced in the uterus by these infections. These consisted in a parenchymatous or interstitial inflammation of the mucosa and an interstitial inflammation of the muscular tissue. In all there was found an endometritis with hemorrhagic foci in the substance and on the surface of the mucosa, and, according to the writer, the characteristic pathological change was a considerable afflux of blood to the uterus and venous stasis, in other words, the same changes as those found in other viscera in general acute infectious diseases. In some cases the venous stasis was the only thing abnormal, but in others there was extreme distention of the vessels with rupture of their walls, with resulting severe and numerous hemorrhages into the substance of the mucosa and muscular tissue of the uterus. The glands were also in a state of parenchymatous inflammation. The inflammation is sometimes diffuse, at others circumscribed, and appears to pass through three stages, namely: (a) Exaggerated afflux of blood to the uterus with venous stasis and vascular inflammation; (b) localized granular inflammation, consisting of a proliferation of round cells around vessels and glands; (c) diffusion of the inflammatory state.

Massin's studies corroborate the writings of Slavjanski on the hemorrhagic metritis of cholera; and they are so complete that after reading them, I am about convinced as to the possible existence of endometritis in acute infectious diseases.

I shall now proceed to discuss the question of metritis in acute infectious diseases occurring during pregnancy, and will begin with measles. When this disease appears in a pregnant woman, it will almost always bring about a miscarriage or premature labor. Underhill puts it at five times out of seven, while Klotz puts it at 75 per cent. The accident occurs at the time of the invasion of the disease or during the stage of eruption.

The cause of the interruption of gestation is difficult to explain, as the cough and dyspnea accompanying this pyrexia cannot be the factor, for the reason that there are other diseases, as pertussis, which have similar symptoms and in which pregnancy continues normally. The fever cannot be considered as the cause; the experiments of Doléris and Doré show the error of the results given by Kaminsky and Runge, so that its action is only accessory, excepting cases in which the rise of temperature is sudden and high. Likewise it is impossible to admit that the same dis-

ease in the fetus as in the mother is always the cause of miscarriage, for the former is often born without showing any signs of the disease.

For Charpentier, maternal toxemia is the cause; while for Vinay and others it is due to the action of the toxins elaborated by the agents of the infection. These toxins act either on the uterine muscle or on the nervous system, in the latter case producing contractions of the uterus.

Klotz admits that in measles, as in all other eruptive fevers, the miscarriage is the result of a simple exanthemic endometritis, which produces uterine contraction by a reflex action; a chronic metritis may also result.

Scarlet fever is very infrequent during gestation; but when it does occur, miscarriage is the rule. A case is reported by Hervieux, in which the affection appeared at the sixth month of pregnancy, and miscarriage took place on the second day of the eruption. The same factors have been put forward in scarlet fever as in measles; but in the former, death of the fetus is far more common.

Small-pox is one of the most serious complications of pregnancy for both mother and child, while varioloid is usually benign, but may give rise to miscarriage. Discrete small-pox produces miscarriage in about 50 per cent. of the cases, while in the confluent form this accident occurs in about 80 per cent. It is needless for me to say that the hemorrhagic form of this disease is usually fatal for both mother and child. Miscarriage occurs at different stages of small-pox, most often at the end of the eruptive stage when the secondary fever of suppuration takes place. Richardière, who has observed three cases of miscarriage in small-pox patients, remarked that this took place during the stage of suppuration. Interruption of pregnancy depends on the severity of the disease and also on the time of gestation when it appears, the chances of its occurrence being far less when pregnancy is not far advanced. Death of the fetus is frequent; about 70 per cent. die. Among the many factors in the production of miscarriage during small-pox I may mention fever, medullary lesions, rachialgia, accumulation of carbonic acid or oxide of carbon in the blood, etc.; but these conditions usually only play a secondary part. The generally accepted cause is the infection of the maternal and fetal organisms; on the one hand, it is the disease and death of the fetus, while on the other, it is the action of the toxins on the uterine muscles or on the nervous centre controlling the contractions.

Other observers believe that miscarriage is due to intra-uterine hemorrhages, first described by Péchloir and afterwards by Serres, Spiegelberg and others. They occur in the decidua, and detach the membranes, resulting in the expulsion of the product of conception which, according to the given case, will be alive or dead. The greater part of modern pathologists deny the existence of hemorrhagic metritis in small-pox which has been searched for in vain at the autopsy, and it is generally believed that the hemorrhage is the result of the miscarriage. On this point I have little to say, but I do not see why hemorrhagic metritis is not possible in the disease under consideration, for in one epidemic the disease may not attack the genital organs while in another it may. Now, if endometritis be admitted as occurring in some cases of small-pox, it will be easy to understand the occurrence of metrorrhagia in the pregnant and non-pregnant woman, as

¹ Being four Clinical Lectures delivered at the Suffolk Dispensary, Boston.

well as miscarriages taking place during the stage of intoxication and its disappearance. A table of 84 cases of small-pox during pregnancy is given by Costet, which shows that in a large number of cases miscarriage took place during the period of incubation or two months after recovery.

The pregnant female is not immune to typhoid fever, which may occur at any time during gestation. This disease produces miscarriage in about 66 per cent. of the cases. Sacquin found 199 miscarriages out of 310 cases, in other words, 64 per cent. The interruption of pregnancy can occur at all periods of the disease, but particularly during the second week.

The products of conception born before the seventh month of gestation are generally dead, poisoned by the Eberth bacillus, which is transmitted directly from the mother, as the experiments of Chantmess and Widal have demonstrated. Consequently the most frequent cause of miscarriage in this disease is the products of secretion and the pathogenic agent itself, which act at the same time on the fetus by killing it, and on the uterus by producing contractions. But for a long time it has been known that typhoid fever can produce congestion of the uterus, especially in the pregnant state. In the beginning a flooding may appear which is quite similar to the frequent symptom epistaxis, but later on the hemorrhage is *passive* in character and is made easy on account of the friability of the vessels. Duhaut believes that there is a plethora of the uterus under these conditions, which may be active or passive, and easily producing a detachment of the placenta with resulting miscarriage.

But beside these hemorrhages due to a simple afflux of blood, others are met with which are due to a primary inflammation of the endometrium; in other words, a typical hemorrhagic endometritis. Although Gusserow has never met this lesion in typhoid occurring in the pregnant, he nevertheless admits its possibility, and states that the cause of hemorrhages is to be found in diseases of the endometrium; the pseudo-menstruation occurring in typhoid infection is to be explained in the same manner. Consequently hemorrhagic endometritis in typhoid fever during gestation or in the non-pregnant is still an hypothesis but has a considerable probability in its favor.

Cholera has a particularly bad influence on gestation, which is interrupted in more than 50 per cent. of cases, while women who do not abort during the course of this disease, usually die before the uterus has had time to empty itself. Death of the fetus takes place during the algid state or during the period of reaction. The cause of miscarriage in this disease, as in all others, has been interpreted in various ways. For some, death of the fetus is due to the loss of water which produces a decrease in the blood-pressure, having for result a diminution in the quantity of oxygen in the placental vessels, thus asphyxiating the product of conception. Others think that carbonic acid is in excess in the blood, which determines premature contractions of the uterus, while Queirel believes that it is the heavy black blood of the cyanic state that deprives the fetus of its normal hematosis.

According to the modern bacteriological researches, miscarriage in cholera, as in all other infectious diseases, is the result of intoxication of the maternal and fetal circulation by the bacillus of the disease, as well as its toxine. The well-known theory of Slavjanski should also be borne in mind. This observer, struck

with the frequency of uterine hemorrhages during cholera, examined the cases in order to ascertain if these floodings were not a symptom of a pathological change, and the result was that he nearly always found lesions of the uterus. The decidua vera was very thick, soft and of a dark-violet color, and hemorrhagic foci, measuring as much as a centimetre and a half in diameter, were found in its substance. The decidua reflexa was also thick, but less so than the vera, and offered a few hemorrhagic foci not larger than millet seeds.

In pregnant women with cholera these changes are the cause of miscarriage, while in the non-pregnant, they cause hemorrhages. Let me add that this opinion has been attacked by many observers, particularly by Queirel, who never found a hemorrhagic endometritis in all his necropsies. However, these conscientious researches of Slavjanski remain as most instructive, and allow us, I think, to often attribute an abortion in cholera to hemorrhagic endometritis.

The action of influenza on the female genital organs is undoubted. In 1890, Müller gave statistics of 51 cases from which he concluded that this disease may produce metrorrhagia in the non-pregnant, characterized by its long duration and obstinacy to the usual therapeutic measures, while in the pregnant, miscarriage results. The experience of many others corroborates this view, and it is certain that the frequency of miscarriage and premature labor varies according to the severity of the epidemic. A third of Vinay's cases had a premature labor, and this is the result of the observations of others.

If, in other acute infectious diseases, the hypothesis of endometritis as a cause of miscarriage is attacked, there is certainly much reserve to be made in the case of influenza. According to Labadie-Lagrave, the hemorrhages in influenza are well explained by an acute inflammation of the mucosa; and what is more, taking into consideration the well-known influence of endometritis on miscarriage, the idea of an infection of the mucosa explains the occurrence of abortion and premature labor during *la grippe*. He thinks that it is difficult to admit a secondary infection, and believes that it is more in keeping to attribute the cause to the pathogenic agent of *la grippe* itself. Vinay also believes in an inflammation of the decidua, but this lesion is far from being constant.

It is also quite possible that the specific bacteria produces a toxine which acts on the nervous centres or on the muscular fibres of the uterus; but if we find ourselves in presence of characteristic uterine symptoms, I believe we should attribute the miscarriage or premature labor, as the case may be, to an infectious endometritis, and if there are hemorrhages before the beginning of any symptom of labor, it is most probable, as is argued by Vinay, that there is an endometritis of the decidua.

Gottschalk examined the endometrium of a number of patients having metrorrhagia, and always found it inflamed and in a state of desquamation; and, according to this observer, the specific organism of influenza acts in the genital tract in the same manner as the gonococcus.

I have, gentlemen, studied with you the infectious diseases in which endometritis has been considered by many as the factor in the production of miscarriage, and perhaps it also plays a kind of part in other infectious maladies. It is very probable that sudamina (?)

may produce metrorrhagia and deviation in the menses and miscarriage. As to lobar pneumonia, which is certainly a typical infectious disease, and which is sometimes accompanied by metrorrhagia according to Flatte, I have little to say. I have personally attended two pregnant women in this disease, and in neither was there any flooding during their illness; but in both, strange to relate, miscarriage occurred. In one it was six weeks after recovery; in the second, nearly two months after. Whether the interruption of gestation was due to the infectious process or not, I am not prepared to say.

You see, gentlemen, that acute infectious processes, especially certain ones, act directly on the uterine mucosa of pregnant women, and that this endometritis may cause miscarriage, the most frequently by hemorrhage, with resulting detachment of the ovum; but, as I have already remarked, I do not believe that an inflammation of the mucosa necessarily is present in every case of infectious disease and produces miscarriage.

The pathology of the latter depends on different conditions, such as the particular form taken by the given epidemic, the severity of the disease, the general conditions of the woman, and perhaps the manner of infection. It is impossible to attribute each and every miscarriage occurring during an infectious disease to the same mechanism or to the same agent producing the given infection.

In taking into consideration the modern theories of infection, we must remember a point often forgotten, namely, that infection of the organism may produce miscarriage, not only by the action of the bacteria and their toxins on the nervous centres or the muscular tissue of the uterus or the fetus itself, but also by their action on the cells of the uterine mucosa, producing the phenomena of inflammation.

As to intoxications by lead, mercury, sulphide of carbon, etc., their effects have long been known, but their manner of action is far from being understood. Of the intoxication by lead, or *saturnism*, I will say a few words. In 1860 Constantin Paul called attention to the influence of lead-intoxication of the parents on the product of conception, showing that it demonstrated its effects in many cases by death of the fetus and miscarriage; and out of 123 pregnancies he found 64 miscarriages. This fact is explained by the intoxication and death of the fetus on the one hand, while on the other, we have the action of the metal on the uterus. But beside these causes, which are the most frequent, it is also a fact that an endometritis may develop under the influence of saturnism. Cases have been reported of women suffering from lead-intoxication who presented typical symptoms of an endometritis during pregnancy, the child being born alive; the membranes were thickened, the placenta hypertrophied, etc.

A case occurred in the service of Professor Tarnier, of a woman suffering from saturnism, who had in all probability an endometritis of pregnancy. She was delivered at the seventh month of a living child weighing 1,340 grammes, while the placenta weighed 480 grammes.

If the hypothesis of endometritis produced by saturnism be admitted, it would be easy to explain the metrorrhagia and sterility which result. However, I will not take your time in further argument of this question; but let me, in terminating this lecture, say

that women who are employed in rubber manufactories, where sulphide of carbon is employed in the preparation of the goods, miscarry often, and sterility is frequent.

Original Articles.

THE CLINICAL USE OF DIPHTHERIA ANTITOXIN.¹

BY WILLIAM HALLOCK PARK, M.D., NEW YORK.

DIPHTHERIA is one of the most difficult of diseases in which to judge the effect of treatment, for the different cases vary so enormously in the amount and in the location of their lesions. Most important factors, such as the virulence of the diphtheria bacilli, the extent to which other bacteria are associated with them, and the local and general susceptibility of the patient, are, as a rule, largely unknown to us.

Before considering the results of the use of antitoxin, it will be well to touch briefly upon certain points in the course of diphtheria without antitoxin. Cases of diphtheria in which the pseudo-membrane is moderate in amount, and remains confined to the tonsils or adjacent parts after twenty-four to forty-eight hours, usually do well under any form of treatment, and are very rarely fatal if no complicating diseases exist. Cases, however, in which the pharynx and nose are also implicated, or in which pseudo-membrane is present in or below the larynx, are very dangerous. If the latter do not die from the immediate toxic poisoning, they are apt to develop later a broncho-pneumonia or a septic bronchitis. These are the cases which furnish more than half the deaths at the present time. There is also a variety of diphtheria which we recognize as septic. The diagnosis here must often be made more from the general condition of the patient than from any local signs. An important fact to bear in mind is that before the use of antitoxin, in a certain number of the cases, the exudate or pseudo-membrane would continue to increase in spite of any treatment. This experience was chiefly met with in the cases seen very early in the disease. For instance, in November, at the hospital three such cases occurred. M. R., three and a half years, was admitted, when but one day sick, with a slight patch on the left tonsil. Temperature was 100°; pulse 100. The membrane steadily increased until the child's death. K. M., two and one-half years, sick forty-eight hours, admitted with almost no symptoms. On the fourth day she developed laryngeal symptoms with high temperature, and died in three days. J. E., two and a half years, five days sick, tiny patches on tonsils and croupy cough. On the thirteenth day he developed laryngeal stenosis, was intubated, and died in forty-eight hours.

COMPLICATIONS MET WITH IN DIPHTHERIA BEFORE THE SERUM TREATMENT WAS USED.

A few illustrations selected from cases admitted to the hospital in the months just before the antitoxin period.

Child three years old, sick six days; membrane on tonsils, pharynx and in nostrils. On the third day of

¹ Read before the Annual Meeting of the Massachusetts Medical Society, June 12, 1895, and recommended for publication by the Society.

treatment complete suppression of urine; pulse dropped to 60. Death twenty-four hours later.

Child, age two years, four days sick; tiny patch on tonsils; pulse and temperature nearly normal. Developed pneumonia and suppurative otitis media on seventeenth day of disease; death twenty-first day.

Child, age eleven months; a little membrane on tonsils; temperature 100°; pulse 120. Within twenty-four hours temperature rose to 105°. Child seized with convulsions and died within twelve hours.

Child, six years old, but moderately sick. On fifteenth day tenderness of all joints. From time to time had general convulsions. These conditions continued until death took place on the twenty-eighth day.

A remembrance of these histories will aid us in estimating properly certain symptoms met with in cases under the antitoxin treatment.

THE ANTITOXIN SERUM.

The serum should have been kept in a moderately cool place; should be clear, and free from any bacteriologic growth. Now that the supply is abundant, only serum strong in antitoxin should be used. The serum used in these cases was prepared in the laboratories of the New York City Health Department.

Methods of injecting the serum.—A large hyperdermic injection syringe is selected, holding 10 c.c. It should have a strong, rather long, but not too thick needle. The usual methods of keeping a hyperdermic needle aseptic, and cleansing the skin, suffice. The injection should be made in subcutaneous cellular tissue, not in the muscles, and may be made on the side of the chest, over the pectorals, or in the buttocks, as desired. As a rule no after-pain is felt, but at times the spot is very tender for some days.

In a very few cases abscesses may develop. Proper serum and care in injecting should eliminate this danger.

Dose.—The size of the dose, I believe, should be measured chiefly by the extent and intensity of the disease; also, but to a less degree, by the size of the patient and the duration of the illness. For young children with but moderate lesions of tonsils or palate a single dose of 800 units, 8 c.c. Behring's standard No. 2 solution, will suffice, or 15 c.c. of a 1 to 50,000 solution Roux. For older children and adults 1,000 units should be given. In children who are already seriously ill or who already show the toxic effects, or in whom the larynx is involved, a dose of 1,500 to 2,000 units, 10–14 c.c. No. 3 is necessary.

If the symptoms do not abate, another 1,000 to 1,500 units may be given on the following day. In a few cases still a third injection is required. In a very few, a week or ten days after administering the antitoxin, a slight return of exudate may appear; here another moderate injection is indicated. Where these doses have not benefited, it is doubtful if larger ones will succeed.

TREATMENT OTHER THAN ANTITOXIN.

Since antitoxin is believed to act merely in hastening nature's process of recovery, and since it is certainly not sufficient to save all cases, it seems only reasonable that we should employ with antitoxin all other means, such as stimulants, inhalations and cleansing douches, which we have reason to believe have decided beneficial effects. The local treatment

especially is indicated, as the serum has no direct effect on the life of the bacillus.

THE EFFECT OBSERVED IN CASES OF DIPHTHERIA TREATED WITH ANTITOXIN AT THE WILLARD PARKER HOSPITAL DURING THE FIRST FIVE MONTHS OF 1895.

With the exception of a few who died shortly after admission, I have personally watched the results of the treatment in all the cases. For the complete histories I am greatly indebted to the kindness of the Resident Physician, Dr. Somerset, and the Assistant Resident Physician, Dr. Bryant.

STATISTICAL SUMMARY OF RESULTS WITH SERUM.

The cases here considered entered the hospital for treatment between the 1st of January and the 1st of May, 1895. They include all patients received who had both clinical and bacteriological evidences of diphtheria. About five per cent. had, upon admission, only swelling and hyperemia. A certain number were received in a moribund condition; these are also included. Patients who after admission developed some other contagious diseases are also included, although they may have died after being transferred to another hospital. From January 1st to May 1st there were 255 cases admitted; of these 183 recovered, 71 died, and one still remains in the hospital, making a mortality of 27.8 per cent., or, if the case remaining in hospital should die, a mortality of 28.2 per cent. For the same months of the previous year there were admitted under similar conditions 211 cases, with 82 deaths, or a mortality of 38.8 per cent.

So far as I can judge from memory and from the hospital records, the cases were fully as severe as last year. The number having laryngeal diphtheria, indeed, was one-third greater, and these are the cases which contribute the majority of the deaths. The drop of over 25 per cent. in the mortality I believe to be due to the influence of antitoxin.

I feel compelled here and later to touch upon certain remarks made by Dr. Winters at a meeting of the New York Academy of Medicine, held April 4th, and published by him in pamphlet form. From his position as a visiting physician to the diphtheria hospital, and from the fact that he had studied from day to day the effects of the antitoxin treatment, his statements that the treatment had produced not only no good effects but many most dangerous ones, has had a great influence in deterring people from the use of antitoxin, not only in New York but throughout America where his statements have been quoted.

Dr. Winters, in opening his remarks, in order to break the force of a moderate improvement in the mortality of the cases admitted during the first three months of this year, as contrasted with the same months of last year, declared that diphtheria was far milder now than one year ago, and that this was shown clearly by the fact that in last December there were in the hospital eight successive recoveries after intubation, something never equalled since with antitoxin treatment. The hospital records, when consulted, do not bear out these statements. They show a mortality of 42 per cent. for all cases in December, and not one of all the thirteen cases intubated recovered. Diphtheria, as met with in the hospital before the commencement of antitoxin, was, therefore, of a severe and not a mild type.

If we consider the cases according to the day of the disease on which treatment was commenced, we find that of the 59 non-laryngeal cases in which treatment was begun within the first three days, but four died—a mortality of six and one-half per cent. One of these was septic from the start; in another the diphtheria was complicated with general tuberculosis.

Day treatment was begun.	Pharyngeal and Tonsillar.	Died.
1	4	0
2	28	2
3	27	2
4	36	7
5	24	4
6	15	5
7	7	2
8 and 9	13	4

The mortality in the 95 admitted after the third day was 22 per cent. In laryngeal diphtheria the mortality, as is seen in the table, was lower in the cases admitted within the first three days, but after that time no difference was observed.

Day treatment was begun.	Laryngeal Diphtheria.*	Died.
1	0	0
2	6 [3]	[2]
3	21 [14]	11 [9]
4	20 [15]	13 [11]
5	14 [7]	7 [6]
6	9 [8]	6 [6]
7	4 [4]	4 [4]
8	10 [7]	[4]

* Cases in brackets were intubated.

The results noted by the New York City Health Department Inspectors in the cases injected by them throughout the city are very similar.

There is one consideration which I think is rather overlooked in estimating the mortality in those in whom the treatment is begun late. These must, from the nature of the case, have had severe diphtheria, otherwise they would not have remained sick so long, nor have sought treatment. The mortality would always be somewhat above the average in these cases, regardless of the influence of treatment.

Further, we have to remember that the facts obtained from the class of persons bringing their children to the hospital are not always accurate.

The effect of antitoxin in the treatment of laryngeal diphtheria is a matter of great interest. During the last five months of 1894, that is before the use of antitoxin, there were 36 intubated. Of these 23 died within four days. In 1895, during February, March and April, the months during which antitoxin of good strength was used, there were 53 intubated, with only 17 deaths, within the first four days. Among the 13 cases receiving no antitoxin, which lived more than four days, there were nine deaths after the fifth day, and of 36 receiving antitoxin, 17. Without antitoxin four recovered out of 36; with antitoxin, 19 out of 53.

Laryngeal cases which did not require intubation for the same months gave in 13 without antitoxin four deaths, and in 18 with antitoxin four deaths.

The element of chance in these results apparently so favorable to antitoxin must be considered; yet if the improvement continues it will be but fair to attribute it to antitoxin.

[Tables were here presented giving the cases of laryngeal diphtheria in consecutive order, also showing the cases ending fatally and the day of death.]

Mortality at different ages. Figures above the line relate to pharyngeal cases. Those below to laryngeal. Figures in brackets relate to cases intubated.

12 mos.		2d 12 mos.		3d 12 mos.		4th 12 mos.	
R.	D.	R.	D.	R.	D.	R.	D.
3 [0]	6 [5]	4 [2]	14 [1]	6 [1]	11 [8]	10 [6]	6 [6]
5th 12 mos.		5-9 yrs.		10-14 yrs.		15-20 yrs.	
R.	D.	R.	D.	R.	D.	R.	D.
17	2	24	1	14	1 meas.	53	1 T. P. & also.
8 [6]		2 [1]	3 [2]			1 [1]	died 34 hrs.

R — recovered. D — died.

THE BENEFICIAL RESULTS OF ANTITOXIN.

Upon the Local Process.—In the half-dozen cases in which I have made, or seen an injection made, within the first twenty-four hours of the disease, the results have been so remarkable that I have attributed them to the antitoxin. Following are the histories of two cases seen in private practice.

A boy, eleven years old, had had for twelve hours malaise, with pain on swallowing. Inspection showed the tonsils and portions of the palate to be covered with a soft, slightly adherent exudate. The boy was injected with 1,000 units, and twelve hours later his throat was clear and temperature normal. I do not believe this would have been a severe case without antitoxin, but the effect seemed magical.

The second case was a baby one year old, with a slight croupy cough for twenty-four hours, and stenosis just beginning. Temperature 102°, restless and without desire for food. Injected 500 units and found the baby the following morning practically well.

When the disease has progressed several days, and these cases are the ones seen in the hospital, the benefit is not so apparent. I believe, however, that a marked effect is still produced. In five months there has been only one case of pharyngeal or tonsillar diphtheria in which the membrane has increased after admission. I believe that the same result has taken place in laryngeal diphtheria. Four of these did indeed require tracheotomy after intubation, but I doubt if there was any actual increase in the extent of the membrane. The pseudo-membrane itself has seemed to me to separate somewhat more quickly than formerly, there being usually seen after thirty-six to forty-eight hours a line of demarcation separating the membrane and making it look like a slough ready to be cast off. The swelling of the throat tissues and of the glands of the neck appear to me to begin to abate earlier than formerly. The ulcerated surface left in some cases is covered with a soft exudate until healing occurs some days later. In laryngeal diphtheria if the intubation could be put off for eighteen hours it was avoided altogether. The time during which the cases remained intubated seem to me to be shorter than before the use of antitoxin. Many children coughed up their tubes in from twelve to forty-eight hours, and quite a number were able to do without them afterwards. Others required the tube from three to eight days. Exceptional cases occurred as previous to the use of antitoxin when the tube had to be worn for weeks. In but four did tracheotomy have to follow intubation. These all died. The general condition of patients seems to me to be beneficially influenced. The loss of appetite and the apathetic condition are less apt to occur, and when present seem more quickly relieved.

The Ill-Effects of Antitoxin Serum.—A small percentage of the cases had a slight rise of temperature immediately after the injection. As this is known to

occur in a certain number of healthy children after an injection of serum for immunization, it is probably due to antitoxin. In seven cases abscesses developed at the seat of the injection. None of them were serious.

Rashes. — These are peculiar to the serum injections. They are undoubtedly partly due to the horse serum, not altogether to the antitoxin. The eruption may be limited to the point of injection, or may more or less completely cover the whole body. It most often appears as an urticaria, but may resemble scarlet fever or measles. In some cases all the forms may be united in one person. Following the eruption, desquamation may occur. There were in the 255 cases treated 48 having eruptions. In 12 of these there was a rise in temperature of from two to four degrees. This lasted from one to three days. In three children and one adult there was accompanying the rash great tenderness over the joints of the extremities. These pains lasted, in all but one, for less than four days. This last was a child in which the joint affection was more serious. The child, aged fifteen months, was admitted on April 25th, with severe stenosis. The temperature was 101°. The child was intubated, and did well. It received two injections of 1,200 units each. On the twenty-seventh day there was a macular eruption over the body; twenty-four hours later the joints of the hands and feet became intensely painful. The child dreaded the least handling. The knees and the two joints of the left thumb became more swollen, and appeared like acute articular rheumatism. Before the eruption developed, the child's condition was rendered more serious by the development of a broncho-pneumonia, which continued gradually to increase until death two weeks later. Examination after death showed pus in both knee-joints and in the two joints of the thumb. The surrounding tissues were inflamed and thickened. Both lungs were the seat of extensive broncho-pneumonia. The septic infection of the joints I regard as secondary to the inflammation caused by the antitoxin. The inflammation caused by it predisposed the joints to become the seat of a septic infection. This was the only case in which a complication caused by antitoxin seemed to have seriously influenced the health of the child. The urticaria or erythema, with at times accompanying rise of temperature is, indeed, in certain cases very distressing, and in a person already prostrated might not be wholly without danger to the patient. In no other cases than the one above did it seem, however, to influence the course of the disease.

I have seen no serious effects upon the heart, kidney or nervous system which I lay to antitoxin. Those of you who remember Dr. Winter's observations upon the first part of the cases reported here may wonder at this statement. He says that many babies have been brought to the Willard Parker Hospital with slight clinical evidence of diphtheria — babies, with the exception of a slight exudate in the throat, and perhaps a slight croupy cough, that were apparently healthy and with rosy color. They remain in good condition for about ten days after the injection of antitoxin, when on entering the ward you hear a moan, etc. These are the cases of antitoxin infection. The temperature charts show a record of 105° to 106°. The symptoms may gradually subside, leaving the baby weak and extremely anemic, or for days the temperature varies between 99° and 107°. This, he says, is due to the action of antitoxin on the blood and is antitoxin septicemia.

It would be difficult to recognize the children from the above picture. During the last four months there have been but eleven cases whose temperature reached 105°, and only three 106°. Eight of these fourteen cases had on admission severe laryngeal diphtheria, and were almost immediately intubated, and all but two of the fourteen had pneumonia during their high temperature. One of these two was septic from the beginning, dying on the sixteenth day, and the other was an eleven months' child with tubercular ulcerations on arms and legs. This child steadily grew worse, and died of exhaustion. In the months before the use of antitoxin, children with laryngeal diphtheria, if they lived long enough, very frequently developed septic bronchitis or pneumonia. These children frequently had high temperatures before they died. As these cases, under the use of antitoxin, in no wise differed from those seen formerly, and as they were less frequent, it does not seem to me reasonable to attribute them to antitoxin. Later, Dr. Winters gave three examples of different kinds of antitoxin infection, one acting on the kidneys, one on the nervous system, and one causing convulsions. A reader not cognizant of the facts would suppose from his account that they were all mild cases. In fact all three were severe laryngeal diphtheria on admission. I will give his account of the first case, and then that of the hospital records. His other two histories are equally misleading. In his pamphlet he states: "A second form of antitoxin infection was seen in the case of a little girl, aged thirteen months, admitted March 22d. Given the first injection of antitoxin immediately; temperature before injection, 101.6°; temperature six hours afterward, 104°. Second injection, March 23d; afternoon of the same day, kidneys ceased to act. Hot pack and other methods of treatment resorted to. Baby died, in spite of all treatment, on afternoon of March 26th."

The hospital records add the following points: "The child Mary Quade was admitted after nine days of sickness; when received, her throat and nostrils were filled with foul discharge. Abundant thin membrane covered tonsils, soft palate and pharynx. The child had intense dyspnea, and was intubated almost immediately after arrival. The day after admission paralysis developed, and fluids regurgitated through the nostrils." With these added facts we have a very different picture before us, and hardly need to lay the suppression of the urine or the fatal result to the 2,000 units of antitoxin. Time does not permit me to further show why I believe his other statements give an equally wrong impression.

The Limitations of Antitoxin. — Diphtheria antitoxin, so far as we know, has no action upon the cells in causing them to resist any poisons other than those produced by the diphtheria bacilli. Here we see at once a limitation in the cure of the complex disease called diphtheria, for it is as correct, for instance, to class some of the cases met with as pneumonia complicated with diphtheria as to call them diphtheria complicated with pneumonia. Upon the pneumonia, so far as it is not due to the diphtheria bacillus, we cannot hope that the antitoxin will have any curative effect. Another limitation is suggested by the results of experiments on animals. We know that after the infection has proceeded but a moderate distance it cannot be arrested by antitoxin. Experience seems to show that in human beings also the cells no longer

react to antitoxin after a certain degree of poisoning has taken place, and this point in some cases seems to occur very early. I doubt if we are justified in saying that in these the actual lesions have progressed so far that without any further poisoning life has become impossible. I believe it may be possible that even after the administration of antitoxin the poison goes on producing further lesions.

There are cases in which even when the antitoxin is given early, it apparently fails to fortify the cells against the diphtheria poison.

In the hospital the effects of antitoxin upon laryngeal diphtheria, though in one way striking, are in another disappointing. More children live than formerly, but it seems as though still more should live. Many survive the acute infection, but many develop bronchopneumonia later and die. It has occurred in cases of diphtheria treated with antitoxin just as in cases not so treated, that a relapse may take place four or five weeks after recovering from the disease.

I give here, in closing, two instances of antitoxin limitation. Alice Means, aged sixteen years, a girl strong and well nourished, was admitted to the hospital on the third day of her illness; the glands of her neck, both tonsils and the peritonsillar tissues were greatly swollen. The whole area extending back into the pharynx was covered by a thick dirty-white adherent membrane, her nostrils were partially obstructed; temperature 99°, pulse 108. Her intellect was clear; 1,000 units of antitoxin injected; same amount injected twenty-four hours later. Thirty hours after her admission the swelling and infiltration were much less; membrane had lessened and was of more benign character. Her heart was irregular, but patient felt better; temperature was 99° and pulse 110. Four days after her admission her heart action became much more irregular and her pulse was but 66, falling the next day to 34. Patient had repeated attacks of heart failure, all nourishment was vomited so that stimulants had to be given by rectum. Patient died on fifth day. Autopsy showed extreme fatty degeneration of the heart and extensive degeneration of the other organs.

The second case is the following: Child, aged four years, admitted on February 11th, on the second day of the disease; was well nourished; temperature 101°; pulse 150, but of good quality; respiration 28. Examination showed the several glands moderately swollen; the tonsils to be much enlarged, but covered with only a moderate amount of membrane; nostrils free but showing some discharge. Three days later swelling of the glands of the neck less, exudate gone from the throat, temperature 103°, pulse 156, with a trace of albumin in the urine. On the seventh day child had an attack of urticaria; pulse and temperature a shade lower, but considerable albumin in the urine; eyelids edematous. The temperature then gradually rose until in two days it reached 105°, and there remained until death on the sixteenth day of the disease. This child had two doses of 1,500 units each.

The effects of the injection of antitoxin serum upon the blood of healthy children:

Dr. J. S. Billings, Jr., one of the assistant bacteriologists of the Department, examined very carefully the blood in fifteen babies after they had received doses of antitoxin for immunization. The children received from 200 to 400 units each. No alteration was discovered in the red or white blood-cells. The number of the white cells practically remained unchanged,

The number of the red cells showed, however, in half of the cases, a very interesting change; in seven of the fifteen a gradual diminution in their number took place from day to day until by the sixth day there was a loss of from 200,000 to 600,000 in each 5,000,000 of their cells. After this date the number rapidly increased, until upon the fourteenth day the numbers had returned to their normal amount. In an adult receiving 1,200 units the same result took place. From 6,000,000 the count dropped to 5,400,000, and then returned to the normal at the end of ten days. None of these persons showed any evidences of anemia except in the examination of the blood. The cells contained their normal amount of hemoglobin. The blood of a number of cases of diphtheria treated with antitoxin was compared with that in a number in which no antitoxin was used. The diminution in the number of the red blood-cells was greater in those not receiving the antitoxin.

IMMUNIZATION AGAINST DIPHTHERIA.

The results in New York have been as remarkable as those obtained in Boston, as reported by Dr. Morrill. They have partly been published already, so that it is necessary to give them but very briefly.

At the Mount Vernon branch of the New York Infant Asylum,² a case of diphtheria developed on February 18, 1894. Cases continued to develop from time to time, so that in September alone fourteen cases occurred. From that time until January 14th there was hardly a day in which a case did not develop. On January 16th and 17th, 221 children were each injected with from 100 to 200 units Behring's serum. No bad effects were seen, and during the next month but one case of diphtheria developed. This was on the fourteenth day. From February 22d to 27th five cases appeared, and the children were again immunized. This time they each received from 125 to 225 units, Behring's standard, of a serum prepared under the direction of the New York City Health Department.

No case appeared after the second immunization for a period of five weeks. Cultures made from the throats of those in the neighborhood of this case showed diphtheria bacilli in the throats of six of the children. These six were given 200 units each on March 30th. One of these children developed a tiny patch two weeks later, but had no constitutional symptoms. A case developed on May 3d and one on May 27th in the children immunized on February 27th.

The hospital has remained so nearly free of diphtheria that no third general immunization has been thought necessary.

At the Nursery and Child's Hospital³ in the three weeks preceding April 18, 1895, there were fifteen cases of diphtheria. Upon that day 136 children, varying in age from three weeks to four years, were immunized by receiving from 50 to 200 units each. The children showed no bad effects from the injections. A temporary rise in temperature occurred in one-fourth of them, which lasted for six to twelve hours. From the day of the injections to the present time no diphtheria has developed in the hospital, with two very interesting exceptions — a physician and a nurse who had not been immunized.

² New York Medical Record, April 20, 1895. Report by Dr. Peck.

³ Loc. cit., June 15, 1895. Report by Dr. Thomas.

Throughout New York City there have been over 200 persons immunized by the Health Department Inspectors in families where diphtheria has appeared. In only two of these has diphtheria occurred, and in these it developed within twenty-four hours. The lesions had probably already started before the injections were made. Both recovered.

CONCLUSION.

Diphtheria antitoxin has a distinct curative effect in diphtheria. The results are better when the injections are used early in the disease and when the diphtheria is uncomplicated with pneumonia or sepsis. The total amount required in the treatment of a case varies from 1,000 to 4,000 units, Behring's standard, and is determined by the severity and duration of the disease and the weight of the patient.

An injection of 100 to 200 units of antitoxin in a person will give an almost certain immunity from diphtheria for four weeks. If security is desired for a longer period the injection must be repeated.

Diphtheria antitoxin will not cure all cases of diphtheria even if given early in the disease. It does not destroy the diphtheria bacilli. It is desirable, therefore, with the antitoxin, to use other treatment, both local and constitutional.

The injection of diphtheria antitoxin with its accompanying horse serum is accompanied in a moderate percentage of the cases with disagreeable results, but in very few with any serious ones. No cases have been observed in which the kidneys showed any evidence of being seriously affected. It does not appear to have any deleterious effects on the blood, other than to cause a moderate temporary diminution in the number of red blood-cells, and even this is more than counterbalanced by its lessening the action of the diphtheria poison.

ANTITOXIN IN DIPHTHERIA.

BY CHARLES F. WITHERINGTON, M.D., ROXBURY, MASS.,
Assistant Visiting Physician, Boston City Hospital.

THE most important question that occurs to us as clinicians is, "Has antitoxin any curative value in diphtheria?" On this point I have some figures to which I will call your attention. They are obtained from the records of the City Hospital in Boston since the middle of 1890 when the "contagious service" was established. For six months of the year 1890, from July, there were 138 cases with 58 deaths — a mortality of 42 per cent. The following year 1891, there were 233 cases with 105 deaths — 45 per cent. The next year, which was one of thirteen months to February 1, 1893, there were 376 cases with 185 deaths — mortality of 49 per cent. In 1893 there were 389 cases with 203 deaths, or 52 per cent., showing a progressive increase in mortality every successive year, up to that which ends with the first of January, 1894. Coming now to the year which has just closed, with the first of February, 1895, antitoxin was used during the last seven weeks of that year, and during the first forty-five weeks the cases were treated in the old way. The average mortality for the previous four years is 48 per cent. In the year 1894 there have been 698 cases with 266 deaths, or a mortality of 38 per cent., or a fall of 10 per cent. from the average of

four years. As to whether that diminution was a continuous one during the whole year or was limited to certain parts of the year: for the first forty-five weeks of the year, during the time that no antitoxin was used, there were 578 cases with 244 deaths, or a mortality of 42 per cent.; during the last seven weeks, when all the severe cases were treated by antitoxin, there were 120 cases with 26 deaths, or a mortality of 21 per cent., exactly one-half of the mortality for the previous forty-five weeks, and, you see, comparing still more favorably with the 48 per cent. which is the mortality for the whole period of four or five years previous to the use of antitoxin.

During these seven weeks it was my privilege to be on duty at the hospital and to use the antitoxin in these cases. The figures in regard to that treatment have been published, and I shall not trouble you to go into them again further than to say that, of these 120 cases during that period, only 80 were treated with antitoxin because the material was not sufficient to supply all the cases, and the remaining 40, mostly milder cases, were left alone so far as antitoxin was concerned. Of those 40 cases, 12 died, or 30 per cent.; the 40 cases included the mild ones and a few moribund ones where it was hopeless to give the material. Of the 80 severer cases 14 died, or a mortality of 17 per cent., and taking all the 120 cases together, those treated without and those with, the mortality is, as I have stated, 21 per cent. That is one answer to the important question as to whether antitoxin has any curative value. That question does not mean whether it will cure all cases, for the limitations have been carefully and accurately stated by Dr. Park; but that it has a beneficial effect upon the general mortality of a hospital and of any community in which it is used seems to me without much doubt.

A second question is, "Has the remedy any unfavorable effects?" The answer must be "Yes, a few." These are chiefly the cutaneous eruptions, which are awkward and uncomfortable, but not dangerous. I never have seen but one case where I felt that the use of antitoxin was open to criticism on account of safety. Within a week or two in private practice I have had a case where I had a good deal of anxiety, not to say alarm, from the use of it. It was the case of a lady with well-marked diphtheria involving one tonsil. As promptly as possible she received 1,500 units of the Behring solution, and with the effect of almost immediate amelioration of the symptoms so far as appearance of the throat went. Two days later the other tonsil began to be involved with rapidly increasing membrane. She again received 1,500 units, and with the result that after four or five days the throat was clear of membrane, and bacteriological examination showed it to be clear of the bacilli. But following that for about a week she was in a condition of a good deal of gravity, characterized first by local erythema, then general erythema, then intense urticaria, then by purpura of a good deal of severity involving both legs, and by severe pains accompanying the course of the nerves and possibly due to a neuritis. Her condition was one of high fever, delirium and a good deal of prostration. She has come out of it, and is now convalescent from the disease. The gravity of the symptoms referable to antitoxin in this case will lead me in the future to be a little conservative in its use in cases which appear at the beginning likely to be pretty mild. But while it has its limitations, and while it has its ac-

¹ Remarks before the Massachusetts Medical Society, at the Annual Meeting, July 12, 1895.

cidents and ill effects in certain cases, it seems to me to possess the great preponderance of advantage in the treatment of severe cases; and I believe that the reduction of mortality at any rate far offsets any of those ill effects which we sometimes see.

ANTITOXIN IN DIPHTHERIA.¹

BY GEORGE G. SEARS, M.D., BOSTON,
Physician to Out-Patients, Boston City Hospital.

It has seemed to me, after listening to this series of able papers on the subject of diphtheria and its treatment, that the most interesting way in which I could take part in the discussion would be to give an account of the results obtained at the Boston City Hospital with antitoxin from February 1st, the date at which Dr. Withington's observations end, to May 31st. In the short time which is allotted me it will be possible to give these results in a rather broad way only, reserving fuller details for some other occasion.

Whatever may be thought of the value of statistics in proving the worth of any form of treatment, it is certain that antitoxin for the present, at least, will be judged chiefly by the figures which are supplied by institutions in which a large number of cases of diphtheria are treated. Yet for purposes of comparison between the present and the past, there is a decided choice in the way such figures are presented. The mortality-rate may be deduced only from the cases in which the serum was injected, or it may be made up from the total number admitted, whether they received it or not. So long as it was not withheld from a lack of supply, but only because the disease either seemed too mild to require it or had already reached the stage where no treatment could avail, the latter method seems unquestionably the fairer, since it entirely eliminates the personal factor in the selection of cases, and gives no ground for the suspicion that the severe ones failed to receive treatment, lest they should spoil the statistics. In the present instance, however, the difference is very slight.

In gathering the following figures, based on the cases admitted between February 1st and May 31st of this year, I have not made the bacteriological examination the supreme test, since I have included several fatal cases which either died so soon after entrance that no cultures were made, or else were such typical cases that the failure to find bacilli on one or two attempts seemed without much doubt to be due to accident. In every case which recovered, however, the diagnosis was made in the laboratory. As a result, a higher death-rate is given than perhaps actually occurred; but if antitoxin can stand this form of treatment, so much more credit is due it. Under this classification, within the period mentioned above, 238 cases were admitted, of whom 60 died—193 being treated with antitoxin, with 47 deaths. If these figures be added to Dr. Withington's, which have already been reported, a total of 358 cases and 86 deaths is given, with a percentage of 24, as opposed to 290 admissions during the same period last year, with 137 fatalities (47.2 per cent.). If we exclude 36 cases which entered moribund, and died within forty-eight hours, and six whose death was not connected

with diphtheria, the mortality-rate is reduced to 13.9 per cent. A comparison of the results obtained in the operative cases, either intubation or tracheotomy, is just as striking, not only in the proportion of recoveries but also in the marked reduction in the number in which such interference was necessary. Of the 290 cases treated a year ago, 77 (26.5 per cent.) required operation, only nine recovering, while in the larger number treated this year operation was necessary in but 41 (11.5 per cent.), and of these 17 recovered. Of the 24 deaths, 14 occurred within twenty-four hours after admission, while 10 received no antitoxin. Of the 31 cases treated by the serum 17 recovered, 54.8 per cent., while in 7 of the 14 fatal cases, operation, injection and death all occurred within twenty-four hours after entrance. As I look back over the past few months I do not think that this marked improvement can be accounted for by any change in the severity of the disease. It has seemed to me that the normal number of serious cases had been admitted, an opinion which is shared by other men who have been following the work there, while similar results obtained in other hospitals all over the world make it extremely improbable that so sudden and universal a change should have occurred. Nor do I think that the smaller number of operative cases and the larger number of recoveries are to be accounted for by any alteration in the type of the disease, but rather that the reduction in the number of such cases, judging from the effect produced in the visible membrane in the throat, is due to the action of antitoxin, partly in preventing the extension of the membrane downwards, and partly in arresting its further development in cases where the larynx is already involved and in hastening its disappearance, since time and again patients were admitted on the borderline of operation, in whom the disquieting symptoms rapidly subsided under antitoxin, steam and calomel sublimations. That antitoxin does not always shorten the time during which the tube is worn is sufficiently well shown by the fact that it was not permanently removed till the seventh day in one patient, the eighth in one, the tenth in one, the twelfth in one and the eighteenth in another. Of the other eleven successful cases it was worn one day by one,² two days by two, three by one, four by two, five by four, and six by one; the average time being six days.

Regarding the local changes in the visible membrane in the throat, in none of the cases which have come under my own observation have any extraordinary effects been seen; although large pieces have occasionally exfoliated as under any form of treatment, it has usually disappeared in a perfectly orderly manner. The most remarkable effect produced in the membrane has been its failure to extend except in rare instances, and in many of these the advance seemed to have been permitted by the small size of the dose, a second injection being often sufficient to check further progress; as a result the active stage of disease is shortened, the membrane disappears sooner, since less is formed, septic absorption is diminished, and the swelling of the cervical glands and the infiltration of the tissues of the neck rapidly subside. In some of the cases, even of those accompanied by the constant oozing of a fetid bloody discharge from the nose and mouth, where sepsis had already produced such serious cellular changes that recovery was im-

¹ Remarks before the Massachusetts Medical Society at the Annual Meeting, July 12, 1895.

² This patient died, six weeks later, of scarlatina.

possible, the local effect on the membrane and the improvement in the child's sense of comfort and in his mental condition seemed to justify its use. It has often seemed in such cases that antitoxin had done all that could be expected of it in counteracting the diphtheria toxine, the patient dying not because it had failed to do its proper work, but because it is no more able to excite a dead cell than is electricity to stimulate a dead muscle. Such failures suggest that these cases might have been saved by an early injection, but the death of a few where treatment was begun within the first two days proves that some other factors beside time are at work, which may not be clinically evident, perhaps a mixed infection.

The story of antitoxin is, however, not all told in chronicling only its good effects; unfortunate accidents have undoubtedly followed its use, but the cases which have come under my own observation have been practically free from such results. Various forms of skin eruptions have been comparatively frequent and have at times been attended by considerable constitutional disturbance and fever and the appearance of a trace of albumin in the urine, but the condition of the patient was never such as to give rise to anxiety. In some half-a-dozen of these cases the joints became swollen, tender and painful, but this almost invariably passed off within forty-eight hours. Rarely after one injection the eruption reappeared ten or twelve days later, the relapse being at times accompanied by more serious symptoms than occurred with the first manifestation.

In a disease where complications are common under any form of treatment, the evidence must be very conclusive before the charge that antitoxin is responsible for the occurrence of endocarditis, broncho-pneumonia, nephritis and paralysis can be sustained, and is not supported by the cases now under consideration. In order to determine in what proportion such complications existed, I have gone carefully over the records of these 238 cases, but regret that the figures obtained can be regarded as only closely approximate, since the histories are not always sufficiently explicit; but when doubt existed I have tried to err on the side against antitoxin. All cases, for example, have been classed as broncho-pneumonia in which slight signs in the lungs, as noted in the records, were accompanied by a rise in the respirations and temperature, though in many of them the process in all probability was confined to the bronchi, and I have also included those cases in which it developed during the course of scarlet fever acquired subsequent to admission. Those in which it existed prior to the injection are naturally excluded. Under such a system 25 instances were found, in 11 of which it evidently contributed to the patient's death. The occurrence of traces of albumin in the urine was common, as it always has been, at times immediately following the injection of the serum, once or twice in large amount. In a certain proportion of the cases, as Dr. Morrill's statistics show, this must be looked upon as its result, though in others it was probably an accidental coincidence. In a few cases in which both a chemical and microscopic examination of the urine was made before and after its use by Dr. Ogden, no change was discovered. In only 25 cases did the amount of albumin rise to as much as a large trace as reported from the laboratory, while in only one, the fatal issue being preceded by convulsions, could the condition of the kidneys be

considered as taking more than a very remote part in causing death.

The discovery of only four cases of paralysis among the records, only one of which seemed likely to be serious, may be in part accounted for by the fact that it is often of late development, and may have come on after the patient's discharge. It is also possible that some slight cases, when it was confined to the throat, were overlooked, but the figures even then give no support to the idea that it is more common after antitoxin than under other circumstances. Cases where systolic murmurs developed in the cardiac area were sufficiently common, and many of them persisted till the patient's discharge, but as most of the patients were under observation but a short time it is impossible to say how many were permanent, and statistics on this subject would have little value either way.

With the use of antitoxin as a prophylactic measure my experience is limited to about a dozen cases, all of whom escaped the disease. The infection of the two gentlemen who preceded me in charge of the wards, and my own escape after an immunity dose of 250 units of Behring's serum, is probably nothing more than an odd coincidence.

Before the 8th of April almost all of the cases were treated by Behring's antitoxin, or that furnished by the Pasteur Institute of New York; but in a few instances Aronson's was also used; since then a supply has been most generously provided by our State Board of Health, sufficient for most of the patients who needed it, and I am very glad of this opportunity to acknowledge our indebtedness to them, and to congratulate them on the prompt way in which their material was furnished to the profession, and the success which has attended its use.

Under ordinary circumstances the patients received a dose varying from 500 to 1,500 units on the day of entrance, and again on the following day or the day after, if the progress of the case seemed to require it. In a few of the fatal cases very much larger amounts were given, while some of the successful results followed the injection of 100 c. c. (1-50,000) of the State Board of Health product given in the course of six or seven days. Contrary to the opinion which I understood Dr. Park to express, there seemed at times a distinct advantage in these large doses.

The anterior and outer surface of the thigh was the site usually selected for the insertion of the needle, and the local reaction was usually slight, though a few of the children complained of considerable pain on movement of the leg for the first twenty-four hours or so. In order to avoid the possibility of any interference with the performance of their duties by lameness, several of the house-officers, who took an immunity dose, selected the upper arm for the seat of the injection, and in nearly every instance it was followed by marked swelling, which was accompanied by intense itching. In four or five cases an abscess resulted, but as this also followed in a few instances during the same period the hypodermic injection of a drug, and ceased after a serious conversation with those who were responsible for the administration of the serum, they were probably the result of some failure in technique.

Other treatment consisted in the use of iron, brandy and the cardiac stimulants, feeding by the nasal tube being resorted to in appropriate cases with apparently brilliant results. The only local treatment was the

irrigation of the nose and throat, when the child did not resist too strenuously, with a normal salt solution, or with Dobell's. After the membrane had disappeared, an effort was made to hasten the departure of the bacilli with mild peroxide of hydrogen solutions, boracic acid or lemon juice. Croupy cases were treated with steam and calomel sublimations.

In conclusion I would say that the careful observation of these cases, most of which were under my care during a portion at least of their illness, has changed my position from that of a good deal of scepticism regarding the value of antitoxin to one of considerable optimism. While it has not fully justified all the claims of its most ardent supporters, since death sometimes occurs even when the injections are made early in the disease, in cases which seem clinically appropriate, a marked reduction in the mortality-rate has followed its use. In the rank and file of cases the exfoliation of the membrane is hastened, the amount of septic absorption is diminished, and the danger from this source therefore decreased, while of those which are complicated by laryngeal stenosis, a smaller proportion require operation, and of these a relatively larger number recover. Even in hopeless cases the membrane may clear up under its use, while its effects in counteracting the diphtheria poison are frequently seen in the brighter mental condition and improved sense of well-being of the patient. Unfortunate results have occasionally followed, perhaps from some idiosyncrasy on the part of the patient, perhaps from some chemical change or decomposition in a particular specimen, but whatever its cause, in the face of its many advantages, such accidents should no more deter us from its use than the occasional death from ether should prevent its employment as an anesthetic, though it might suggest some limitation to its administration as a routine practice to every patient. Even if all the cases of broncho-pneumonia or albuminuria which were observed could be ascribed to it — an impossible task in a disease where such complications are common under any form of treatment — they are more than offset by a reduction of fifty per cent. in the mortality-rate.

Clinical Department.

A CASE OF ANEURISM OF THE THORACIC AORTA.¹

BY SARAH M. CRAWFORD, M.D.

E. F., married man, sixty-four. Born in Basel, Switzerland. Came to Massachusetts in 1858. Clerk in banking-house in Boston over thirty years.

Family history good. Grandparents, uncles and aunts died at advanced age. Parents died of pneumonia — father at fifty, mother at seventy-two.

Patient was five feet, ten inches in height, erect, broad-shouldered and compactly built. Normal weight about 185 pounds. Complexion and eyes dark; hair originally black, not much whitened by age. Health always robust until three years ago, when he received a blow on his chest over the region of the heart. He was struck, while crossing Devonshire Street in Boston, by iron pipes or railroad iron which projected from the end of a loaded wagon or truck. He had waited

for the team to pass, not seeing the projecting irons, which struck him as the team whirled round the corner. He did not fall, but was faint and sick. He went at once to his office in State Street, closed up for the day, and went to his home in Longwood Avenue, Roxbury. He continued to feel faint, sick and shaken up; took claret frequently through the afternoon and evening (using an entire bottle); could not eat dinner, and sat up very little. His wife applied wet compresses and arnica. The next day was Sunday. He remained in the house, resting on the sofa throughout the day; no particular pain, but lame and sore. The skin over his chest was quite extensively discolored. His wife said that the discoloration covered a place as large as her two hands. Monday he resumed his ordinary occupation and said very little about his injury. In a few days he appeared to be as well as usual; but he soon began to have a slight cough, to which he paid little attention.

In November, 1892, he had an attack of what he called *la grippe*; did not consult a physician; went to his office every day and did his usual work, favoring himself when he could by sitting instead of standing at his high desk, as was customary with him. He felt weak and miserable, but would not give up. He never felt well afterwards. His cough grew worse; he had occasional shooting pains in his chest; his throat was troublesome; and he complained of shortness of breath, and of weight about the chest.

He consulted Dr. Wm. Wesselhoeft; was under his care a few weeks. Cough did not improve, although not very distressing and not constant. He then consulted Dr. Greene, of Nervura fame; afterwards, Dr. Copeland, under whose care he remained about six months, going to his office twice a week for treatment of nose and throat.

In January, 1894, through the influence of his wife, whose family physician I had been for many years, he consulted me. He now weighed about 170 pounds. He complained of cough, choking, and inability to swallow solids, and of dyspnea after exertion, irritation of the throat and pressure on or in the chest. He had occasional shooting pains in chest; appetite fair; bowels regular; sleep good. His cough was laryngeal, loud and barking, with a metallic ring. Upon examination, I found tongue normal, throat dark and congested, the mucous membrane of the whole pharynx much swollen, and the uvula twice its normal size. There were two irregular streaks about an inch long, extending longitudinally on the posterior wall of the pharynx, where the mucous membrane looked rough and granular.

Physical signs: By inspection there was a lack of elasticity in the movements, and a slight difference in the size and shape of the two sides of the chest in front, the left being the more prominent; in the back the right side just below the scapula was more prominent than the left. The percussion note on the right side was a little higher in pitch, and tympanitic. On the left there was diminished resonance. By auscultation, the respiratory sounds were heard more distinctly over the right than over the left chest, and occasional sibilant and sonorous râles were heard over both lungs. The area of heart dulness was normal, and nothing abnormal was detected in the sounds or rhythm of the heart. Pulse was 78. I prescribed sulphate of strychnia (one-thirty-second of a grain), and cod liver oil, three times a day. I treated the throat by appli-

¹ Read before the Norfolk District Medical Society, December 28, 1894.

cations of tincture of iodine and glycerine, equal parts, and prescribed a solution of bicarbonate of soda in the proportion of a drachm to a pint of water for spraying the throat, and hot-water gargles.

I saw the patient frequently for a few days, then occasionally through the winter and spring. His general condition seemed to improve under treatment, although the choking at meals occurred occasionally. During the summer he was so much improved that I did not see him at all. Late in August he took a severe cold from going without his overcoat, his previous symptoms were aggravated, and he grew rapidly worse.

October 26th I was called to attend him at his home. I saw at once a marked change for the worse. He had lost 15 pounds, was weak, and had an anxious, careworn look. He could take little solid food without choking and strangling. He complained of severe pain in his right side; it seemed to follow the course of the right eighth intercostal nerve. Distressing dyspnea followed slight exertion. He suffered great prostration and pressure in his chest. His cough was hard, suffocating, and followed by slight expectoration of thin, glairy mucus. Upon examining the chest I found very little change since my former examination, except that the respiration seemed less in the left lung, and the breathing was stridulous. I now felt sure that there was some growth or tumor pressing on the left bronchus or trachea, the esophagus and pneumogastric nerve or the recurrent laryngeal. Respirations were 30. Pulse 84, small. Temperature normal. I prescribed a hot-water enema to be given at once, one-eighth of a grain of sulphate of morphia, by mouth, to be repeated in two hours if necessary, and a large hot linseed poultice over the painful side, and advised patient to remain in bed until my next visit.

The next morning I found patient free from pain; he had slept but little, and seemed exhausted. He complained more of pressure in his chest, and asked for something to loosen his cough. I left sulphate of morphia, to be taken as required, and directed the chest to be rubbed with compound camphor liniment. Temperature normal. Respiration 24. Pulse 80. Patient wanted to get up, but I advised him to stay in bed another day, and then consult Dr. F. I. Knight. He had never experienced any difficulty in lying down, although he rested better on his left side than on his right.

Two days later I saw him again; he was sitting up, and there was no appreciable change in his condition. Arrangements were made for him to go to Dr. Knight's office for examination and treatment; and from October 29th to November 20th I did not see the patient, but I heard from him frequently through Dr. Knight and the family of the patient.²

November 20th, 21st and 26th, I was called to attend him at home — on the 20th, for diarrhea. On the 21st I examined his chest inch by inch; but I failed to find any further evidence of what I suspected. His weakness and dysphagia had increased, so that it had now become necessary for him to extend his neck and elevate his shoulders, bringing them forward, in order to allow liquids to pass into the stomach. His cough was frequently followed by strangling, retching or vomiting, and the vomited matter was streaked with

blood. His weight was reduced to 150 pounds. Pulse 96. Respiration normal.

On November 28th the patient died suddenly and quietly, at about seven o'clock in the evening. He had been up and about his rooms as usual, but he had been rather more restless and much weaker than at any time during his illness. About ten minutes before his death he had an attack of vomiting, soon after which he fell back exhausted. I was sent for, and upon my arrival found that I was too late. The patient probably died when he fell back. I found that the vomited matter contained a small amount of blood, probably not more than an ounce, perhaps less.

November 29th an autopsy was made by Dr. H. W. White, whose report I append:

Autopsy. November 29, 1894. Man about sixty, fairly well nourished and vigorous. No external signs. On opening chest found both lungs free and spongy; slight hypostatic congestion on back of each lung; no fluid in pleural cavities. Opening pericardium, found about two ounces of clear, yellow serum; just above the heart, in median line, a tumor the size of two fists, filling the mediastinum completely. Desiring to remove this tumor and preserve its contiguity with other organs, the chest was emptied *en masse*. This tumor gave the sense of crackling to the touch, was collapsible, and apparently intimately connected to a part of the arch of the aorta and its branches. Both lungs were removed, and the rest of the specimen preserved entire. It was found to be a very much enlarged aorta. The aorta was opened along its posterior wall; it showed extensive atheromatous degeneration and calcification. From its commencement at the aortic valves it was evenly enlarged to twice its ordinary calibre. At this point the inner wall of the dilated aorta was soft and ragged, and filled with clots. This pressed against the esophagus, primary bronchus, and its branches reaching towards the left lung. There was no sign of complete rupture, and death resulted apparently from the extensive pressure upon all the vessels, nerves and contents of the mediastinum.

Medical Progress.

REPORT UPON FOOD, DRUGS AND ARTICLES OF DOMESTIC USE.

BY BENNETT F. DAVENPORT, M.D.

RELATIVE DIGESTIBILITY AND NUTRITIVE VALUE OF OLEOMARGARINE AND NATURAL BUTTER.¹

Although the statements made as to the relative value as food of natural butter as compared with margarine have varied, yet the general outcome has been that, while there was not much choice between them, yet as a whole butter had a slight advantage. This has led Dr. Adolph Jolles to carry out a long series of observations upon dogs fed during four consecutive periods alternately with natural butter and with margarine. All the discharges were examined daily for unassimilated fatty matter. In the first and second periods more fat and less carbohydrates were given; in the third and fourth, less fatty matter and more carbohydrates. Butter was used in the first and third periods, and margarine in the second and fourth. The

² Dr. Knight's notes of the case show that by "physical signs" the results of his examination were as negative as my own.

¹ Sitzbericht: Kaiserl. Akademie in Wien. 6th März. 1894.

other articles of food used, such as wheat-meal, sugar, etc., were all of ascertained composition, and were made up into dog-biscuit, so that the amount of the different kinds of food constituents consumed during each period were accurately known. It was thus possible to trace out during each period the proportion of proteids, fat, non-nitrogenous or mineral matters which were either digested and assimilated, or passed undigested. From 97 to 98 per cent. of the fatty matter was uniformly digested, whether it was butter or margarine which was used. During the first and third periods, while butter was given, 98.4 and 97.1 per cent.; and during the second and fourth, while margarine was used, 97.9 and 97.3 per cent. of the fatty matter given was digested. It thus appeared in this experiment, where proper care was taken to have all the conditions similar, that natural butter and manufactured margarine had practically identical coefficients of digestibility and nutritive value.

An item is going the rounds of the newspapers as to the relative frequency of bacteria in natural butter and in margarine, which considering the manner of production of the two articles seems reasonable. According to the item, average natural butter has been found to contain from ten to twenty millions of microbes to the gramme, while average margarine had but four to six million. The maximum found in butter was forty-seven millions, while in margarine it was but eleven. While cold reduced the margarine microbes from six and a half millions to about one-thirtieth of that number, it, in the case of natural butter, reduced them only one-third part of what they were before. In neither natural butter nor margarine were any pathogenic bacteria found.

WINES PRODUCED IN CALIFORNIA.²

Samples of the 194 brands of California wines represented at the Chicago Columbian Exposition were afterwards analyzed in the laboratory of the United States Department of Agriculture at Washington by Dr. W. H. Krug. The wines were from all the important districts in the State, and included all the various types grown. These were judged as to their quality by the standards adopted in Germany, upon the report of the Imperial Commission, although these might not be absolutely fair to wines grown under different climatic and soil conditions. In only a few samples was any sediment noticeable, most of the wines, both white and red, presenting a fine appearance, showing that they were well matured before being bottled.

Only three samples exceeded the German limit for potass. sulphate, thus showing that plastering had not been excessively used. When it is remembered that it is the sweet wines of Southern Europe which are the ones preferred for medicinal use, and that it is these same wines which are the ones most extensively plastered, the advantage of the sweet wines of California for such use, as none of them were found to exceed the German limit, can be appreciated. Many of the wines had, however, been excessively sulphured in the fumigation of the casks for the prevention of oxidation and of the growth of mycoderma in the wine; 33 out of the 87 wines examined in regard to this particular, have been excessively treated. This custom of fumigating wine casks with sulphur has been in general practice among wine producers for cen-

turies, and nothing better, when properly used, has yet been discovered. In only four of the wines was any salicylic acid found.

On the whole it was evident that the California dry wines are fully equal to the European wines, and the red wines are in every respect superior to the young French clarets. The sweet wines are to be unconditionally preferred to those of Europe containing the same amount of alcohol and extract as not being plastered. This superiority is already being appreciated in Europe; and it is only a question of time when an extensive foreign market will be open to this, one of the most promising American home products.

LIQUORS OF GOOD STANDARD QUALITY DEFINED.

The following extract is from Senate Bill No. 180, which was introduced before the State Senate last winter for the purpose of so amending the present statute relating to intoxicating liquors as to define the phrase, "good standard quality." The words are used in the statute, but are of no effect, not having a definite meaning. The bill was, however, pigeon-holed by the committee, but may appear again before another legislature.

SECTION 1. Section nine of chapter one hundred of the Public Statutes is hereby amended by striking out all the words of the third clause thereof and substituting thereof the following:

"Third. That no spirituous or intoxicating liquors shall be sold, exchanged or delivered, or exposed, offered or kept for sale, exchange or delivery, upon the premises described in any license except such as are of good standard quality, and such as are free from any adulteration prohibited in the Pharmacopœia of the United States, and under the several acts relating to adulteration of food and drugs for either a food or a drug. And if marked, labelled or represented as being the product of any foreign country, they shall also be of the standard quality required for their legal sale for domestic use in the country of their reported production. All such liquors as are sold, exchanged or delivered, or which are exposed or kept for sale, exchange or delivery, under a license of the sixth class shall be of the quality required for their sale as drugs under the provision of the acts relating to the adulteration of food and drugs.

"All spirituous or intoxicating liquor shall be deemed, for the purpose of this act, not to be of good standard quality, if upon analysis it shall be found: in the case of a malt liquor or beer, to be anything other than the alcoholic liquid, the legitimate and exclusive product of the fermentation with yeast of a wort made from barley, malt and hops; except it be a malt liquor or beer distinctly labelled or otherwise plainly designated by a distinctly qualifying descriptive name, in which case the malt may be wholly or in part replaced by any wholesale malt substitute, which is plainly indicated by the descriptive name. It shall also be deemed not to be of good standard quality, if it be cloudy with yeast, or if it contains more than fifty grains of sodium chloride to the gallon:

"In the case of cider, to be anything other than the alcoholic liquid, the legitimate and exclusive product of the fermentation of pure apple juice:

"In the case of a wine, to be anything other than the alcoholic liquid, the legitimate and exclusive product of the fermentation of the pure juice of fresh grapes, and containing from ten to fourteen per cent. by weight, or twelve and four-tenths to seventeen and three-tenths per cent. by volume, at the temperature of sixty degrees Fahrenheit of absolute alcohol; except it be a wine distinctly labelled or otherwise plainly designated as a 'fortified sweet wine,' in which case it must be one which has been fortified with wine spirits, and which is in full accord with the 'regulations and instructions' issued by the United States internal revenue bureau concerning the 'fortification of pure sweet wines' under the revenue acts of the United States; or except it be a wine distinctly labelled or otherwise plainly designated by a distinctly qualifying descriptive name as the product of some other fruit juice than the pure juice of fresh grapes; in which case it must be the product of the fermentation of the pure juice of the fruit plainly indicated in its descriptive name, but it shall be of like character in all other respects to that produced from grapes, except such as are necessarily implied in its descriptive qualifying name:

"In the case of a brandy, to be anything other than the alcoholic liquid, the legitimate and exclusive product obtained by distillation from fermented unmodified juice of fresh grapes, and which since its distillation has been stored for at least four years, and which contains from thirty-nine to forty-seven per

² Journal of American Chemical Society, September, 1894.

cent. by weight, or forty-six to fifty-five per cent. by volume, at the temperature of sixty degrees Fahrenheit of absolute alcohol; except it be distinctly labelled or otherwise plainly designated by a distinctly qualifying descriptive name as apple brandy, peach brandy or some such like fruit brandy other than grape; in which case it must be an alcoholic liquor of like character in all other respects to that produced from grapes, except such as are necessarily implied in its descriptive name:

"In the case of a whiskey, to be anything other than the alcoholic liquid, the legitimate and exclusive product obtained by distillation from a mash of grain, wholly or in part malted and which since its distillation has been stored for at least two years, and which contains from forty-four to fifty per cent. by weight, or fifty to fifty-eight per cent. by volume, at the temperature of sixty degrees Fahrenheit of absolute alcohol, and which is distinctly labelled or otherwise plainly designated as a bourbon, rye, corn or other brand of whiskey, by a distinctly qualifying descriptive name, according to its manner of production:

"In the case of a gin, to be anything other than the alcoholic liquid, the legitimate and exclusive product obtained by distillation from a fermented mash of grain, wholly or in part malted and rectified from juniper berries, and which contains from forty-four to fifty per cent. by weight, or fifty to fifty-eight per cent. by volume at the temperature of sixty degrees Fahrenheit of absolute alcohol, except it be distinctly labelled or otherwise plainly designated by a distinctly qualifying descriptive name as produced in some other manner, in which case it shall be an alcoholic liquor of like character in all other respects, except such as are necessarily implied in its descriptive name:

"In the case of rum, to be anything other than the alcoholic liquid, the legitimate and exclusive product obtained by distillation from fermented molasses or other product of the sugarcane, and which contains from forty-four to fifty per cent. by weight, or fifty to fifty-eight per cent. by volume, at the temperature of sixty degrees Fahrenheit, of absolute alcohol."

BORIC ACID IN FRUITS.³

Since the use of boric acid as a food preservative has become general, it has been of interest to learn if some of this same element was not also naturally present in fruits and their products. In most of those examined for this purpose it has been found, notably so in grapes and wines. Dr. E. Hotter of the Fruit Experiment Station at Graz now reports that the apples examined by him were found to contain from 2.8 to 12.0 parts of boric acid in 100,000 parts of their dry substance; the pears 6.0 to 11.4 parts; and figs 2.2 parts of boric acid.

COPPER IN PRESERVED FRUITS AND VEGETABLES.⁴

Prof. A. Tschirch, of Bern, has recently published the results of his experiments of the action of copper solutions on plant life. He found, as had also Rumm, Frank, and Krieger⁵ that plants which had been sprinkled with weak noncaustic solutions of copper made a more vigorous growth than those which had not been so treated. He claims to have proven from the results of his investigations that the presence of copper, to the extent of not exceeding 50 milligrammes in a kilogramme of preserved vegetables, is of no hygienic importance. The governments of Italy, cantons of St. Gall and Basel, have now legalized the presence of copper in twice as large a quantity, that is, 100 milligrammes in a kilogramme. France had previously allowed of a similar quantity.

According to the report of R. Kobert,⁶ he obtained from the red-blood coloring matter of animals which had had tartrate of copper solution injected into their circulation, a copper-holding substance similar to hemoglobin, and which he has named copperhemol. This substance E. Merck, the manufacturing chemist and pharmacist, has now introduced into trade as a blood tonic. According to Cervello⁷ copper sulphate in doses of 20 to 30 milligrammes, when mixed with

milk-sugar and taken before meals twice daily, will act as efficiently as a blood-former as will iron itself.

ANTIMONY IN ENAMEL-WARE COOKING UTENSILS.⁸

P. Kassper reports finding a brand of glazed cooking-ware which yields a notable quantity of antimony to boiling organic acids. Upon analysis he found the glaze to contain silica 39.8 per cent., alumina 10.4, boric acid 14.92, antimony oxide 14.32, tin oxide 1.19, phosphoric acid 2.73, soda 8.92, potass. 7.72, and zinc 0.36 per cent.

THE BRETON VEGETABLE FOOD COLORS.⁹

Dr. G. Possetto, of Turin, reports that he finds the much advertised Breton vegetable food colors to be as follows: The yellow is a tin-oxide lake of yellow fustic, the blue an indigo carmine, the green a mixture of these two colors, the red a tin-oxide lake of cochineal, the orange a mixture of the red and yellow, the violet a mixture of the red and blue, while the brown was a tin-oxide lake of no specially recognized vegetable color. Thus six out of the seven colors are tin-oxide lakes containing some 75 per cent. of the tin oxide in the dry color. As containing this tin, they are forbidden to be sold as food colors in Germany.

MILK FOR CHILDREN'S USE.¹⁰

The Canton of Basel, in May, 1894, passed an act concerning foods, which provides that milk for children's use shall not be sold if it will deposit any sediment upon two hours' standing, or if it has been kept unsterilized as long as four hours since it was milked from the cow. These conditions are additional to its being of good quality otherwise.

FORMALDEHYDE AS AN ANTISEPTIC.¹¹

The previously reported efficiency of formaldehyde, or formic aldehyde, as an antiseptic and disinfectant has received further confirmation. This with its non-poisonous character, easy volatility, and freedom from corrosive or other damaging action on fabrics, commends it for many purposes of practical disinfection. It immediately removes the offensive odor of putrid urine, feces, or carrion. Its activity as a germicide, according to A. Trillat, is equal to, if not superior to that of corrosive sublimate.

Reports of Societies.

FIFTH ANNUAL MEETING OF THE HARVARD MEDICAL ALUMNI ASSOCIATION.

(Continued from No. 6, p. 142.)

THE PRESIDENT: I will ask Dr. Chadwick to read to you the report of your Committee upon the Harvard Medical School:

REPORT OF THE COMMITTEE ON THE HARVARD MEDICAL SCHOOL.

The all-absorbing interest in the Medical School is centred in the development of the obligatory four years' course of study. In 1894 the last regular class under the three years' course graduated; this year there is no regular graduating class, nevertheless, sixty-seven men take their de-

³ Zeitsch. Nahrungs-Mittel-Untersuch. and Hygiene, 1895, 1.

⁴ Zeitsch. d. Allg. österr. Apoth. Verein, 1894, 831.

⁵ Bericht. d. deutsch. Botan. Gesellschaft, 93 and 94.

⁶ Deutsch. med. Woch., 1895, 1 and 42.

⁷ Wiener med. Blatt.

⁸ Zeitsch. f. Nahrungs-Mittel-Untersuch. and Hygiene, 1895, 104.

⁹ Loc. cit., 1895, 150.

¹⁰ Veroff. Kaiserl. Gesundheitsamt 1894, 850.

¹¹ British Year-Book of Pharmacy, 1894, 233.

greens. They consist of those who took the optional course of four years, and of those who postponed graduating last year because they were to enter hospitals, or of those who failed to pass the examinations at the completion of their three years' course.

Seven receive the M.D., *cum laude*, and the A.M.
Five " M.D., *cum laude*.
Nine " M.D. after the voluntary four years' course.
Forty-six " M.D. after three years' course.

The influx of students has not been appreciably diminished by the extension of the course to four years, as this summary of the students in attendance during the past year shows:

In courses for graduates, 1894-95 (to Dec. 1)	18
Fourth class	33
Third class	98
Second class	123
First class	182
Total,	454

If the next entering class is larger, or even as large, as the last, the capacity of the building will be taxed to the utmost to provide tables in the dissecting-room and desks in the laboratories, etc. Plans for securing more room are being earnestly debated by the Faculty. The lot of land is not large enough to allow of more than a small addition to the present building, and it seems improvident to expend seventy-five or one hundred thousand dollars to enlarge a building which the persistence of the present rate of growth will render absolutely inadequate within five years. In some way the accommodations must be enlarged or the number of students diminished. The latter alternative may be brought about by raising the requirements for admission or by extending the course to five years. It would seem a parody on the progress of human institutions should we begin the twentieth century with a school having a five years' course and requiring an A.B. degree after three years of study from its matriculants, that being identical with the conditions in the medical school of Galienum in the thirteenth century, which was the medical department of the University of Naples, the first university which the world has known. Yet this dream does not seem unlikely of accomplishment. Has not the Law School of this university recently required an A.B. degree as prerequisite for admission? The Universities of Oxford and Dublin require that candidates for medical degrees should have already taken an academical degree in arts. In England the General Medical Council decreed that after June 5, 1892, the medical course should last five years. Even Australia, in its four universities, which have medical schools, requires a five years' course for its lowest medical degree, which is the combined degree of Bachelor of Medicine and Bachelor of Surgery. For its two higher medical degrees—Doctor of Medicine and Master of Surgery—further study and examinations are required. The fame of a school is spread more by the excellence of its teaching, the difficulty of enjoying its advantages, and the superior attainments of its graduates, than by the number of the latter.

The extension of the medical course to four years has been taken up with surprising unanimity in all parts of the country. The subjoined list gives the names of some of the institutions which have already adopted the reform. It could probably be extended somewhat, if the annual reports of all the medical schools of the country were accessible.

MEDICAL SCHOOLS WHICH HAVE ADOPTED AN OBLIGATORY COURSE OF FOUR YEARS, WITH DATE OF ADOPTION.

Michigan.—University of Michigan, Ann Arbor (1890).
Massachusetts.—Harvard University, Boston (1892).
Pennsylvania.—University of Pennsylvania, Philadelphia (1892).
Jefferson Medical College, Philadelphia.
Maryland.—Johns Hopkins University, Baltimore (1893). Baltimore Medical College, Baltimore (1895). Woman's Medical College of Baltimore.
District of Columbia.—Howard University, Washington (1893). Columbian University, Washington. Georgetown University, Georgetown.
New York.—Woman's Medical College of the New York Infirmary (1893). College of Physicians and Surgeons (Columbia College), New York.

Illinois.—College of Physicians and Surgeons, Chicago. Northwestern University, Chicago.
Iowa.—College of Physicians and Surgeons, Keokuk (1895).
Ohio.—Toledo Medical College, Toledo (1895).
Minnesota.—University of Minnesota (1895).
Kentucky.—Louisville National Medical College, Louisville (1895).
California.—California Medical College, San Francisco (1895). Cooper Medical College, San Francisco (1894).

It is noteworthy that a large proportion of these schools are affiliated with universities, which fact should stimulate us to renewed efforts to render closer our tie to our university. As a chief measure to this end, the Medical Faculty and this Association of its alumni, acting in harmony with the alumni of the Law and Scientific Departments, have repeatedly petitioned the overseers to be allowed to participate with the alumni of the college in the election of overseers. The corporation is known to favor the change. Committees of the Board of Overseers, in 1891 and again in 1892, reported favorably; but both reports were met by an adverse vote in the board—on the first occasion, of 15 to 9 votes, and on the second, of 11 to 8 votes. The change of a very few votes will give us the coveted majority.

The continued diminution in the number of men with degrees in arts, letters or science, in the entering classes of the school has been slightly reversed this year, as may be seen by the following table:

Year.	Per cent. of Matriculants.
1884	53.9
1885	53.3
1886	46.8
1887	45.
1888	38.8
1889	34.4
1890	34.
1891	36.8
1892	28.2
1893	27.
1894	33.

The table still makes evident that the governing boards of the university have not considered the reciprocal needs of the college and the professional schools. The former is losing students; the latter are being forced to accept students less well prepared to pursue their strictly professional studies.

The following changes have been made in reorganizing the departments, to provide for the fourth year of instruction:

Early in the year, Dr. W. H. Baker resigned his position as Professor of Gynecology. That department was then reorganized and placed under the direction of the Professor of Obstetrics. Dr. F. H. Davenport was promoted to be Assistant Professor of Gynecology; Dr. George Haven was appointed Instructor in Gynecology; and Dr. Edward Reynolds, Assistant in Gynecology; Dr. J. B. Swift retains his former position of Assistant in Gynecology. Dr. C. M. Green, Assistant Professor of Obstetrics, will continue to give clinical instruction in Gynecology in the City Hospital.

Dr. Maurice H. Richardson has been transferred from the chair of Assistant Professor of Anatomy to Assistant Professor of Clinical Surgery; while the Demonstrator of Anatomy, Dr. Franklin Dexter, has been promoted to the vacant chair. Dr. Fred. B. Lund and Dr. John B. Blake have been appointed Assistants in Anatomy. The position of Assistant in Histology has been abolished; and Dr. A. Schäfer, of Zurich, Switzerland, has been appointed Demonstrator of Histology.

The following new appointments have been made: Dr. G. H. Monks, Instructor in Clinical Surgery; Dr. J. C. Munro and Dr. E. W. Dwight, Assistants in Clinical Surgery; Dr. C. L. Scudder, Dr. W. M. Conant, Dr. C. A. Porter and Dr. S. J. Mixer, Assistants in Operative Surgery; Dr. Henry Jackson, Additional Assistant in Clinical Medicine; Dr. Morton Prince, Special Clinical Instructor in Diseases of the Nervous System; Dr. E. A. Crocker, Assistant in Otolary; Dr. Abner Post, Instructor in Syphilis. Dr. A. P. Chadbourne having declined reappointment as Instructor in Pharmacology, Dr. Franz Pfaff was appointed to fill the vacancy.

With this abundance of teachers — nearly a hundred — it would seem that every branch of medicine might be adequately taught; yet the existence in this city of the "Boston Polyclinic," a combination of young men having clinical facilities for instruction to offer to students who are willing to pay their fees for special instruction outside the school, shows that the school does not command all the material for clinical instruction that is available. It is undoubtedly true that in many departments the school does not feel the need of this instruction; but the mere fact that these men find it worth their while to band themselves together to advertise their courses, shows that there is a public by which their instruction is valued and sought after.

The question naturally suggests itself, in view of these facts, Does the school meet all the demands of this community for instruction to undergraduates and graduates? In many branches of medicine this may probably be answered in the affirmative, but in some, such as gynecology and, to a lesser degree, laryngology, genito-urinary diseases, and others, the small number of students to whom clinical instruction can be profitably given at one time would suggest that all available material should be secured for the school.

In view of this large number of instructors the further question arises whether any systematic scheme is adopted by one and all of them in their methods of instruction. It is noticeable that in many departments there is no one head; there are several professors with co-equal powers, but independent jurisdiction over their subordinates. If this condition gave rise to the healthy rivalry such as exists between the intra- and extra-mural schools of Edinburgh, its advantages might offset its disadvantages; but this is not the case. Does the Faculty, as a body, exercise any adequate supervision over the proper co-ordination of its multifarious departments? The methods by which instruction may most profitably be imparted in all branches of medicine are under constant discussion in these days, and new instructors may naturally take up their work without a full appreciation of the most approved modern methods. In the scientific departments, such as chemistry, anatomy and physiology, teaching is the chief concern of the lives of the professors and instructors; and they may be expected to consider carefully the means by which their knowledge may be best imparted to their students. But in the clinical branches the positions are held chiefly as a means to the extension of the holder's practice, and their incentive to excel in teaching is necessarily less. These men must be coached in order that the full measure of their capabilities as instructors may be elicited. It is notorious that some of the professors in the schools have in the past habitually discoursed to their classes upon the last rare case that they have seen in their private practice. This is a matter of great interest to the professor, but is not of most utility to the average student. Does it not seem as though meetings of the instructing body should be held from time to time during the year, at which the teachers should discuss these and kindred topics?

For the Committee,

JAMES R. CHADWICK.

THE PRESIDENT: For reasons which it is not necessary to specify I asked Dr. (librarian) Brigham to give me bibliographical lists of the contributions to medical literature of some of our guests. In due course Dr. Brigham forwarded the lists with the accompanying note: "Though I remained up till a late hour last night I could not finish. Dr. Dock is very reasonable, but Professor Park has it bad, — to the extent of fourteen pages." I hope Dr. Park will continue to have "it bad," for the worse he has it the better it will be for you.

Dr. Roswell Park, Professor of Surgery in the University of Buffalo, Surgeon to the Buffalo General Hospital, Consulting Surgeon to the Fitch Hospital. Buffalo keeps what Chicago failed to get.

SPEECH OF DR. ROSWELL PARK.

MR. PRESIDENT AND GENTLEMEN OF THIS ASSOCIATION: — I do not think I ever in my life more heartily yearned for the gift of eloquence, or the grace of oratory, than at this moment in order that I might do justice to such an occasion. I assure you it is a very great pleasure indeed to meet with you here to-day, and I am looking forward also with most pleasant anticipation to witnessing the commencement exercises to-morrow — for one reason, because I want to contrast them with some others which I recently attended on the other side of the frontier.

A few weeks ago I attended a convention in one of the Canadian universities; and although I sat within ten feet of the chancellor on the stage, I was unable to hear anything that he said. They had that good old English custom of making a noise, and the students at the other end of the hall made such a commotion that it was impossible to hear anything that was said on the stage. Of course, you are aware of the Oxford and Cambridge customs, and it seems that they are still imitated on this side of the water. They also had a dinner afterwards, and I was asked to say something. In fact, our Canadian friends have a habit of calling to his feet every man who is still able to get there after a dinner. And I took occasion to allude, as gently and pleasantly as I could, to the commotion which I had witnessed and the scenes that had come under my observation; and I thought I would try them with a little anecdote about a friend of mine, as I put it, who was making a Fourth of July speech in this country.

During the progress of it he was annoyed a great many times by a man who persisted in asking him questions or making remarks, and the gentlemen finally called him down something after this fashion: He stopped abruptly in the midst of his speech, and said, "My friend, I want to speak to you. Are you a Christian?" — "Yes, sir." — "And you go to church regularly?" — "I do." Said he, "My friend, do you believe in the efficacy of prayer?" — "I do; I say my prayers every night." — "Good. Do you believe in the doctrine of regeneration?" — "I do; I believe in it literally." He said, "Better yet. Now, my friend, I want to give you a piece of advice; when you go home to-night and retire to the privacy of your bedroom, get down on your knees and pray very earnestly and faithfully, pray as you never prayed before that you may be born again, and still-born." Now, they saw it, if they were English.

Dr. Shattuck has extended to me a very cordial invitation to speak to you on the very newest and latest fad, that is, medical education. And he told me that, at least, it would have the beauty of novelty. Now, you understand the difficulties of that topic, gentlemen. I do not know what your needs are. I understand one of my colleagues says the crying need of St. Louis is more colleges. They only have fourteen now.

But, if one may be retrospective for a few moments, and serious now, when I look over the history of the past and try to find for my own benefit what has so hindered the progress of medical education in time past, and that which being removed has permitted the rapid strides of the last few decades, I find that after all it was the malign influence of the church. It is rather an unpleasant thing to have to say, but it is

literally true, that the greatest enemy of medical progress in all past time has been the church and its authority. In fact, as one writer in the *Forum*, I believe, put it not long ago, "the authority in the past has been the Juggernaut under whose wheels have been crushed the boldest and best spirits of the past."

Now, probably in no branches of medical study has that authority been wielded more obstinately than in the study of anatomy and surgery. The practical study of anatomy was forbidden virtually during the Middle Ages because the church thought that it was impious to mutilate a form which was made in the divine image. That pious objection, however, does not seem to have kept them from so far mutilating it before death as to tear it to pieces with rack and wheel and with other clerical instruments of that kind.

Dissection was considered unworthy and entirely beneath the dignity of any gentleman in those Middle Ages; and if one were so far guilty of lowering his dignity as that, he was made to suffer for it in many ways. It is a matter of history, you know, that during the fifteenth and sixteenth centuries, although public lectures on anatomy were held, the professor himself did not do the dissecting; he hired some barber to do it, and himself simply expounded what the barber exposed, and that also accounts for the fact that the razor was the first anatomical scalpel, and was preserved for that use for a great many years. Papal indulgence was also necessary during those earlier days before one could dissect anybody, and even then, when the indulgence of the Pope was secured, it was not customary to open the cranium because it was held to be contrary to public opinion. Religious ceremonies were held; and I think one of the most interesting events of the Middle Ages must have been some such ceremony as this, which one can read about in the history of medicine, as, for instance, at one of the Italian universities when a body was publicly to be dissected, it was brought to the neighborhood of the university building in a box by the executioner — of course, it being the body of a malefactor. Under cover of that box it was formally brought into the anatomical hall. Now that body was disreputable, and he was disreputable who touched it until it had been made reputable, and that was done partly by stamping the seal of the university upon the breast of the corpse. If it happened to be a decapitated corpse, the head was placed between the legs and the solemn ceremony went on as before. After the corpse had been made reputable, and the dignity of him who was to touch it was thus preserved, and after the conclusion of the more solemn ceremonies in the anatomical hall, then there were public entertainments, which were given by strolling actors and itinerant musicians, and ceremonies of public festival which lasted the balance of the day. Imagine something of that kind going on at Harvard University to-day!

It is a curious thing that the first anatomical theatre ever erected was erected at Aquapend, in Padua, by Fabrizio, in the year 1549; he built it at his own expense, but he built it so high and so dark that it was necessary to use torches in order that they might see the dissections. That was the father of anatomical theatres of to-day.

In this connection also it is, to me at least, very interesting to note a certain event that occurred in Egypt about thirty years ago. Of course, you know better than I how the ancient school of Alexandria

stood, how it was dignified in those old days by the anatomical teachings of Herophilus, Erasistratus, and others almost equally well known, and how with the decadence of that school there was practically no teaching of anatomy in Egypt for 1,700 years. Post-mortems were made by individuals, but no public teaching of anatomy. And one may read, that about thirty years ago, I think, or in that neighborhood, in the new school there, Clot Bey (who I take to be a Frenchman, in Egypt) was giving a public lecture on anatomy in the little theatre school; and — to show how again, under the church, the religious prejudice has always interfered — he was talking to Mohammedan students naturally, and one of the Mohammedans jumped down from his seat on the upper ranges, as Clot Bey was developing the thorax, and drawing a poniard he stabbed him in the side. Clot Bey seemed to be singularly cool because he noticed he was not seriously hurt; and, as the story goes, he opened the case which he had with him, took out a piece of plaster, applied it to his side, and went on as if nothing had happened: "Gentlemen, we were speaking of the disposition of the ribs. I have now a splendid opportunity of showing you that a blow struck from above will not penetrate the thorax," and went on with his lecture.

Surgery has had to share the fate of anatomy in having been considered disreputable until comparatively recent times; and in fact, so markedly was this the case in Germany that it required the imperial edict of Charles the Fifth, in 1558, to make the practice of surgery reputable; and so strong was the prejudice against it and those who practised it, that Rudolph the Second, about thirty years later, had to renew the edict; and that is about the first legitimate surgery that the history of surgery records. And even at that time, the barber — or the barber's surgeon, more properly — who dressed the wounds of the victim who had been removed from the tortures of the Inquisition was thereby himself disgraced.

History also relates at about this time, or, more accurately, in the year 1650, there was a celebrated dispute about the position of the heart. It appears that the Margrave of Baden had been very sick, and his house physician wanted to apply a blister, and he wished to place it directly over the centre of the thorax. Some of the consultants claimed that the heart was not situated in the centre of the thorax but on the side. To settle the dispute a hog was brought in and opened, and the heart was found on the left side. Then the margrave dismissed his house physician for his ignorance in thinking that a margrave's heart was differently located from any other hog's.

It is interesting also to note that there was not a complete human skeleton in all Europe until the year 1658, and that skeleton was set up in Vienna. It is stated, I believe, that Galen advised his pupils to go to Egypt and see a skeleton, but that is the first record of a complete skeleton in Europe at that time.

But time presses, and I would like to speak for a moment of the student life of the Middle Ages, it was so different from anything that we know now; and yet some of the student customs of to-day, like the student corps of the German universities, etc., are really the relics and habits of the customs of those days.

In the sixteenth century the students of the Italian university used to choose not only the rector and

officers, but they decided the curriculum of instruction. In fact, in those days the students had everything their own way absolutely. These were the days of travelling scholars, when men attended a term, perhaps, at one university, and then passed to another; and one of the most shocking pictures, most disreputable pictures, of the Middle Ages, to my mind, is the atrocities and barbarities which those travelling scholars used to perpetrate — not only in the universities, but it is said they would get drunk and go into the pulpits of the churches and turn out the priests and preach to the congregation, as many as would stay, or keep them from leaving; and they were guilty of murder and wanton atrocities of all kinds. Perhaps one sees a little survival of that sort of thing in the stories one may read to-day.

These were the days, too, when professors were not highly paid. I have read that Melancthon, one of the greatest teachers of his time, during the first eight years of his professorship was paid at the rate of forty-three dollars a year.

That surgery remained so long in the hands of the lower classes, the barbers, and their equivalents, was again mainly due to the injunctions of the church.

You know, too, at this time that the monks, or the religious classes, were about the only ones who had any education; and this is true of medical as well as any other education. They were about the only ones who could read and write; they monopolized the knowledge; and at the same time they were taught by the church that to shed blood was not within their pale, consequently anything which required the shedding of blood, like surgical operations, etc., was left to other classes. There, again, the church has been the greatest enemy in times past of the surgeon and his craft.

I think nothing gave such an impetus to surgery as when some of the French surgeons began to purchase indulgences of the Pope that they might dissect and shed blood — in other words, that they might operate; and this was in the days of the celebrated old College of St. Côme, when the barbers were allied with the Faculty of Paris, and St. Côme was at war with it. And the best thing that ever happened, in all probability, in the history of surgery, was the alliances, or the consolidation, of those two classes, or parties — the university faculty and the old college itself.

These, too, were the days, by the way, when every stitch was charged for separately, and it was an object for the surgeon to put in as many stitches as he could. This was in accordance with the old German maxim, *Viel Hafft (Nähte) viel Geld.*

But I must pass on. I do not know of anything else which shows the evil influence of the church so well as the care of the insane. Within the past week one has read of barbarities indulged in at one of the German asylums, or monasteries, where the insane are cared for. It is nothing to what occurred less than two-hundred years ago under the authority of the church; it is nothing to the way the insane were drowned, or submerged until they were almost drowned; it is nothing to that historic spot on the coast of France at Biarritz, known as the Côte des Fous — the Fool's Coast, or Shore — where the insane were brought down and held under water until they were almost drowned. That was a regular practice.

But let us turn from the past, gentlemen, to the present; and let me detain you but a moment longer

now with some remarks about the local situation. Years ago I used to wonder how it happened that none of our text-books emanated from Boston. If you look over the college catalogues of this country and ask yourselves whose books are most studied, you do not find many Boston names. Now, why is that? It is a question I have never been able to solve for myself. Not because you have not as good colleges here, or as good practitioners as elsewhere. I pledge you my word, gentlemen, this is not idle compliment. I think to-day that the best surgery done in this country is done in Boston; and I think that will hold good about the other branches, though I do not know so much about them. I think the most scientific surgery done in America to-day is done right in this city. And the objection will not much longer hold good with regard to text-books.

There have emanated from some of the teachers of this school of late certain books in my own line, as well as in others; but you will pardon me if I talk more about those which I know most about. There, for instance, is the volume of lectures by Dr. Cheever, which is full of his ripe, wonderfully ripe, experience. There is the work of Dr. Warren, which I think is the most creditable book on surgical pathology, and the most beautiful medical illustration of the book-maker's art that has ever been issued from the American press. There are the contributions of Dr. Watson, of Dr. Bradford, and Dr. Lovett, which are superb in their way; and it will not be much longer that one can say, Who studies a book which came from Boston?

We have regulated the requirements for admission to the study of medicine quite differently in New York from the way you do it here. We have in New York an organization which is known as the University of New York. Perhaps many of you have not heard of it. It is not a teaching body; it does not concern itself by giving degrees; but it is constituted by the Legislature of New York as the supervising educational institution of that State, and everything else is tributary to it. Now, that was presided over for a number of years by George William Curtis, which will be a guarantee of its excellence and its position. The University of New York absolutely regulates matters in every way, and it has taken hold of this question of the study of medicine, and now the medical colleges of New York no longer bother about preliminary requirements. The State has relieved us of all that necessity, and no student can begin to study now until he has a certificate of qualification which comes from the regents of that school.

The University of the State of New York manages the University Extension for us, which is the State Museum, in which, for instance, are contained those magnificent treasures gathered by Hall, and by his colleagues, illustrating the history of the State. It manages travelling libraries for us, and does a great deal for us; and, among other things — well, I will shorten what I wanted to say — simply let me close this paragraph, please, with the statement that everything is in its control.

You have heard of the Chatauqua in the State of New York. It has provoked in many minds ridicule; it has provoked a smile on many a face; and yet the Chatauqua idea, so-called, is simply to stimulate study at home on the part of those who cannot carry it out elsewhere. Now, the University of Buffalo has recently introduced the Chatauqua idea into the study

of medicine, and I am going to close by simply telling you how we do that. We know it is impossible for some young practitioner in the country to go to Buffalo, or New York, or anywhere else, to carry out a course of post-graduate study. We know the human tendency; if he does not go somewhere to study, he will not do it. Now, we are trying to carry out this Chatauqua idea into medical study, and we say to such and such a young man, "If you will take such and such a text-book, or series of books, and study it at home, for three years—if you want to make it so—and fit yourself to pass an examination in that line of work, we will give you a certificate." That certificate means nothing more than that he has studied, and has passed such an examination. It is an incentive, we think, to home study; and that is the medical extension course, as we have called it, and I am looking with not a little curiosity in the future to see how it will work. It is in no sense a substitute for anything else, but simply an incentive for home study.

Gentlemen, I have detained you longer than I intended to; but I thank you for your kindly attention, and for the opportunity of being allowed to address you in this way.

THE PRESIDENT: Two years ago, during the Columbian Exposition, the French Government sent to this country a doctor of medicine to report, among other things, upon our medical schools and hospitals. In the report subsequently published by the French Government, Ann Arbor is spoken of as having the most interesting, and, in many respects, the most successful university in the country, not excepting Harvard. I present to you Dr. George Dock, Professor of Theory and Practice and of Clinical Medicine in the University of Michigan, Visiting Physician to the University Hospital.

Among the earliest of Dr. Dock's "reasonable" number of contributions to medical literature was one on "Vegetable Hairs in the Liver." If any of you are now feeling sick, he will probably attribute it to a foreign body in the liver and not to a foreign Frenchman.

SPEECH OF DR. GEORGE DOCK.

MR. PRESIDENT AND GENTLEMEN:—I am sure nobody here can have any vegetable hairs in the stomach after a dinner of this kind. In accepting your President's kind invitation to appear here, I thought I could get out, on the ground that he had gone round the world in his promised tour last year, and had failed everywhere else and finally turned up in Ann Arbor. I thought that any shortcomings that I might make in my own remarks I could put off on his shoulders.

In selecting a topic to speak on before you, I concluded it would probably be best to tell you something about the methods of education which we pursue in Ann Arbor, methods which we have had to work out very largely for ourselves in the face of considerable inertia on the part of the governing body. As you all know, no doubt, the University of Michigan is supported by the State, that is, it is supported by a tax which varies from time to time, according to the good will of the legislature. To show the sort of men we get that tax from I need only mention one instance. Two years ago we asked the legislature to appropriate from the State taxation the twentieth of a mill. One old Populist got up and said he thought a twentieth

would be too much but he was willing to compromise on a tenth.

We have in Ann Arbor three things that are uncommon in medical schools, although two of them sometimes occur together. We have nominally a homeopathic school; we have co-education; and we have the four years' course. Of the homeopathic school I can say but little, as that body is almost defunct now; it is only kept alive by injections of elixir of life furnished by the same legislature.

In regard to co-education, it may be worth while saying a word, especially as the subject was brought home to you last year by Dr. Osler. Now, that matter is becoming so important all over the country that stronger pressure may be brought on you than was some years ago, and you may have to consider the question again, and I can put rather a better aspect on the matter than did Dr. Osler last year. You remember he told you that co-education was a failure, inasmuch as thirty-three and a third per cent. of the women students got married the first year. Now, there are certain reasons for that; it need not always occur; and the principal reason is that the students will only marry professors. Of course, when the fancy of a professor of anatomy turns to thoughts of love no first-year medical woman student can resist, so all you have to do, if you ever introduce co-education here, is to marry off your professors before that comes. The Frenchman Dr. Shattuck told you about said of our women that they looked a good deal like Russian Nihilists. Now, I must say, some of them go rather to extremes in their dress, but on the whole they are not so bad.

The introduction of co-education in a medical school seems to me to cause a very radical change in the manners and customs of the men students; at least, at Ann Arbor I have never seen the disorderly conduct that is only too prevalent in other schools. I think we can safely say that that is due to the presence of the women; and this gives an air of seriousness and attention to all the classes and all the laboratories that is rather unusual.

In regard to the four years' course, as you have just been told, we graduated last year the first four years' class in medicine, that is, the first class that had studied four full years in a medical school. The year before we graduated the transition class, going in with advanced graduates or as the result of being trained the year before. The practical result of that change I may say has been highly satisfactory. The change took place after raising the standard of entrance examination, and after raising the fees quite materially. We have nominal fees, very moderate in regard to the entrance fees, yet, on the whole, we have laboratory fees which bring up the total expenses of each student in the four years to rather more than \$500, so that the idea which is prevalent that the school is a free school, as far as finances are concerned, is not altogether correct. The number of students has increased ever since the four years' course was announced, so that last year, the year just passed, we had more students than the school ever had in the flush days just after the war, when every hospital steward was studying for a medical degree.

The results that we have here, I think, ought to answer a certain claim that has been made in many parts of the country, that it is necessary to graduate cheap doctors on account of certain parts of the coun-

try. Now, we send out these four years' students to parts of the country that are by no means opulent, parts of the country where the natives only say that the land is as poor as an amateur concert, and the total population in each county is not more than one, counting skunks. It can easily be seen by consulting directories that the cheap students are the ones who seek the cities, that is, seek the places which are ordinarily supposed to be the most lucrative for practice.

In regard to the course of medicine, we think we had some unusual conditions in the beginning that made the four years' course comparatively easy. In the first place, we had long ago two full years of scientific work, or laboratory work in the scientific branches. That was a thing that some schools in the East had not, and it is a thing which keeps many schools in different parts of the country from taking up the four years' course. Then we did not have another thing that many of the schools in the East have, and which is not so easy for them to have the fourth year; we did not have a voluntary fourth-year course. Of course, we had always a few post-graduate students, but we never had any formal course offered; so we have been able to avoid adopting a fourth year, as has been adopted at least in one school in this country, in which the fourth year consists in a series of short courses which correspond with the courses in post-graduate schools.

We have spread our whole system of instruction over the four years, and it is arranged without much forethought in that way after the manner and custom in the German schools. We have given up to the scientific branches much that is classed in America with the *dictum physicum*, and the next three years are taken up with clinical work. We are trying to put pathology in the second year, much as you have here, — I think it belongs there; but our early courses are so full that we have not been able to accomplish that. In the course of these four years we give a very large number of hours; I do not know exactly the number of hours that we give, but I know our students spend about twice as much time as the students working for other degrees. In the clinical class I do know they work nearly every day from eight in the morning till six at night; and in the hospital they work after six, they work about an hour in the evening. Our clinical work has a great many advantages, on account of the way in which we get our patients. Although it might be supposed, on account of the size of the town, clinical material might be scarce, as a matter of fact, we get most of our cases from outside. The hospital has long been known; it was one of the earliest in that part of the country, and has up to the present time enjoyed a wide reputation among people in the adjoining States. All the people who come there pay. If they cannot pay themselves, their counties pay for them, in Michigan. From other States they have, of course, to pay their own expenses. They pay, however, a sum which is not sufficient to pay for the expenses of keeping. They pay five dollars a week in a ward, and more in private rooms. All these patients who are in the ward or private rooms come there with the distinct idea that they are to be used as clinical material, and we use that up to the very last understanding of it. Coming, as they do, in that way, and being intelligent patients for the most part, we never have any difficulty in making them do whatever we please; and that

amounts to not only taking them into the clinics and operating upon them, demonstrating them in the public clinics, but we also use them to an extent which can hardly be done, I imagine, with the ordinary city-hospital material. If I have a patient, for example, for physical science, he not only comes into the clinic after he has been worked at by a last year's student, but he is also used by a second year's student with practice in auscultation, and also by junior students for two or three hours a day. Of course, they are not all used so much; but a good many of them are, and a good case is practically being worked on all day long. When I first began that in my own department, I, of course, worked them more than they in their other clinics, because I have more room to work in. I was told by my colleagues and by the lay superintendent that it would ruin the service, but, on the contrary, we have had better service than heretofore. I think the patients themselves take an interest in this matter. It not only breaks the monotony of their existence in the hospital, which is well known in other hospitals; but the patients see, and see very plainly, that they are not only objects of interest, but that they are being examined very much more thoroughly than they have ever been before. This idea of theirs, of course, we are careful not to abuse at all. So that in that way we have an amount of material which is quite out of proportion to the size of the town in which we live. We have usually between sixteen and seventeen hundred patients in the hospital; and these, as I say, are used as long as they are available. After a patient does what he can for the development of the young idea, unless there is a great deal of room in the hospital, he goes home; and we have an understanding with the country practitioners, which, of course, is rather useful to them, but we refer them back to their family physicians, which is often to their own advantage. Many patients are, in fact, sent down by physicians in the country after they have worked on them as long as they can; and they are nearly always glad to have them come back at least reinforced in their faith, if not cured.

This idea of having complete control over the clinical material raises the question why the same thing cannot be carried out in regard to autopsies. We cannot do it ourselves because some of our authorities are opposed to it, they think it would cause too much opposition among the public; but it seems to me — in fact, I am certain — that if any hospital, or any hospital influence, made an announcement — not, of course, too open — but an announcement in the reports, or in the circulars that are sent out, that the bodies of all patients dying there were to undergo autopsy, that this would not only create no opposition, but it would add very much to the increase in post-mortem operations.

In regard to our methods of work, we have nothing that is distinctly different from that carried out in other places. We, in all departments, give didactic lectures, although we are developing the recitation system to a considerable degree. We have recitations in all branches, in which the students are assigned topics from text-books and they are very often required to look up works of reference to meet the requirements of the recitation. This recitation is carried on for the most part by young instructors, men who have had little experience, and who are paid by the institution. Unfortunately we are not allowed —

it is against the rules of the institution — to have instructors giving private courses; but, personally, I am very anxious to have courses offered for other men, who would come in competition with these instructors. We have been most fortunate in getting faithful assistants; but, it seems to me, it would be a very useful thing to introduce, what is, of course, much more common in large cities, a little competition among the instructors.

In our recitations we take account of the students present. We do not count them where they have any assigned seats at the lectures, but our quiz-masters, as we call them, take account of absence. That is the only way they are allowed to mark them. We do not allow them to give marks as was formerly practised in the elementary schools. The students got too much the idea that the quiz was a grind, and failed to get the best advantage out of it.

Our examination system is somewhat peculiar, and we think it works very well. We have two examinations each year of every class. In the middle of the year we have an examination; the whole week is given up to it, nothing is done in this week except the examination, and in that examination we pluck most of our poor men. We find it much better to throw them out in the middle of the year before they have gone so far. And the result is we have to pluck fewer men at the end of their course. And that prevents much of the dissatisfaction that students often have when they have been allowed to go three or four years without any check, and then find themselves pulled up.

Now, these are the principal points in the methods that are used at Ann Arbor; and, as you can easily imagine, we are by no means of the idea that this condition is to be looked on as final. In fact, we are constantly trying to make improvements in the course, and from year to year do make certain changes. Even in the last year we made the very important change of stopping all repetition. It happened before that students had the opportunity of hearing lectures twice on the same subject, and, of course, they postponed that until the last possible year. Now, we have stopped that, so that a student has an opportunity of hearing a course only once. We have condensed the courses. We have *materia medica*, say, theoretically, which we have taught from the theoretical standpoint altogether. We have that taught five times a week in the junior year, and in practice the didactic lectures are given only in the junior year three times a week. That we find a very great advantage.

The students learn a great deal more in a condensed course than they did formerly when we spread it over twice the time.

In regard to the future, our idea is that the greatest progress must come from the other colleges and not from the medical schools; and this is also my opinion. I believe that although much must be done yet in improving medical education, the next thing to do is to improve the condition of the students before beginning medical studies. Of course, here, as at the Hopkins, you are far ahead of all other schools that I know of. Our own entrance examination, for example, is no higher than the entrance examination of the literary department. We have not been able to raise it any higher. The reasons why we cannot go much faster have been explained by President Eliot, and I was very glad to have them explained in that way. He gave the ideas that I have been preaching at home in

regard to the needs of education preceding medicine; and I think myself that it will be easier than some people think to have classical and scientific teachers condensing the work, giving the A.B. or the B.S. after three years, than they believe now. I was told at home by one of our leading teachers only on Saturday night, when I spoke about the matter, that he thought that would come very soon; and it will come very much sooner if professional schools make known the importance of it.

Of course, it is entirely out of the question, as President Eliot said, for men to study until they are twenty-six or twenty-seven years old for the degree of medicine; it not only takes up too much time but I think by the time a man spends as much time as that studying he very often becomes, as the athletes say, stale; he is unable to do as good work as if he had an independent start two years earlier. So I think by laying stress on the importance of better secondary education which, of course, must come very slowly, and on the theory of giving the degrees in arts and science at an earlier period, in a very few years the medical schools will be able to take a more decided step in advance than they ever did before. I think it will be more gain than to change from two years to three, or from three years to four, because the men will certainly have advantages in the way of preliminary study which we cannot expect now. And that, as I say, will come much sooner if you will follow the President's advice and urge that change. And I see no reason why you should not. And in that respect I am reminded of an experience I had on my way here. Coming on, we stopped as usual five minutes at Niagara Falls, and got out and looked at the Falls; and, of course, the usual exclamations were made about the grandeur and the wonder of the Falls, and so on, when suddenly in rather a high-pitched voice was heard, "Why shouldn't it? What is to hinder it?" So that it seems to me there is nothing at all to hinder Harvard College from carrying into effect in the near future all the improvements which your President has spoken of to-day.

I thank you very much for your kindness and for your attention in hearing my remarks.

(To be continued.)

Recent Literature.

A Manual of Modern Surgery, General and Operative. By JOHN C. DACOSTA, M.D., Demonstrator of Surgery, Jefferson Medical College; Chief Assistant Surgeon, Jefferson Medical College Hospital; etc. Illustrated, 809 pages. Philadelphia: W. B. Saunders. 1894.

This work is attractively written, and will be a popular one, especially with the medical student. It is clear, well illustrated and well published. It is attractive because it is free from data and hypotheses which cause doubt in the mind of the reader as to the correctness of methods, theories or treatment. One feels as if the subject of surgery, at least, was thoroughly understood, and that the methods described in these pages were established facts. This impression is produced by omitting all which has become obsolete or valueless, all unessential theories, and presenting to the reader only what is in common use.

If the book is used as an elementary treatise or manual, as its title implies, it will well serve this purpose. Its owner will not be confused by conflicting ideas, and he will acquire easily a fair knowledge of surgery. The subject is surprisingly well covered when one considers the size of the volume. If the student remembers that the subject is not exhausted when he has mastered the contents of this work, he will find it of great assistance to him.

For the general practitioner it is a general index of the subject. The essentials of clinical history, diagnosis and treatment are satisfactorily, but often quite briefly given and without much detail. He must often supplement or verify what he reads here by additional information before he can adapt it to his clinical work. The expert surgeon will find it an attractive summary, but one in which he finds many omissions, also many paragraphs where his opinion and belief is at variance with the writer's.

Manual of Chemistry. By W. SIMON, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, etc. Fifth edition. Philadelphia: Lea Brothers & Co. 1895.

We do not like these text-books of "Medical Chemistry," so-called. They include theoretical and descriptive chemistry, both qualitative and quantitative analysis, physiological and pharmaceutical chemistry. It is impossible to do justice to all these divisions of chemistry in a single volume of moderate size. There are excellent text-books of descriptive, analytical and physiological chemistry; and there seems to be no very good reasons for crowding all these subjects into a single treatise, in which the treatment of each must necessarily be very unsatisfactory. Professor Simon's book is, however, one of the best of the numerous books constructed on this plan. So long as the methods of teaching chemistry, now used in our medical schools, remain in vogue, the book will doubtless be found quite useful if supplemented by a suitable course of lectures and laboratory work.

Practical Urinalysis and Urinary Diagnoses. By CHARLES W. PURDY, M.D. Philadelphia: The F. A. Davis Co. 1894.

This is, in most respects, the best practical work on the urine that has appeared within recent years. The author first considers the physical characters of the urine, and then takes up each urinary constituent, both normal and abnormal. One hundred pages are devoted to urinary diagnosis, and seventeen pages to the examination of urine for life-insurance.

Unfortunately, the chemistry of the book is not what it should be. The author's knowledge of this science is apparently very inexact. His nomenclature is specially deserving of criticism. For example, his use of the terms "sodium," "potassium," "ammonium" and "caustic sodium," etc., to designate the alkaline hydrates, does not look well in a scientific book. In spite of these and some other faults, the book is one which will be found very useful by those desiring to study this subject practically. We hope, however, that the author will submit his work to a chemist, for revision, before publishing a second edition.

THE Chair of Pathology in the Faculty of the Jefferson Medical College in Philadelphia is vacant.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 12, 1895.

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THE INFECTIOUS MYELITIS.

THE etiology of the myelites, as of the cerebral meningites, merits (and is in fact receiving) new statement from the standpoint of bacterial pathology. In fact, the latest authorities now regard the myelites, acute or chronic, diffuse or systematized, as for the most part of infectious origin, though all are not yet agreed as to the extent of application of the word myelitis, and the nosology of the myelites is still in a state of confusion, as will be seen on consultation of the latest text-books.

In 1880, Landouzy, in his "Thèse d'Agrégation," enumerated a host of published observations to prove the causal connection between various myelites and certain known infections: post-dysenteric myelites; post-choleric multilocular sclerosis (Joffroy); infantile paralysis following variola and dysentery (Roger and Damaschino); diphtheritic paralysis with medullary lesion (Certe); multilocular sclerosis following typhoid fever (Ebstein); following erysipelas (Jolly); diffuse myelitis after pneumonia and small-pox (Westphal); myelitis after diphtheria (Vulpian); myelitis after charbon (Baumgarten); after dysentery (Hoffman); etc. Four years later, Marie insisted on the etiology of multilocular sclerosis, which he considers as "a medullary-encephalic localization of the vascular determination of divers general diseases which seem to be constantly of infectious nature"; and observations have of late multiplied which connect spinal inflammations with various infectious diseases; pneumonia (Bourgnet, Joffroy, Achard); diphtheria (Percy Kidd, Seymour, Sharkey, Bikiles); dysentery (Laveran); measles (Barlow); typhoid fever (Curschmann); acute rheumatism (Chevreaux); blennorrhagia (Dufour, Ullmann, Barrie); furunculosis (Lippmann); variola (Auché and Hobbs); streptococcus infection (Homan).

The subject was exhaustively considered by Grasset at the recent Congress of Medicine at Bordeaux (August 14, 1895), and by his co-referee, Vaillard.

According to Grasset, all the infections have the power, whether by their microbes or their toxins, to engender myelitis at divers phases of their course. The infectious myelites have essentially the same clinical history whatever be the nature of the causal infection, myelitis may follow scarlet fever, measles, typhoid fever, etc., and be caused by the specific microbe or its toxin, or the streptococcus, staphylococcus or coli-bacillus infection may find the soil prepared, and inaugurate the inflammatory mischief.

In small-pox, paralyzes are not very rare. The onset of the medullary localization is generally late; on the other hand, the spinal affection may appear early, as soon as the initial backache. In the cases followed by autopsy, there was paraplegia with white softening of the gray substance of the lumbar region, disseminated myelitis, dorso-lumbar myelitis and acute ascending paralysis of the Landry type.

The paralyzes following measles generally supervene during convalescence. One case of acute ascending paralysis reported by Barlow began the third day and killed on the eleventh.

The paralyzes of typhoid fever are more common. They are also late — third or fourth week, during convalescence. Cases, with necroscopic verification, have been noted of multilocal sclerotic, acute ascending spinal paralysis, spinal meningitis, etc.

Four significant cases of blennorrhagic myelitis (with autopsy) have been observed; acute dorsal myelitis, ascending myelitis, medullary abscess with purulent meningitis, staphylococcus meningo-myelitis.

Jolly reports a case of *sclerose en plaques* terminated by bulbar accidents, following erysipelas.

Several cases are on record where the myelitis was a sequel of furunculosis and various affections characterized by the staphylococcus (staphylococcus abscesses of the cord consecutive to cystitis, etc.).

Diphtheria seems much oftener to produce peripheral than medullary lesions; at the same time true diphtheritic myelites are reported, and such have been produced experimentally by injection of the toxin (Enriquez and Hallion, as quoted by Grasset).

Numerous cases have been cited of myelitis following cholera, cholera-infantum, chronic diarrhea, dysentery and coli-bacillary infection.

We find on record two cases of post-grippal myelitis (with autopsy): one by Laveran (paraplegia), and one by Leyden (acute ascending paralysis).

Five cases have been reported of pneumococcus-myelitis, coming on at different periods of the infection.

Lastly, several cases have been observed of myelites occurring during the course of acute rheumatism, and of malarial fever.

Various forms of myelitis have been induced in animals. Roger, Widal, and Besancon, by injections of the streptococcus, have caused anterior poliomyelitis. Gilbert and Lion have produced the same disease with the staphylococcus, and Thoinet and Masselin with the colon bacillus; and the results of experimentation

have rendered probable the infectious origin of progressive muscular atrophy and of infantile paralysis consecutive to typhoid fever, measles, rheumatism and pneumonia. With a culture of the streptococcus of moderate virulence, Roger has induced in hares a systematized myelitis manifesting itself by muscular atrophy of the posterior extremities. Sometimes the result of the streptococcus-injection was paraplegia with contracture, but in all the cases (116) muscular atrophy followed. Charrin and Babinsky have obtained spastic paralysis in animals inoculated with the pyocyanic bacillus.

Other experimenters have noted the existence of grave lesions; these concentrate themselves in an almost exclusive manner in the ganglionic cells of the gray axis, and particularly on the anterior cornua, constituting granular degeneration, vacuolization of the protoplasm, vitreous degeneration of the cell which atrophies and loses its prolongations. The white substance is often more or less affected, while the neuroglia is generally intact. The blood-vessels are dilated and the source of little hemorrhagic foci. The living cultures and their toxins are capable of determining these experimental medullary troubles. Introduced by the blood current, the microbes localize themselves in the medullary substance and form colonies; the colon bacillus has been found there by the culture methods in animals that have died from paralysis. And Thoinet and Masselin have found the staphylococcus in similar circumstances. But as most pathogenic microbes act principally by the poisons which they secrete, it is doubtless true that toxins constitute the principal efficient cause of the lesions undergone by the nervous elements; and the direct experimental demonstration of this has been given by Charrin with the soluble products of the pyocyanic bacillus, and by Enriquez and Hallion with the diphtheria toxin.

In numerous instances acute diffuse myelitis, with its symptom syndrome, has followed experimental infection; the various forms of syringomyelia have been observed to follow infectious diseases; and it may be said of multilocal sclerotic that in many instances its microbic origin is not doubtful.

With regard to locomotor ataxia, if its frequent syphilitic origin be conceded, it must be ranked among the infectious diseases of the cord, but there is still much obscurity respecting the etiology of this affection.

Certain infectious agents and their toxins have especially the aptitude to provoke paralysis; in this class may be reckoned the diphtheria bacillus which has a particular affinity for the peripheral nerves, the colon bacillus, the bacillus pyocyanicus, and the virus of rabies.

With the exception of tuberculosis and syphilis, which have a pathology *sui generis*, it cannot yet be said that any constant lesions, by which their agency can with considerable certainty be detected, follow the introduction of any of these infectious agents; in

other words, as Grasset expresses it, "the infectious myelites have not a different clinical history according to the nature of the causal infection," and we shall be obliged continually to hypothecate another agency in the production of the myelites, namely, a *neuropathic predisposition, acquired or inherited*.

In bringing to a close this rather long *résumé*, we must refer those who desire a more complete exposition of the subject to the full addresses of Grasset and Vaillard at the Bordeaux Congress.

THE CEREBRAL PATHOLOGY OF ASIATIC CHOLERA.

THE study of the comma-bacillus, preventive inoculation and other considerations connected with this microbic origin of cholera, has of late years absorbed so much attention, that the pathology of the disease has attracted perhaps less attention than its interest would warrant.

The lesions of the central nervous system, the symptoms attributable to which are so marked, especially during the period of reaction, the so-called cholera-typhoid, have heretofore attracted little attention from pathologists.

Of especial interest, therefore, is the preliminary report recently published by Tschistowitsch¹ of his investigations on this subject. In view of the fact that our data with respect to the affections of the central nervous system in Asiatic cholera were few, he undertook the investigation of the subject, in the pathological laboratory of Professor Winogradow. The attempt was made to ascertain the relation between the conditions observed in the cerebrum in cases which died in the algid stage of the disease, and in those who, having survived this stage, died during the period of reaction, with symptoms of severe cerebral trouble. On account of these symptoms this last period of the disease has been called cholera-typhoid. For this purpose, in suitable cases, fresh pieces were cut out from the cortex in the frontal, temporal, paracentral, and occipital lobes, also from the corpus striatum, cerebellum and medulla, and hardened in Müller's fluid. From these pieces sections were cut and stained by the various methods in use in neuropathology for microscopic examination. The most important observations made were the following:

(1) In the "foudroyant" cases (cases dying in the algid stage of the disease within twenty-five to thirty hours of its inception), unmistakable changes were observed in the cerebrum.

(2) In cases which had died during the period of reaction, the same changes were observed, but of a much more advanced type.

(3) In one severe case with well-marked "typhoid" symptoms, cerebral changes were present to a marked degree, between which, and those of the algid stage, no satisfactory parallelism could be established.

(4) The alterations observed chiefly concerned the

nerve cells, but were also to be noted in the vessels. The neuroglia showed but slight deviation from the normal, the nerve fibres were but slightly affected.

(5) The appearances in the ganglion cells were of the following character: in the rapidly fatal cases, there were evidences of edema of the cells, which showed itself in increase of the intercellular spaces and the formation of fine vacuoles in the cell bodies. Later, certain of the nuclei lost their chromatin (were not affected by nuclear stains), became irregular in outline, and indistinct, and finally the nuclei entirely disappeared. At the same time the cell substance became cloudy, coarsely granular (albumin and pigment granules), lost its connection with its processes, and became changed either into a mass of granules surrounding the nucleus, or in case the nucleus had undergone the changes described above, the entire cell was transformed into a collection of granules difficult to stain, which occupied only a part of the broad cell space. In other cases, after the loss of the nucleus, the cells became more homogeneous, but not highly refracting. In the intercellular spaces, as well as in the walls and bodies of the nerve cells are found round and oval neuroglia and round cell nuclei, but in small numbers; nowhere is there evidence of an increase in their numbers, or of pressure upon the nerve cells.

(6) The small arteries, veins and capillaries are over-filled with blood; the perivascular lymph-spaces, which are moderately enlarged, contain much extravasated blood, masses of granular pigment and yellow flakes, made up of a massing together of red blood-corpuscles. Pigment granules are also found within the vessels. Small hemorrhages are frequent in the cerebral substance. The number of neuroglia nuclei is in places greater around the vessels than within the cerebral substance itself, but is nowhere greater than the normal. An emigration of the leucocytes was not observed, they were only found present in isolated examples.

(7) The cell substance of the larger neuroglia elements, with recognizable protoplasm, underwent also granular degeneration; but their nuclei, as well as those of the small neuroglia cells, were not visibly altered. An investigation of the number and size of the nuclei of the neuroglia is not yet completed.

(8) With respect to the extent and severity of the affection, the frontal and paracentral convolutions show the most marked changes; the cerebellum and occipital convolutions are the least altered. The remaining portions of the cerebrum take an intermediate position.

(9) From all the alterations described above, it is evident that the cerebral changes in Asiatic cholera, as well in the algid stage as the period of reaction and of typhoid symptoms, are of the nature of an acute degeneration and necrosis, and not of a perivascular inflammation. The establishment of this fact is certainly an important advance in our knowledge of the pathological anatomy of cholera.

¹ St. Petersburg med. Woch., No. 31, 1895.

MEDICAL NOTES.

SUBSCRIPTIONS TO THE "INDEX MEDICUS."—The following additional subscriptions to the *Index Medicus* were received by Dr. Billings from August 24th to September 6th:

Albany, N. Y.: Dr. Samuel B. Ward.
 Brattleboro, Vt.: Dr. Henry D. Holden.
 Cleveland, O.: Cleveland Medical Library, Dr. Dudley P. Allen,
 Dr. Henry K. Cushing.
 Edinburgh, Scotland: Mr. Young J. Pentland, Publisher.
 Lille, France: Bibliothèque Universitaire.
 New York City: New York Academy of Medicine, Dr. Geo. T.
 Elliot, Dr. Willy Meyer.
 Paris, France: Dr. Charles Richet.
 Philadelphia, Pa.: Dr. Wm. W. Keen, Dr. J. William White,
 Library Pennsylvania Hospital, Dr. Wm. B. Van Lennep,
 Capt. V. Vischer.
 St. Paul, Minn.: Dr. C. A. Wheaton.

THE MILNER-FOTHERGILL GOLD MEDAL.—The Milner-Fothergill gold medal in therapeutics has been awarded by the University of Edinburgh to Dr. Edmund Smith, of York, for his essay on the digestive ferments.

THE SANITARY CONDITION OF THE FRENCH TROOPS IN MADAGASCAR.—According to the French newspaper reports, the sanitary condition of the French troops in Madagascar is only mediocre, a phrase which probably falls far short of expressing their actual condition. Very few of the soldiers have escaped attacks of fever; but according to *Le Progrès Médical* the mortality has been light in proportion to the number of cases.

NO MARRIAGE WITHOUT VACCINATION.—The stringency of the vaccination laws is in England the subject of noisy agitation on the part of ignorant demagogues; but what would some persons say to the interference with the rights of the individual which is maintained by the laws of Norway and Sweden? In these countries so impressed is the legislature not only with the advantages but with the public duty of vaccination that before a couple can be legally married certificates must be produced showing that both the bride and bridegroom have been satisfactorily vaccinated? — *British Medical Journal*.

GONORRHEAL RHEUMATISM IN THE NEW-BORN.—At the Eleventh French Congress of Internal Medicine, Haushalter, of Nancy, reported the case of an infant who during the course of a purulent ophthalmia developed an arthritis of the right knee and left wrist. Gonococci were found in the fluid aspirated from the knee-joint. This is said to be the eleventh reported case of gonorrheal arthritis in the new-born. The disease is generally monoarticular, the knee being most commonly affected. The disease is attended by but slight fever and general disturbance, and recovery is usually complete.

AN EPIDEMIC OF THE DANCING SICKNESS broke out a few weeks ago among the school-children of Rehlingen, a village in Germany. During a violent thunder-storm that came on one day while the children were all in school, one of them, a girl twelve years of

age, was suddenly seized with a general tremor, and soon after, jumping from her seat, began to dance wildly over the floor. Other girls immediately began to imitate her, and before long there were over thirty of the girls, and seven or eight of the boys, all hysterically dancing around the school-rooms. This was kept up for an hour or two, and was repeated the following day at about the same hour. The schools were then closed for three weeks in order to get the children into a normal state. — *Medical Record*.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, September 11, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 76, scarlet fever 22, measles 1, typhoid fever 25.

BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL.—By the will of the late Mrs. Elizabeth T. Eldredge, of Newton, the Massachusetts General Hospital receives \$10,000, to be used in the establishment of free beds.

BEQUESTS TO PUBLIC INSTITUTIONS.—By the will of the late Benjamin P. Cheney, \$10,000 was given to the Massachusetts General Hospital, and \$2,000 each to numerous other institutions, including the Boston Free Hospital for Women, the House of the Good Samaritan, the Massachusetts Charitable Eye and Ear Infirmary, the St. Luke's Home for Convalescents, and the West End Nursery. The Children's Hospital received \$2,500.

NEW YORK.

THE MEDICO-LEGAL CONGRESS.—The sessions of the Medico-Legal Congress were held in the United States Court-Room in the Post Office Building on September 4th, 5th, and 6th. The Hon. Clark Bell was elected President; and among the Vice-Presidents of the Congress were Judges Abram H. Daily, Noah L. Davis, Calvin E. Pratt, and A. L. Palmer, Prof. R. Ogden Doremus, and Drs. Forbes Winslow, W. J. O'Sullivan, T. D. Crouthers, and Paul Gibier. Dr. Forbes Winslow, of London, read two papers, one on "The Progress of Lunacy," and one on "Suicide Considered as a Mental Epidemic." The main causes of the prevalence of suicide he considered to be: the great publicity given by the press in publishing revolting details of crimes and trials, thus reacting perniciously in the minds of weak-minded persons; insufficient power of the legislature in suppressing such publicity; the liability to act epidemically. Clark Bell read a paper on "Hypnotism in the Courts of Law," which was followed by an interesting discussion; and there was also an extended discussion on the "Medical Aspects of Inebriety," which was opened by a paper by Dr. T. D. Crouthers, of Hartford. Among the other papers read were the following: "Necessity of Amendments of the Laws of New York appertaining to Commitments of the Insane," by Albert Balch; "Two

Remarkable Cases of Antimony Poisoning," by Dr. Charles A. Doremus; "What May be the Part of Bacteriology in Forensic Medicine," by Dr. Paul Gibier; "Milk Adulteration," by Prof. R. Ogden Doremus. In the last the lactometer was regarded as an altogether untrustworthy instrument in the detection of adulteration in milk. On the evening of September 6th there was a banquet at the Press Club.

A DEARTH OF VACCINE VIRUS.—It is stated that about four thousand children had to be refused admission to the public schools of Newark, N. J., after the summer vacation, because they were without certificates of vaccination. The demand thus produced for vaccine virus soon exhausted the supply in the city.

A LOWER MORTALITY.—The cooler weather of last week had an appreciable effect in reducing the mortality of the city. The number of deaths reported was 735, against 851 during the preceding week, and 777 for the average of the corresponding weeks for the past five years. The mortality from diarrheal diseases was reduced from 174 to 106.

Miscellany.

BELLEVUE HOSPITAL.

THE Commissioners of Public Charities and Correction have lately asked the members of the Fourth Division of Bellevue Hospital to form an organization for the purpose of giving instruction to graduates and third-year students. The medical staff of the Fourth Division consists of Drs. C. L. Dana, George B. Fowler and Alex. Lambert. The surgical staff consists of Drs. J. W. S. Gouley, Chas. Phelps and W. F. Fluhrer. The gynecologist is Dr. W. Gill Wylie.

The following communication, from the Commissioners, and the answer thereto, are given for the information of the profession:

DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION.
COMMISSIONERS OFFICE, NEW YORK, Sept. 3, 1895.

GENTLEMEN: I am directed to transmit the following proceedings of the Board, at a meeting held this day:

Resolved, That the seven members of the Fourth Division of Bellevue Hospital be requested to form, without delay, an organization for practical instruction to graduates in medicine and third-year students, in the hospital and the bureau of medical and surgical relief for out-door poor.

Resolved, That the members of the Fourth Division shall be empowered to draw, from the institution subject to the division, all necessary clinical material.

Resolved, That the Commissioners will heartily co-operate with the Fourth Division in carrying out the scheme of instruction.

Resolved, That certificates issued to those who shall have attended instruction, and signed by the seven members of the Fourth Division, shall be countersigned by the Commissioners, and shall bear the seal of Bellevue Hospital.

By order,

G. F. BRITTON, *Secretary*.

NEW YORK, Sept. 6, 1895.

To the Commissioners of Public Charities and Correction.

GENTLEMEN: At a meeting of the Fourth Division of Bellevue Hospital, held on the fourth day of September,

your communication was presented and read. The members of the Division desire to express their high appreciation of the step you have taken, in the interest of the hospital and of the people at large, in thus adding to the usefulness of the vast amount of clinical material in Bellevue. They have therefore resolved to accept your invitation to become a teaching corps, have formed the organization which you requested, and have further resolved to begin, on or about the first of October, the courses of instruction instituted by your Honorable Board. Each course of instruction shall continue six weeks, and not less than five courses shall be given annually. Very respectfully,

W. F. FLUHRER, M.D., *Secretary*,
479 Fifth Avenue, New York.

A HOSPITAL BROKEN UP BY A CHINESE MOB.¹

On August 6th, the Mission Hospital at Fat-Shan was destroyed by Chinese rioters. The hospital, with other destroyed property, was owned by the English Wesleyan Church. The city where it was located is a large manufacturing centre, fifteen miles west of the city of Canton. It has a population of 500,000, and is frequently spoken of as the "Birmingham" of China. Missionary work in its various forms has been carried on there for about thirty-five years. The London Mission has a flourishing work there, which is sustained by the Chinese church in Hongkong. The English Wesleyan Mission has chapels, school, hospital and residence for several missionary families there, a very prosperous mission. Their hospital, which has developed under the efficient management of Dr. Wenyon and his colleague, Dr. Macdonald, is one of the notable institutions in South China. Not only has the medical and surgical work done been of a very high character, but the hospital has, by judicious management, become practically self-supporting. It has been patronized by many of the wealthier people. Their pecuniary acknowledgments of benefits received, and the fees received by the physicians in charge for service rendered in answer to special calls, have sufficed to cover the current expenses of the hospital. It has demonstrated the fact that even Chinamen can appreciate superior talent, and not only respect it, but desire it the more when they have to pay for it. The high standing of this hospital among the respectable residents of Fat-Shan has not saved it from the mob.

INTRAVENOUS INJECTIONS OF MERCURIC CHLORIDE.

THE administration of mercuric chloride and iodide by the intestinal canal is often difficult or impossible owing to its irritating qualities, and the pain caused by subcutaneous injections of this agent is often so severe as to militate against its administration in this manner. As against the inunction method of administering mercury we have both its uncleanness and lack of exactitude in dosage.

Inasmuch as the method of intravenous injection recommended by Baccelli is painless except for the prick of the needle, it has obvious advantages over the method of subcutaneous injection. In order to form some estimate of the practical value of this method, Görl has recently tried it in a series of nine cases of syphilis, choosing those forms of the disease,

¹ Journal of the American Medical Association.

which experience has shown to be slow in recovering under ordinary conditions. The solution employed consisted of one to three parts of sublimate in 1,000 parts of normal salt solution; the injections were made every second day, beginning with one cubic centimetre of the solution, and increasing to two to five cubic centimetres.

The curative effects of the mercury in these nine cases began to appear very early in the course of the treatment, in correspondence with the observations of Baccelli and Blaschko. Two cases, however, showed early recurrence of the symptoms after the treatment was discontinued.

The technique of the operation is simple. After one of the prominent veins is made to stand out by a distally placed tourniquet, a small, very sharp and preferably short needle is thrust obliquely into the vein, care being taken not to penetrate the opposite wall. The mobility of the point of the needle shows that it is within the lumen of the vein. Care should be taken not to move the needle point about so as to wound the intima of the vessel, which would cause danger of thrombosis. If the vein is properly punctured, no pain is felt by the patient when the solution is injected. If there is doubt whether the needle point is within the vein, a little fluid should be injected, and if pain results, the point is not within the vein, and another puncture should be made. The more rapidly the puncture is made the less often will the injection fail. Often, especially when a large needle has been employed, a bluish discoloration along the course of the vein will follow, which is probably due to the escape of a little venous blood through the punctured wall into the subcutaneous tissues.

In summing up his paper, Görl concludes that the advantages of Baccelli's method are:

- (1) The painlessness of the injections.
- (2) The smallness of the dose and its accurate measurement.
- (3) The rapidity of the curative effects.
- (4) The freedom from danger (as far as observed up to the present time).
- (5) The treatment does not attract attention, and does not interfere with active pursuits.

The disadvantages of the method are:

- (1) The impossibility of its application in cases where the superficial veins cannot be made prominent.
- (2) The early recurrence after discontinuance of the treatment.

The last objection is the strongest point against this method of treatment, which is, however, especially adapted to those cases in which the patient fears the pain of subcutaneous or intra-muscular injections, and in which the administration of mercury by inunction or by mouth cannot be well carried out. In patients especially susceptible to mercurial poisoning it is also of advantage on account of the small doses required; and on account of the rapidity with which it acts it is indicated where an early effect is needed, for example in the affections of the eye and brain during the secondary stage. In these latter cases the treatment should be followed by a course of inunctions in order to render its effects permanent.

The method of intravenous injections, then, is to be recommended only in certain selected cases of specific disease, and, contrary to Baccelli's views, is not adapted to the treatment of all cases where mercury is indicated.

METEOROLOGICAL RECORD.

For the week ending August 31st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.		Daily mean.		8.00 A. M.	8.00 P. M.	Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...25	29.92	74	83	66	62	48	55	N.W.	N.	15	8	C. C.	.02
M...26	30.07	71	82	60	58	61	60	W.	S.W.	8	10	C. C.	
T...27	30.03	72	80	65	72	59	66	N.W.	S.W.	3	12	O. C.	
W...28	29.88	78	87	68	73	64	68	W.	W.	10	9	F. F.	
T...29	29.86	70	79	61	90	89	90	S.E.	E.	7	7	O. O.	.16
F...30	30.13	65	70	60	73	82	78	N.E.	S.E.	7	6	O. C.	
S...31	29.84	70	80	60	82	95	88	S.E.	S.	6	12	O. O.	.35

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 31, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.		Deaths under five years.		Percentage of deaths from					
						Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,956,000	851	430	24.96	12.72	17.28	.60	3.48			
Chicago . . .	1,600,000	—	—	—	—	—	—	—	—	—	
Philadelphia . . .	1,139,457	412	201	21.84	8.16	14.64	1.92	3.60			
Brooklyn . . .	1,043,000	474	262	30.45	7.14	20.16	1.89	3.57			
St. Louis . . .	540,000	—	—	—	—	—	—	—	—	—	
Boston . . .	494,205	258	123	26.40	9.20	16.40	3.28	4.40			
Baltimore . . .	500,000	—	—	—	—	—	—	—	—	—	
Cincinnati . . .	325,000	—	—	—	—	—	—	—	—	—	
Cleveland . . .	325,000	—	—	—	—	—	—	—	—	—	
Washington . . .	285,000	111	44	18.90	13.50	10.00	6.30	.90			
Pittsburg . . .	272,000	88	35	33.06	5.70	22.80	7.98	1.14			
Milwaukee . . .	265,000	—	—	—	—	—	—	—	—	—	
Nashville . . .	87,754	45	20	28.86	11.11	17.77	6.66	—			
Charleston . . .	65,165	42	19	7.14	11.90	2.38	4.66	—			
Portland . . .	40,000	—	—	—	—	—	—	—	—	—	
Worcester . . .	98,687	42	18	10.46	11.90	28.56	2.38	—			
Fall River . . .	88,020	46	27	39.06	10.85	39.06	—	—			
Lowell . . .	84,359	—	—	—	—	—	—	—	—	—	
Cambridge . . .	81,519	41	23	34.02	4.86	29.16	—	—			4.86
Lynn . . .	62,355	24	10	17.41	8.32	20.30	4.16	3.32			
New Bedford . . .	55,254	22	13	40.95	4.55	36.40	—	—			
Springfield . . .	51,534	12	6	33.33	16.66	33.33	—	—			
Lawrence . . .	52,153	—	—	—	—	—	—	—	—	—	
Holyoke . . .	40,149	—	—	—	—	—	—	—	—	—	
Salem . . .	34,437	20	7	20.00	—	20.00	—	—	—	—	
Brookton . . .	33,157	10	5	20.00	10.00	20.00	—	—	—	—	
Haverhill . . .	30,185	10	3	—	—	—	—	—	—	—	
Malden . . .	29,706	8	2	—	12.50	—	—	—	—	—	
Chelsea . . .	31,295	18	8	16.66	5.55	11.11	—	—	—	—	
Fitchburg . . .	26,394	10	9	70.00	—	60.00	—	—	—	—	
Newton . . .	27,622	8	1	25.00	—	—	—	—	—	—	25.00
Gloucester . . .	27,663	—	—	—	—	—	—	—	—	—	
Taunton . . .	27,093	6	1	16.66	—	—	—	—	—	—	16.66
Waltham . . .	20,877	11	3	—	—	—	—	—	—	—	
Quincy . . .	20,712	—	—	—	—	—	—	—	—	—	
Pittsfield . . .	20,447	8	8	—	—	—	—	—	—	—	
Everett . . .	18,578	9	3	44.44	22.22	33.33	—	—	—	—	
Northampton . . .	16,738	5	0	20.00	40.00	—	—	—	—	—	
Newburyport . . .	14,554	—	—	—	—	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	—	—	

Deaths reported 2,707; under five years of age 1,325; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 720, consumption 259, acute lung diseases 170, diarrheal diseases 491, diphtheria and croup 86, typhoid fever 55, whooping-cough 40, scarlet fever 16, measles and cerebro-spinal meningitis 12 each, erysipelas 4.

From whooping-cough Brooklyn 18, New York 10, Boston 3, Philadelphia, Pittsburg and Worcester 2 each, Providence, Nashville and Northampton 1 each. From scarlet fever New York 4, Providence 2, Philadelphia, Brooklyn and Chelsea 1 each. From cerebro-spinal meningitis New York 9, Philadelphia, Boston, Washington, Worcester, Lynn, New Bedford and Somerville 1 each. From measles New York 7, Philadelphia 3, Brooklyn 2. From erysipelas Brooklyn 2, Boston and Fitchburg 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending August 24th, the death-rate was 19.9. Deaths reported 4,045; diarrhea 657, measles 115, whooping-cough 64, diphtheria 47, scarlet fever 46, fever 40, small-pox (London 6, Oldham 2) 8.

The death-rates ranged from 11.8 in Croydon to 35.6 in Blackburn: Bradford 22.8, Cardiff 18.1, Hull 33.2, Leeds 17.5, Leicester 15.9, Liverpool 28.2, London 17.1, Manchester 30.1, Newcastle-on-Tyne 20.7, Nottingham 17.9, Sheffield 23.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 31, 1895, TO SEPTEMBER 6, 1895.

Leave of absence for two months, to take effect on or about September 15, 1895, is granted CAPTAIN WILLIAM C. GORGAS, assistant surgeon.

FIRST-LIEUT. ALEXANDER S. PORTER, assistant surgeon, is relieved from duty at Fort Keogh, Montana, to take effect on the expiration of his present sick leave, and ordered to Fort Huachuca, Arizona, for duty.

MAJOR JOSEPH K. CORSON, surgeon, granted leave of absence for two months.

CAPTAIN LEONARD WOOD, assistant surgeon, is relieved from duty at Fort McPherson, Georgia, and ordered to report in person to the attending surgeon in this city, for duty as his assistant.

CAPTAIN MARLBOROUGH C. WYETH, assistant surgeon, is relieved from duty at the Army and Navy General Hospital, Hot Springs, Arkansas, and ordered to Fort Huachuca, Arizona, for duty.

CAPTAIN JULIAN M. CABELL, assistant surgeon, upon the expiration of his present sick leave, will be relieved from duty at Washington Barracks, D. C., and ordered to report to the surgeon-general.

FIRST-LIEUT. FRANK T. MERIWETHER, upon the expiration of his present sick leave, will be relieved from duty at San Diego Barracks, California.

FIRST-LIEUT. CHARLES E. B. FLAGG, assistant surgeon, upon his return from duty in the field, will be relieved from duty at Angel Island, Cal., and ordered to Fort Hancock, Texas, to relieve FIRST-LIEUT. FRANCIS A. WINTER, assistant surgeon.

FIRST-LIEUT. WINTER, on being thus relieved, is ordered to Fort Grant, Arizona, for duty, relieving FIRST-LIEUT. GEORGE M. WELLS, assistant surgeon.

FIRST-LIEUT. WELLS, on being thus relieved, is ordered to Fort Mason, California, for duty, relieving CAPTAIN WILLIAM L. KNEEDLER, assistant surgeon.

CAPTAIN KNEEDLER, on being thus relieved, is ordered to San Diego Barracks, California, for duty.

CAPTAIN WALTER D. McCAW, assistant surgeon, is relieved from duty at the Presidio of San Francisco, Cal., and ordered to Fort Ringgold, Texas, for duty, relieving FIRST-LIEUT. CHAMPE C. McCULLOCH, JR., assistant surgeon.

FIRST-LIEUT. McCULLOCH, on being thus relieved, will report in person to the commanding officer, Army and Navy General Hospital, Hot Springs, Arkansas, for duty at the hospital.

FIRST-LIEUT. GEORGE M. WELLS, assistant surgeon, granted leave of absence for two months, to take effect on his relief from duty at Fort Grant, Arizona.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING AUGUST 31, 1895.

VANSANT, JOHN, surgeon. Granted leave of absence for thirty days. August 24, 1895.

HUTTON, W. H. H., surgeon. Detailed as chairman, Board for physical examination of officers, Revenue Cutter Service. August 22, 1895.

IRWIN, FAIRFAX, surgeon. Detailed as chairman, Board for physical examination of candidates, Revenue Cutter Service. August 30, 1895.

BANKS, C. E., passed assistant surgeon. Detailed as member, Board for physical examination of candidates, Revenue Cutter Service. August 30, 1895.

YOUNG, G. B., passed assistant surgeon. Upon expiration of leave of absence to report at Bureau for temporary duty in laboratory. August 28, 1895.

BROWN, B. W., passed assistant surgeon. Detailed as recorder, Board for physical examination of candidates, Revenue Cutter Service. August 30, 1895.

SPRAQUE, E. K. Detailed as recorder, Board for physical examination of officers, Revenue Cutter Service. August 22, 1895.

GREENE, J. B., assistant surgeon. To proceed from Washington, D. C., to Wilmington, N. C., for temporary duty. August 22, 1895.

SOCIETY NOTICE.

AMERICAN PUBLIC HEALTH ASSOCIATION. — The twenty-third annual meeting will be held at Denver, Col., Tuesday, Wednesday, Thursday and Friday, October 1, 2, 3, 4, 1895.

CORRECTION.

Through an oversight the statement, "recommended for publication by the Society," was not added to the note appended to Dr. Goodale's paper on "The Preparation of Diphtheria Antitoxin," which was read before the Massachusetts Medical Society at its annual meeting and which may be found on page 235 of the JOURNAL.

RECENT DEATHS.

DR. FELIX HOPPE-SEYLER, Professor of Physiological Chemistry in the University of Strasburg, died on August 12th, at the age of seventy years.

THOMAS H. CHANDLER, M.D., D.M.D., Dean and Professor of Mechanical Dentistry in the Harvard Dental School, died August 27th. The office of dean of the Dental School he had held for twenty-one years. In his earlier years he had studied law and graduated from the Harvard Law School in 1853, but was not able to enter the practice of law at once on account of trouble with his eyes. In 1858 he studied dentistry, but later medicine, retaining dentistry as his profession. He was a faithful executive officer devoted to the interests of the Dental School, a thorough master of his profession, and had published papers of professional interest and value in various medical and dental journals.

BOOKS AND PAMPHLETS RECEIVED.

The Chicago Physio-Medical College, Annual Announcement 1895-96, Tenth Session.

Report of Two Cases of Crushing Injury to the Arm. By E. J. Mellich, M.D., Chicago, Ill. Reprint. 1895.

Strabismus as a Symptom, Its Causes and its Practical Management. By Leartus Connor, M.D., Detroit, Mich. Reprint. 1895.

A Practical Low-Priced Device to Secure the Trendelenburg Posture. By William A. Edwards, M.D., San Diego, Cal. Reprint. 1895.

Antiphtisins; Report on Professor Klebs' New Tuberculin Derivative and Some of the Cases Treated. Favorable Results of Koch's Tuberculin Treatment in Tubercular Affections that are not Pulmonary. By Charles Denison, A.M., M.D., Denver, Col. Reprints. 1895.

Practical Dietetics, with Special Reference to Diet in Disease, By W. Colman Thompson, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the University of the City of New York; Visiting Physician to the Presbyterian and Bellevue Hospitals. New York: D. Appleton & Co. 1895.

The Science and Art of Obstetrics. By Theophilus Parvin, M.D., LL.D., Professor of Obstetrics and the Diseases of Women and Children in Jefferson Medical College, Philadelphia. New (third) edition. In one very handsome octavo volume of 677 pages, with 267 engravings and two colored plates. Philadelphia: Lea Brothers & Co. 1895.

Indurative Mediastino-Pericarditis. By Thomas Harris, M.D. (Lond.), F.R.C.P., Physician to the Manchester Hospital for Consumption and Diseases of the Throat and Chest, and Lecturer on Diseases of the Respiratory Organs in Owens College; Author of the "Post-Mortem Handbook." Reprint. 1894-95. London: Smith, Elder & Co. 1895.

A System of Surgery. By Charles B. Ball, M.D., T.C.D.; Arthur E. Barker, F.R.C.S.; Wm. H. Bennett, F.R.C.S.; Anthony A. Bowlby, F.R.C.S.; Stanley Boyd, M.B., Lond.; W. Watson Cheyne, F.R.S.; W. Bruce Clarke, M.B., Oxon.; H. H. Clutton, M.B., Cantab.; H. Percy Dean, M.S., Lond.; Andrew Duncan, B.S., Lond.; A. Pearce Gould, M.S., Lond.; Frederic W. Hewitt, M.D., Cantab.; Jonathan Hutchinson, Jr., F.R.C.S.; W. Arbuthnot Lane, M.S., Lond.; C. B. Lockwood, F.R.C.S.; G. H. Makins, F.R.C.S.; J. H. Morgan, F.R.C.S.; Henry Morris, M.B., Lond.; Herbert W. Page, M.C., Cantab.; Bernard Pitts, M.C., Cantab.; A. Marmaduke Shield, M.B., Cantab.; J. Bland Sutton, F.R.C.S.; Frederick Treves, F.R.C.S.; Herbert F. Waterhouse, F.R.C.S.; G. Sims Woodhead, M.D., Edin. Edited by Frederick Treves, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital; Examiner in Surgery at the University of Cambridge. Vol. I. With two colored plates and 463 illustrations. Philadelphia: Lea Brothers & Co. 1895.

Lecture.

METRITIS AS A CAUSE OF MISCARRIAGE.¹

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,
*Instructor in Clinical Gynecology, Faculty of Medicine, Tufts
 College; Member of the Société Française d'Electrothérapie, etc.*

LECTURE IV.

GENTLEMEN: In this lecture I propose to finish the subject of metritis as a cause of miscarriage; and in order to do so, I must consider the following points: the course of pregnancy complicated by metritis or endometritis, the mechanism of these abortions, the diagnosis, prognosis and treatment.

It is in no way a general rule that the symptoms of an endometritis are present during gestation. Sometimes the progress is perfectly normal and the pregnancy goes to term, and it is only after labor that the inflammatory changes are found in the placenta and membranes.

Pregnancy may go on undisturbed for a few months, when suddenly pains and hemorrhage appear, quickly followed by an abortion; in this case it is the decidua that will give a clue to the cause of the miscarriage. Generally speaking, endometritis of pregnancy will show its presence by various symptoms, these being principally the same as those of an endometritis of the non-pregnant organ, only they are more marked in the former. They differ according to the extent of the lesions of the mucosa and time of pregnancy at which they occur. Those that take place during the first six months will only be studied.

The most important and constant symptom is hemorrhage. Its origin is most varied. Usually when the vessels of the decidua serotina are inflamed, they become friable and rupture easily, thus bringing about a partial detachment of the placenta, while the blood, breaking its way between the decidua and wall of the uterus, appears.

If the inflammation of the mucosa is slight, the hemorrhage may be trifling and of short duration, without any symptoms, so that the patient pays little attention to it; but when the endometritis is more severe, hemorrhage is provoked by very slight causes, which in the healthy woman would be without effect, and they will persist or stop for a short time only to commence on the slightest occasion. The other symptoms are not long in showing themselves.

The blood of these hemorrhages is sometimes bright red and pure, but generally it is mixed with a watery fluid and vaginal or uterine secretions. Sudden and severe hemorrhage may occur, bringing about miscarriage more or less rapidly. This takes place in endometritis following acute infections such as cholera, typhoid, small-pox, etc.; or they may occur in cases of old hemorrhagic metritis.

Leucorrhea is a nearly constant symptom. It may be overshadowed by the blood, but it exists here in some way or another, just the same as in a metritis in the non-gravid uterus. In passing, let me recall to your minds that leucorrhea is the exaggeration and morbid change of the normal secretion of the uterus.

Leaving aside the description of the watery, milky-colored vaginal leucorrhea, which has nothing to do with our subject, because it is the uterus that is affected, I shall simply describe the discharge from this

organ. When it comes from the corpus it is a whitish-yellow and thick, while that from the cervix is usually gelatinous and whitish-yellow, sometimes greenish-yellow, and purulent, with an alkaline reaction. Occasionally the secretion from the cervix is only a liquid mucus, containing a few leucocytes; while in other specimens, although it may be viscid and transparent, it is, nevertheless, virulent, and may contain gonococci. Leucorrhea varies greatly as to quantity, and is generally not continuous. I do not mean that the secretion is not constant, but the product of this secretion is only evacuated at intervals. It accumulates first in the vagina, and escapes from time to time in small quantity from the vulva.

Hydorrhea is a colorless liquid discharge; it is clear, slightly viscid, sometimes tinted pink, and of a gummy consistency. The spots produced by this discharge are sometimes almost invisible, at others they are pinkish with a darker border. The principal characteristic of hydorrhea is its manner of appearing which is by a sudden profuse flooding of watery fluid coming on without any apparent cause. When the quantity exceeds 300 grammes, the hydorrhea may be preceded by an increase in the size of the uterus, which is discovered by palpation, and the patient may also complain of a sensation of tension and weight, which will disappear after the liquid has come away.

This discharge from the genital organs, which usually appears in the midst of apparently perfect health, may not occur again, and does not produce any serious trouble. However, it is not uncommon for the discharge to appear at irregular or regular intervals. Sometimes the floodings succeed one another with increasing frequency; at others they come on at intervals farther and farther apart. The quantity of the discharge varies in different cases, increases or diminishes. Between the intermittent jets there is usually no discharge, although this is not always so. In a case reported by Roy the hydorrhea was first colorless and then became bloody, appearing at rather long intervals for two months and a half. In a case reported by Zielinski, the patient had four watery discharges, which were preceded by lumbar and abdominal pains; this discharge became pink and later red.

Pains may accompany the above symptoms, or come on alone, being the only symptom of an inflammation of the mucosa. Their type varies. If they accompany a slight hemorrhage, they do not amount to much; but if they occur during a serious flooding, they are intense and increase as the time of expulsion approaches.

Ordinarily, hydorrhea is accompanied by a malaise and disagreeable sensations in the pelvis. The accompanying pains vary in different subjects, according to the susceptibility of the nervous system. The subjective symptoms are sometimes so slight as to pass unnoticed; at others they are marked by continuous or intermittent pains in the pelvis and hypogastric regions, extending down towards the sacrum and upper part of the thighs. When severe, the subject has difficulty in walking, etc.

The origin of the pains is in the uterus, but their seat may be in different parts of the body. The hypothetical rheumatism of the uterus has also been put forward to explain the pain.

It is impossible to diagnose the type of endometritis from the character and seat of the pain; and it is

¹ Being four Clinical Lectures delivered at the Suffolk Dispensary, Boston.

likewise difficult to explain the cause, although Veit thinks that perhaps they might be attributed to small hemorrhages in the decidua which are slowly undergoing resorption, as well as to small inflammatory foci.

Endometritis may finally produce a rupture of the membranes, because the inflammation of the decidua causes the chorion and amnios to become so thin and friable that when even a slight traumatism is inflicted, such as a little jar, going from one room to another, it may result in their rupture. Other symptoms of endometritis often precede the rupture of the membranes, although exceptionally, this accident is the first indication of the disease.

Now, if you examine the uterus of a pregnant woman with endometritis, you will generally not find any distinct signs. Frequently its size does not correspond to the age of pregnancy; it will be larger. Sometimes it changes in dimensions; for example, after the liquid of an hydrorrhea has been expelled, it decreases, and the walls which were distended become soft and are easier to palpate. *Per vaginam*, the lower segment of the organ may perhaps be found thickened and inflamed, rendering the fetal parts imperceptible to the examining finger. Palpation or vaginal examination may cause considerable pain for the patient, the least pressure on the abdomen, cervix or inferior segment of the uterus produces suffering.

By the speculum, beside erosions, lacerations, etc., you will sometimes be able to see characteristic ulcerations having a fungoid appearance and a crater-like depression. These lesions alone, which were present before pregnancy, are a danger, not directly in themselves, but because they are often the indication of similar inflammatory lesions in the corpus uteri.

As parenchymatous metritis is very often accompanied by an endometritis, the symptoms of the inflamed mucosa may often be present. On the other hand, if the parenchymatous metritis is of long standing, the endometritis may have disappeared and left behind only such traces as partial sclerosis or a few indurated points. In this case the leucorrhea, hydrorrhea and hemorrhage may be wanting. There is one symptom, however, which is never absent, and that is pain. This may be more severe than in any other type of metritis, and is explained by the extreme distention of the uterus.

By a very careful examination of the uterus *per vaginam* you may sometimes feel an induration of the walls of the organ; but, I repeat, this condition is rarely discovered.

The most characteristic symptom of an inflammatory condition of the mucosa is to be found in the antecedents of the patient when she tells you that she often aborts and that the accident usually takes place at about the same period of gestation.

The progress of a miscarriage due to an endometritis is about the same as in miscarriage from any other cause.

There are two signs worth remembering, to which I wish to call your attention. In the case of a fetus directly poisoned by the specific organism and toxins of any of the acute infectious diseases, *it first dies and is then expelled*, while in endometritis it is *expelled alive* in the larger number of cases. There are, of course, many exceptions, and I have pointed out to you that a diseased decidua will produce nutritive troubles in the ovum resulting in its death.

Another sign of miscarriage produced by endometritis is the retention of the placenta and membranes. This may occur in any abortion, especially those which take place during the third and fourth months, because the connections between the uterus and placental tissues are intimate. But if the decidua is inflamed, in which case many of the glands are destroyed and their place occupied by connective or even fibrous tissue, adhesion of the membranes and placenta are quite frequent.

The latter organ is only infrequently completely adherent, but if so, it may be retained in the uterine cavity for many months without giving rise to any symptoms. It finally undergoes a granulo-fatty degeneration, then sclerosis, and is at last spontaneously or artificially delivered.

Partial adhesion is far more frequent. Sometimes the placenta is partly detached and partly adherent, in which case two of the most serious complications occur, namely, hemorrhage and septicemia. At other times the placenta is only partly expelled, and the remaining part is found adhering to the uterine walls. This latter may be quite considerable in extent and give rise to no symptom up to the time that it is expelled, but when it becomes detached hemorrhages are wont to appear.

In other cases you may have a very small piece of placenta adhering intimately to the walls, and this may also remain for a relatively long period in the uterine cavity. This very adherent placental *débris* may produce hemorrhages which are sometimes most serious, and have been denominated *deciduoma*.

The diagnosis of puerperal endometritis is in most cases very difficult to make, and the only positive pathological sign is an inflammation of the decidua. It consequently is only after abortion has taken place that the diagnosis is made; but in some cases shreds of the decidua are expelled, and after a microscopical examination the inflammatory process going on in utero may be suspected.

But unfortunately these favorable cases for diagnosis are infrequent, and you will have to content yourselves with the symptoms which are far from being characteristic. Consequently you should proceed to make a differential diagnosis in a most careful manner.

In the first place the patient's antecedents regarding the menses, pregnancies, labors and post-partum period should be carefully inquired into, as you know the great value of some knowledge on these points; and especially is this true in cases of endometritis. If you find that the former pregnancies were interrupted, if the labors were complicated by placenta previa or retention of the afterbirth, if the decidua was thick, all these facts will help you in your diagnosis, because they all can be produced by an endometritis.

Now, if you learn that your patient was infected during her last labor, or post-partum, or if she has gonorrhea, syphilis, or an acute infectious process, if she has suffered for some time with a metritis, why then your diagnosis becomes easier to make.

It now remains for me to say a few words regarding the actual symptoms of the affection. Intermittent hemorrhages produced by a slight cause are to be especially noted; their particular point is their repetition for several weeks before miscarriage up to the time this takes place. But you must not forget that you may have to deal with some heart lesions, fibroids

or cancer of the uterus or cervix, varicose veins of the external genitals, placenta previa, albuminuria, traumatism, etc., all of which may have hemorrhage for a symptom; and you must eliminate these. You should always examine the general health of a pregnant woman, the condition of all her viscera, and above all, the internal and external genital organs, not forgetting to examine the *odor* of the blood passed (if this occurs) as well as the quantity and frequency.

Leucorrhea which is very common, must be examined to ascertain if it be vaginal or uterine; in the latter case if it comes from the corpus or cervix, or if it is simply due to a defect in the general nutrition from anemia or chlorosis.

A watery discharge should be carefully looked to, as its origin is most important to ascertain. Do not forget that a *thin watery and nearly odorless discharge* may be due to a commencing carcinoma uteri.

If it is the amniotic fluid and if the ovum has ruptured, the walls of the uterus will be found retracted on the fetus, which will be slightly immovable on account of this pressure. An intra-cervical digital examination, by displacing the fetus, will give rise to the appearance of a serous liquid in which lanugo and sebaceous magna will be found; the liquid will trickle away slowly but continuously.

The characters of decidual hydrorrhea are different in every respect; the amniotic pouch is closed and in spite of the watery discharge distinct ballotement can be produced. Occasionally the discharge is only an involuntary emission of urine or the elimination of leucorrhea which has accumulated in the vagina; but here the nature and odor of the liquid is quite sufficient to prevent an error in diagnosis.

You must be guarded in your opinion as to the pains which will be complained of by your patients, because the description given is usually far from clear. Women usually give you the impression that they are suffering from nephritic or hepatic colic, gastralgia, cancer or neuralgia; so I again warn you not to base your diagnosis on the symptom of pain alone, for generally you will be terribly deceived. Do not forget to note whether the pains are accompanied by uterine contractions, thus announcing approaching labor.

Let me impress upon you the fact that *not one symptom taken alone* will justify you to make a diagnosis; it is only when you have *all the symptoms, plus a history of the last pregnancy and antecedents of the patient*, that you can feel that you have a rather complete picture of puerperal endometritis.

The prognosis for the mother in this form of endometritis, depends on her general condition, the severity of the disease and its cause. You will easily understand that the hemorrhagic variety, which is encountered in the acute infectious diseases, is far more serious than old chronic endometritis with its slight losses of blood or watery discharges, which have little effect on the health of the woman. As a matter of fact there is a great difference in the prognosis of an inflammation of the mucosa in a strong healthy woman and a subject already exhausted from chlorosis or tuberculosis.

You should always have in mind two possible complications, namely, ante-partum hemorrhage and the retention of the membranes or placenta. The hemorrhage may be so considerable as to endanger the life of the patient and the blood is sometimes so fluid that it flows in great quantity, while in other cases clots

form and accumulate in the vagina, acting like a tamponade.

A hemorrhage, as you are aware, gives rise to quite marked general symptoms, pallor of the teguments, small bounding pulse, tinnitus aurium, troubles of sight, etc., while there is also often a tendency to syncope.

A retention of the membranes or placenta will also render your prognosis more sombre, because this condition may be the cause of a post-partum hemorrhage or even septicemia.

A post-partum hemorrhage is either continuous or intermittent; profuse or slight. It takes place soon after the expulsion of the product of conception, but may, although infrequently, occur from ten to thirty-five hours after. In the first instance it is produced on account of the retained *débris* preventing the uterus from firmly contracting upon itself; while in the second it is due to the tardy detachment of the retained mass, which leaves the uterine vessels largely opened. This loss of blood is not always an immediate danger for the patient, but it produces a most serious anemia, which will only be overcome by a long and well-directed medical treatment and cleaning the uterus out.

Septicemia comes on a short time after if abortion occurs, as the uterus remains half opened for the exit of blood, and the infection is thus able to have easy access to the interior of the organ. If the placenta is partially detached, thus having its blood-supply in part cut off, putrefaction takes place from the contact of air, and it consequently becomes a source of infection. Septicemia is often produced by unclean hands employed in a vaginal examination, or by faulty asepsis of instruments, dressings, etc.

Septicemia will very often leave behind serious lesions of the uterus or adnexa. Do not forget this; and if you have the misfortune to treat a case of this kind, do your work thoroughly, and in so doing you will probably prevent a salpingitis and peritonitis.

Occasionally the fever persists, the chills come back, and the patient dies from the progress of a putrid infection; but there are also cases in which the symptoms of auto-infection suddenly disappear after a spontaneous or instrumental elimination of the placental *débris*.

When the membranes alone are retained, hemorrhage and infection are far more infrequent.

The retained remains of the placenta or decidua adhering to the uterine walls may enter into the formation of a deciduoma, which is a source of very severe hemorrhages. Küstner states that a retained decidua and chorion may give rise to a malignant deciduoma, which statement has been corroborated by Mové-Josséraud, Lacroix, and Jeannel and Bacon.

As to the treatment, I may say at once that it is very difficult to treat an endometritis as long as pregnancy is going on. The only good practice is the preventive treatment which is undertaken when the uterine cavity is empty in cases in which an inflammation of the uterine mucosa has occurred before the pregnancy or when it has already produced miscarriages.

There are to-day many recorded cases of women who had aborted several times and who became pregnant after a cure of the endometritis had been obtained, and went normally to term.

The treatment applied to endometritis has been most varied, but there is no doubt but that a well-con-

ducted curettement of the uterine cavity is the best and most proper method. It is generally accepted that after removal of the mucosa by the curette, this will be reproduced in such a way that a normal conception and pregnancy will take place; but it is difficult to indicate with certainty at what time the endometrium will have become really apt for this new function.

It is generally believed that the first menses after curettement is a proof of a cure of the endometritis and as indicating the presence of a healthy mucosa. There are, however, cases which plainly show that although all symptoms of inflammation of the mucosa have disappeared and the menses are normal, the endometrium is not in a condition which will allow the ovum to develop.

When the endometritis is dependent on a general infection, a general treatment must be instituted; for example, mercury in syphilis.

Preventive treatment is often crowned by success in cases of parenchymatous metritis; but here curettement is rarely indicated, and will do little, if any, good when performed. If there are indurations in the walls of the uterus which are due to old inflammatory exudation, I would strongly advise a course of massage, which will give most excellent results; but on the condition that it is properly and scientifically done. Those of you who are desirous of possessing an idea of the technique of massage of the female genital organs will do well to read my translation of two lectures on the subject by my esteemed teacher, Professor Vulliet, and which was published in the *Annals of Gynecology and Pædiatry* in 1890.

When you are in presence of a hemorrhage or uterine pains, the preventive treatment of abortion in general should be the one of choice. This consists of a quiet in bed, enemas of laudanum or chloral hydrate, hyperdermic injections of morphine, etc. But if abortion is threatening, you must not hesitate to act immediately; and for the hemorrhage a well-applied vaginal tamponade, with iodoform gauze, should be practised.

Now, if miscarriage is inevitable, either because the death of the fetus is certain or because the membranes have ruptured, you should not delay the expulsion of the ovum. All that is necessary under the circumstances is to irrigate the vagina thoroughly with a one-per-cent. solution of sulpho-naphthol or some other good antiseptic, and have before your minds that *a miscarriage demands more strict antisepsis and more care than a normal labor.*

When the placenta or membranes are retained, I think it advisable to remove them with a dull Rhein-stædter curette, but do not forget that the *walls of the uterus after labor are thin and easily—yes, very easily—perforated by your instrument*, a complication that you all want to avoid. After you have removed the retained *débris*, a hot intra-uterine irrigation should be given, and the cavity packed with iodoform or euphen gauze.

Original Articles.

COTTAGE HOSPITALS.¹

BY MORRILL WYMAN, M.D., CAMBRIDGE, MASS.

THE Cambridge Hospital, which may serve as an illustration of the subject of this paper, is situated about one mile west of Harvard College, on the south side of Mt. Auburn Street. The site has 9 1-3 acres. The soil is dry and gravelly; it has few trees, but is well covered with grass. The surface upon which the buildings stand is well raised above the crown of the street, is about 25 feet above the level of Charles River and 600 feet from its left-bank, along which it has a water front of 500 feet. On the opposite bank is a park or meadow of 100 acres, of which 70 acres were given by Prof. Henry Wadsworth Longfellow and others to Harvard College "to be held," so says the deed of gift, "by the grantees as marshes, meadows, gardens, public walks or ornamental grounds, or as the site of college buildings not inconsistent with these uses"; the other 30 acres were given to Harvard College by Major Henry Lee Higginson to be called the "Soldier's Field." The river in front, here about 250 feet wide, and the meadow beyond effectually exclude all dust, smoke and noise from that direction. The view to the south is unobstructed quite to Corey's Hill, two miles away. The whole forms a scene the equal of which in beauty and fitness for the purposes to which it is consecrated it would be hard to find. Longfellow and Lowell have sung of the "Silent River" and its meadows.

The hospital buildings are a centre and two wings or wards, the three forming a hollow square with the opening towards the south; a corridor, also facing the south, joins the two wards. This corridor is glazed in winter. With this orientation each ward receives the full influence of the sun and the free course of the very desirable southwest breezes of summer.

The ward to which the following observations refer is 60 feet by 30 feet, and 12 feet high, the ceiling higher in the middle than at the walls, with 21,000 cubic feet of space, giving 113 square feet of flooring and 1,356 cubic feet of space for each patient. It has five windows on each side. At the south end is the sun-room, 8 feet by 30, open or glazed as the season may require. The 16 beds in each ward (the hospital has 40 beds) are arranged with the head next the wall and about one foot from it, well out of the way of direct currents. Beneath each bed is an eight-inch pipe which rises about three inches above the floor and is connected beneath it with a foul-air duct leading to the ventilating chimney of 16 square feet area and 60 feet in height. The other ventilating apertures are the windows, of about 20 square feet each, with movable sashes, double in winter, with a deflecting board above the upper sash for the better distribution of the incoming air. Each of these windows gives, when open, an area of nine square feet. There are two openings in the ceiling of about 10 feet area each; in the middle of the ward is a chimney with fireplaces on two of its sides. They are frequently used in the mild weather of spring and fall. Above the ceiling are two trunks for ventilating the attics, and 14 openings on the sides, just beneath the eaves, and protected from the rain; when open in summer these openings allow of the free

¹ Read before the Cambridge Society for Medical Improvement, March, 1895.

DR. NORBURY ELECTED TO A COLLEGE CHAIR.—

Dr. Frank Parsons Norbury, who recently removed to St. Louis to assume the editorial management of the *Medical Fortnightly*, has been elected to the chair of Practice of Medicine and Clinical Medicine in the St. Louis College of Physicians and Surgeons.

movement of the winds over the floor, materially cooling it and the ceiling below.

Beneath the ward and extending under the whole of it, is the air-chamber; it is eight feet high, two and a half feet of which is above the ground; it has 16 windows of four square feet each, giving sunlight and air to every part; it has also a doorway of 40 square feet, the whole giving 100 square feet of openings for air. The walls are of stone and mortar, with a carefully-made cement floor, well smoothed. This is exclusively an air-chamber. It contains only the heating-boxes and the flow and return pipes connecting them with the two boilers in the administration building. There are 10 of these heaters of about 18 cubic feet each, set close under the ward floor; they contain the cast-iron radiators, each with 30 square feet of heating surface, known as Gold's pin radiators, through which the hot water passes, entering at the top and going out at the bottom on its way from and to the boilers. The moving force is due to the difference in temperature, which causes a difference in density in the balancing column of water, in the flow and return pipes. The difference of temperature is 40° to 50° ; the flow pipe is about six feet above the return. The air enters these heating-boxes from the air-chamber, or, directly from the outer air through ducts controlled by valves, and enters the ward through 10 registers of 1.5 square feet each about 18 inches from the floor, one beneath each window, which is between each two beds.

The ward floor is of two-inch planks supporting a hardwood floor; it is what is called a mill or slow-burning "Swiss" floor; it has no plastering or enclosed space of any kind below it.

The air-chamber is kept scrupulously clean and free from dust; no furniture nor anything else is allowed in it under any pretence whatever. Its office is solely to receive fresh air and distribute it to each of the ten boxes, in equal quantity to reach the ward unchanged in every respect except in temperature. This may be criticised as a waste of room, but we know to what base uses cellars are generally put and the effect they might have upon the ward above. This chamber is lighted by direct sun-light; it receives air freely; it is surrounded by gravel; it is dry; and it secures nearly all, if not all, the advantages claimed for buildings standing upon piers above ground, with the additional advantage of controlling the admission of cold air in winter, essential in this climate. The equal distribution of the air to each of the ten registers can hardly be so well secured in any other way. It is for these reasons that the air-chamber has been so constructed, and its eight years of use have proved its value.

The bed, in which most of the days and nights of the hospital patient is spent from entrance to convalescence, is worthy of careful consideration. It is to the bed that most of the hospital arrangements refer. Its place, as regards windows for light and air, its distance from the wall to avoid down-draughts, its height and breadth for convenience of nursing, and its ventilation must all be cared for. Its coverings must be light, warm, and the more air there is in their folds and meshes the warmer they are; the under-beds of hair or vegetable fibre, must be porous that air may pass through them, and elastic that they may bend to and properly support the unequal pressure of the body.

The bed is a piece of apparatus with a system of

warming and ventilation of its own, as necessary and as complete, in its way, as the ward in which it stands. The body warms the bed, its coverings and its contained air, and this in turn the entering air. The heat is always on the move upward and outward. If any one will take the trouble, his thermometer will show that the fresh air enters at the sides, is warmed by contact with the body, rises through the successive layers of coverings, which delay without arresting its progress, until it reaches the surface, leaving the outer covering instead of our sensitive peripheral nerves to fight for us our battle with the surrounding cold. But this is not all; the bed-clothes, if porous, allow the passing air to carry off perspiration and the other skin secretions, miscible with it, which if retained saturate the clothes and cause uneasiness in the skin and general discomfort.

More or less air enters the bed from beneath, as well as at the sides. The space beneath the bed, therefore, must be kept scrupulously clean and the air pure. Each bed has, to this end, an outlet in the floor, connected with a duct beneath it, leading to the main ventilating chimney; the coverlet falls no lower than is necessary to prevent its too easy displacement, but not so low as to prevent the free movement of the air and the ready inspection of the whole floor beneath.

The sick take less food than the well, they sleep more, they consequently make less heat; furthermore their horizontal position favors the escape of the warm air around them; for these reasons their heat in winter should be economized, their clothing warm, and the weak, especially the aged, who make but little heat, have hot-water bottles at their sides, not so much to warm their bodies by actual contact as by intercepting and warming the incoming air before it reaches the body and keep up the peripheral circulation so that the internal heat-making organs may have less work to do.

By the arrangements just described the bed is of necessity ventilated into the ward. But sometimes the bed itself is filled, and the clothing impregnated with offensive gases, which moved by the heat of the body and the respiratory motions enter the ward and contaminate the air in the vicinity to a degree that no general ventilation of the room can at once remove. To prevent this, a pipe of two inches diameter, is connected with the opening under the bed, and led into any part of it. By this simple device foul air is drawn from the bed or bed-pan and fresh air from the ward properly warmed in the way just mentioned — if need be, substituted. This done, the patient is no longer surrounded by a tainted atmosphere ready to be inhaled or absorbed by abraded surfaces, nor the air of the ward contaminated.

The patient no longer an object of disgust, isolation in a separate room is unnecessary; otherwise, in spite of deodorizers and antiseptics, the vicinity may become absolutely intolerable. Isolation increases the expense of treatment and the number of nurses; and what is more, it deprives the wretched sufferer of what comfort he can get from association, a comfort that no hospital should overlook.

It is in this way that the bed has its own system of heating and ventilation.

This system has been applied to all the bath-tubs, water-closets and sinks. All these have in common a soil-pipe of six inches diameter, with two running traps — one at the closet and another outside the hospital building. Between these traps the soil-pipe

has a branch air-pipe of the same diameter, reaching to the top of the chimney, sixty feet high. This air-branch is surrounded by a jacket ten inches in diameter, which receives all the waste heat from the kitchen fire. This secures a constant in-draught from all points with which it is connected, or from leaks or cracks in the soil-pipe. It is connected with the hopper of the water-closet by a short two-inch pipe, never larger (like that for the bed), that passes round the trap into the soil-pipe and from that into the air-branch.

The common cold-air ventilating pipe in our houses, going through the roof, has no draught; it relieves pressure between the traps, but has no effect upon parts outside the traps, from which very bad odors often flow into our rooms. This hospital arrangement, with the two-inch connecting pipe always in action, keeps the water-closet and all its connections free from odor at all times, even when in use, while the large soil-pipe rapidly discharges the contents of the hopper and its wash into the common sewer. All fluids and solids go to the sewer, and all gases and odors to the chimney-top. As with the bed, this also is one of the few instances in which we can seize the evil at its source and quickly and effectually dispose of it. This method of ventilating privies with a fire is by no means new; it was used in the fourteenth century at Pierrefond, in France, where there are three privies, one in each story, connected with an air-tight vault under ground and a heated chimney going through the roof.²

Preparatory to ventilation we must have cleanliness of walls and floor. Every part of a ward that can be reached with water and soap or with a wet cloth must be cleaned. No dusting allowed; that only takes dust from one part to scatter it over all others. The coverlets of the bed must be shaken in the open air. The secretions and transpiration of patients removed as soon and as completely as their conditions will allow. At the Cambridge Hospital the floors are every morning first strewn with moist sterilized red-cedar sawdust, which is both cleanly and fragrant, and then carefully swept. By this means careless sweeping is betrayed and its consequences prevented. Ventilation begins where what is commonly called cleanliness leaves off.

Ventilation is the removal of foul air by the introduction of that which is pure from the open, generally without change except in temperature.

At the Cambridge Hospital at those seasons when the ventilation is principally by the registers, air from the air-chamber enters the ward by the ten registers already described, nearly horizontally between and parallel to the beds, rises towards the middle of the ward until it meets that from the opposite register, when its direct motion is lost in eddies and various movements mingling and moving with the foul air until it is practically distributed through the whole ward; the mixture finally escapes through the floor openings into the foul-air ducts leading to the ventilating chimney, or by the ceiling ventilators into the atmosphere. It is a constant process of dilution of foul air by pure air, to which the diffusive property of gases lends aid, and the steady removal of the mixture. This dilution is the great principle of ventilation; foul air can seldom be displaced in mass. The quantity and direction of air coming into the ward are controlled at each register.

The following table shows the amount of air for

winter ventilation entering the ward each second and each hour for each of the sixteen beds:

VENTILATION IN WINTER MEASURED BY CASELLA'S AIR-METER.

Date.	Cubic Feet of Air for			Temperature.			Observations.
	Each of 10 registers, per min.	Each of 16 beds, per sec.	Each of 16 beds, per hour.	Ward register.	Ward.	External.	
1893, Jan. 26	201	2.1	7,500	116°	68°	16°	Eight.
1894, Feb. 6	229	2.3	8,200	103	69	16	Five.
Feb. 7	185	1.9	6,800	116	70	..	Four.
Feb. 12	213	2.2	7,900	112	71	28	Five.
Feb. 12	225	2.4	8,600	110	71	..	Nine.
Feb. 12	213	2.26	8,100	..	71	..	Five.
Feb. 19	193	2.	7,200	112	69	46	
Feb. 22	267	2.8	10,000	109	68 }	22	
Feb. 24	255	2.6	9,100	109	71 }		
Feb. 26	221	2.3	8,200	120 }	68	23	
Mar. 26	250	2.5	9,000	118 }	..	32	
Mar. 26	180	1.8	6,500	110 }	..	32	

* At 2 P. M.; 7° at sunrise.

The air is measured by a Casella's air-meter at the register, reduced, for convenience, to a square foot, care being taken to get the average velocity by measurement in different parts of the current, and taking care that the air which has passed the instrument has a free escape.

The first column shows the cubic feet in one minute as actually observed at each of the ten registers, the second column the cubic feet in one second, and the third the quantity distributed to the whole ward of sixteen beds in one hour. The observations were made in January and February, 1894.

The extremes in the last column were 6,940 and 9,562. These variations are not greater than may be expected in observations of this kind; they are due in part, perhaps, to the observations, but principally to changes in the force of the wind and the arrangement of the windows of the air-chamber; 9,562 was observed during a brisk wind, the other observations were made on calm days. The "flushings of the wards" to be described further on are not included in this table.

In the above table the air entering through the registers has alone been measured. No reference is had to that coming by other ways, around doors and windows and the innumerable cracks and crevices. This is much greater than is generally supposed. In a room warmed by a hot-air furnace, with an outside temperature of 33° F. and the incoming air at 108° to 129°, it was found that with the greatest care in stopping all cracks and crevices about windows, doors and keyholes, oiling and painting the woodwork and plastering, the air entering by the register was diminished but 20 per cent.³ Assuming the same state of things at this hospital — and, under the inward pressure caused by the ventilating chimney, it can hardly be less — the total amount of air entering the wards was 20 per cent. greater than that measured at the register.

The permeability to air of our plastered ceilings is well seen in a room where there has been smoke; the

² Viollet-le-Duc's Architecture: Latrines.

³ Mr. J. Pickering Putnam: The Open Fireplace.

dark streaks show that the smoky particles have been strained out; the lighter color is where the furrings above have obstructed this outward movement.

Pettenkofer, from his own observations on the porosity of building materials, finds the amount of ventilation through the walls of his room of 2,648 cubic feet, for a difference of temperature of 18° F. between the inside and outside, to be at the rate of 8.65 cubic feet each hour for 10.85 square feet of wall surface. Many experiments have been made on the porosity of the walls of stone buildings, with the result that they are more porous to air than is generally supposed.

The ventilation here indicated in our table appears large when compared with that generally given in hospitals. Those recently built have been much more liberally supplied with air than formerly, but the improvement in this respect has been slow. Until thirty years ago it was thought that about 1,000 cubic feet an hour for each bed was sufficient. In 1860 Lariboisière Hospital in Paris was built, its plan — the pavilion plan, as it is called — has been followed in the construction of this and most of the best hospitals. An investigation made at that time showed that a ventilation of 2,480 cubic feet an hour for each bed did not always prevent a disagreeable organic odor in the wards. It was afterwards assumed that for hospitals in general 2,840 feet an hour was sufficient, and for wounded and surgical cases 3,550 feet. Dr. J. S. Billings, in his excellent and exhaustive treatise on ventilation, recommends 3,600 feet an hour — one foot a second.

At Johns Hopkins Hospital, from Dr. A. C. Abbot's report, it appears "that during those months in which the occupants of the wards are in the main dependent upon the register for their fresh-air supply, each individual receives at least one cubic foot of fresh air per second, and usually a little more."⁴

In inquiries of this kind it has been assumed that four per cent. of the expired air is carbonic acid, and that the percentage of the same gas found in the ward over and above that normally belonging to the open air is an index of impurity; not that this amount of carbonic acid found in hospitals is necessarily unhealthy, it is used merely as an index of the organic impurities generally thrown off from human beings, which cannot be properly estimated by chemical methods.

The results obtained by different observers, however, are by no means identical. Of some of the conditions of the air in the wards carbonic acid can be no indication, such as the relative humidity, the dust, the number of bacteria and some of the products of combustion. It can only be a measure of those impurities that produce carbonic acid. After all, this question belongs not so much to chemistry as to physiology and inasmuch as it relates to the sick, to pathology also. It must be remembered that a deficient or vitiated air-supply may act very differently upon the sick and debilitated than upon those who make investigations on this subject in chemical laboratories.

It has seemed, therefore, better to attempt the solution of this very important question by studying, in our wards, the condition of the sick with a much larger air-supply than is commonly given. The construction of the Cambridge Hospital is such that it is possible to do this with a reasonable hope of success.

In determining the proper quantity of air, care has been taken not only to meet all the requirements as to temperature, the only respect in which it differs from outside air, and its character as measured by carbonic acid, but an attempt has been made to go further and give that quantity of air, whatever that may be, that experience shows is required for the comfort of the sick and the prevention of all organic odor. It is not asserted that this desirable point has at all times been reached; in some instances it has not, and yet while some of our best hospitals have deemed less than one and a half cubic feet a second sufficient, it has been found in Cambridge Hospital, that to attain the degree of purity indicated by the entire absence of all animal odor, two feet a second, at least, for each bed has been required, and something more than this has been aimed at and generally given.

The movement of the air about us, and it is never still, the natural ventilation, as it is called, is much greater than is generally supposed.

Faraday's experiments show that at two feet a second (Pettenkofer says at one metre a second) we first begin to feel the air as a moving body. At one-half or one-third of a metre a second we consider it a perfect calm; our senses are not delicate enough to recognize it, and yet air at that velocity would move from end to end of the Cambridge wards in thirty seconds, and across them in half that time quite unnoticed by us.

Taking Pettenkofer's illustration: Suppose a frame of the size of a man, six feet by eighteen inches, nine square feet. Now, with this inappreciable velocity of two feet a second, 18 cubic feet would pass through this space in one second, or 1,000 cubic feet a minute; to this 1,728,000 cubic inches a man would add by respiration in the same time but 14.4 cubic inches of carbonic acid or one part in 120,000. This measures, under these conditions, the rate of nature's method of diluting the carbonic acid produced by respirations.

(To be continued.)

THE MODIFIED MILK QUESTION.

BY A. WORCESTER, A.M., M.D., WALTHAM, MASS.

THE best way of feeding infants deprived of breast milk is an especially interesting midsummer question. Without professing to have found out all about it, I have lately had opportunity for studying the remarkable work that has been done in Dresden in preparing a perfect substitute for breast milk. For this I am under the greatest obligations to Prof. Dr. W. Hempel and to Dr. W. Hesse, who most generously gave me every facility for studying the processes there employed. As I am firmly of the opinion that these are superior to the lately patented Walker-Gordon processes of modifying cows' milk, I take great pleasure in telling others how practicable it is to avoid inferior, although patented, milk-modifications.

The superiority of the Dresden modification rests mainly upon the recognition of an essential difference between casein and lact-albumin. Professor Lehmann's analyses¹ of breast milk and cows' milk show that while cows' milk is more than twice as rich in casein, it is much poorer than human milk in lact-albumin, as may be seen in the following tables:

⁴ Johns Hopkins Hospital Bulletin, September, 1891, p. 131.

¹ Posthumously published, as the results of ten years spent in this investigation, under the editorship of his friend, Prof. Dr. W. Hemel.

	Cows' Milk.	Human Milk.
Casein	3.0%	1.2%
Albumin	0.3	0.5
Fat	3.5	3.8
Sugar	4.5	6.
Ash	0.7	0.2
Water	88.	88.5
	100.	100.

If, therefore, cows' milk be diluted with water sufficiently to reduce the casein of the mixture to the amount found in human milk, the mixture will contain only one-third enough lact-albumin.

Furthermore, if the milk be sterilized, still further loss is occasioned, as the coagulated albumin is wasted in the scum and by clinging to the sides of the bottle.

Does not this account for many of the failures of the sterilized milk mixtures? And can we afford to decry the use of the patented grain foods, which furnish vegetable albumin, unless in some still better way we furnish this needed constituent of every food?

We know the disadvantages of too much casein. We rightly dread the cheese curds in the dejections, for such undigested lumps not only show that the infant has not received the needed albuminous nourishment but has had its intestine irritated by these foreign masses. But if we dilute the cows' milk sufficiently to avoid these cheese curds, we shall be starving the baby, unless we add some soluble albumin.

Three forms of soluble albumin are available: peptonized grain albumin, meat juice, and the white of egg. The last is undoubtedly the best, because of closest resemblance to lact-albumin, and of easiest obtainment.

The white of one egg added to one pint of cows' milk and one-and-a-half pints of water will supply the proper amount of soluble and digestible albumin. Of course, we must also take care that the mixture contains the proper amounts of fat and sugar. These requirements can be met by using milk of 9½ per cent. richness in fat, and by adding 13 drachms of milk-sugar to the mixture.

This, in brief, is the Dresden mixture, which most closely resembles human milk, and here as well as there is now giving the greatest satisfaction. Moreover, it is not patented. And the men who have spent years in developing the processes of manufacture would scorn the idea of so withholding its benefits for their own pecuniary gain.

It must be admitted at the outset that it is not so easy as it sounds to make this mixture, but the difficulties are by no means insuperable. In the first place it is astonishing how ignorant we are of the amounts of fat (cream) in different milks. Nobody can trust to guessing, for some relatively poor milks look to be rich in cream. The real amount can be discovered only by centrifuging a sample, although the cheap lactometer gives a fairly accurate measurement.²

Once having secured a milk of requisite richness, by taking a certain amount from the top of the can that has stood on ice a certain length of time, or by adding to the milk as it comes a certain amount of cream of ascertained richness, it is not difficult by reproducing these conditions to obtain a milk fairly near to the desired standard.

At least during the summer months, and always where the source of supply is not known to be un-

questionable, it is probably better to sterilize the milk before adding the other ingredients in the mixture.

It is needless to say that a fresh egg is better than a stale one. But it may further be added that the egg's freshness will at least partly compensate for the *deadness* of sterilized milk, and so prevent scurvy — which is certainly becoming more prevalent hereabouts in children fed wholly on sterilized milk. The milk-sugar ought also to be sterilized, in a sealed jar, if we wish to make a mixture that will keep good for months, as the Dresden mixture does. Then it is, of course, necessary that the vessels used, and the strainers, and the cover-cloths be also sterilized. The hands of the manufacturer must be absolutely clean.

When all these preparations have been made (and it is easy to teach any intelligent nurse or mother these needed steps), the first thing is to wash an egg, to rinse it in absolute alcohol, and to break it over a bowl or mortar, allowing only the white to drop in. The 13 drachms (52 grammes) of milk-sugar is then to be slowly added and vigorously stirred with the egg-white, taking care not to beat air into the mixture, for egg foam will not mix well with water. To the paste so made a pint and a half of water is slowly added, stirring constantly. This emulsion is then strained through fine linen into the sterilized milk, which has also been previously cooled down below 100° F. Slight stirring or shaking will now complete the mixture, when it may be poured into the required number of nursing bottles. These, stoppered with sterilized cotton, can then be kept cool, and warmed as needed.

If sufficient care is taken in preparation, the mixture will keep for days, and even for months.

It is a common mistake to add lime-water or soda to modified cows' milk. Although to litmus cows' milk appears to be acid, it really is not so. The litmus-test is deceptive in estimating the acidity or alkalinity of phosphate solutions. And lime-water added to an infant's food overtaxes the stomach by wasting just so much gastric juice as is needed to offset the alkali. If the infant's digestion is weak, it is well to aid and not to hinder it. Dilute hydrochloric acid added to the milk mixture is right in theory and of marvellous advantage in actual practice.

Again, as regards the custom of increasing the richness of the infant's food, or of prescribing different qualities for different ages, it needs only be said that it is as nonsensical as to prescribe increasingly richer beef and bread and potatoes for children as their years increase. A mother's breast milk increases in quantity as her baby's stomach grows larger; but there is certainly no such change in its quality as the intricate tables of our text-books would lead us to believe. And this leads me further to remark upon the intricacy of the subject of infant feeding as commonly presented. Were there any agreement among our authorities, there might be some hope for the practitioner of average intellect; but even so he ought to take several years' instruction in all the arts and sciences before attempting to grapple with "modified milk." Small wonder it is that the babies stickle at sucking it in! For my part, I confess having in the past pinned my faith in turn upon the capitatively plain statements which sleek agents have left with their blotters and pencils and lovely paper-weights. I have also starved many a baby with the samples of patent foods so left in my hands. My

² H. I. Johnson, druggist, Waltham, Mass., can furnish a good lactometer and other needful apparatus for estimating the amount of fat in milk.

successive mortifications, however, never climaxed until I learned of a patent just issued upon the Boston process of separating cows' milk into its various parts and then combining them again. But I trust that physicians will not be intimidated from combining cream and milk-sugar and cows' milk in imitation of breast milk. I also hope that the addition of egg-white may come into general use.

RULES FOR IMITATING BREAST MILK.

Rule I. To one pint of cows' milk (of nine and one-half per cent. fat), add one and one-half pints of an emulsion of one egg-white and 13 drachms milk-sugar in water.

Rule II. Avoid all patented mixtures and processes.

Clinical Department.

BRIEF NOTES OF A THOUSAND CASES IN OBSTETRIC PRACTICE, EXTENDING OVER A NUMBER OF YEARS.

BY JAMES VENABLES, M.D. (HARV. 1867), HALIFAX, N. S.

Number of cases	1,000
Number of abortions	47
Number of premature births	36
Number of males (maturity)	484
Number of females (maturity)	383 — 867
Case of uterine hydatids	1
Case of tubal pregnancy	1
Cases moved away before confinement, or attended by others	60
Total, cases and births,	1,012

There occurred in the above: primipara 179, twin cases (maturity) 12, placenta previa 4, convulsions 3, forceps cases 41, still-born (maturity) 59, acephalous 1.

Presentations: face 3, breech 15, footling 6, left arm 1, right arm 1, natural 841. Total, 867.

Cases occurring in each month: January 81, February 67, March 79, April 63, May 93, June 85, July 87, August 79, September 79, October 68, November 60, December 89, not known 65. Total, 1,000.

In the foregoing it will be observed that there were 41 cases in which forceps were used, in a total number of 867 cases; in 10 of these cases the child was still-born; in the other cases both mother and child did well, troublesome laceration of the perineum occurring in one case requiring surgical attendance for some time. Churchill states that about one forceps case occurs in 249, among British practitioners; one in 140, among French; and one in 106, among German. "If we add the whole number together, we find 8,007 forceps cases in 850,713 cases of labor, or about one in 106½."

It will at once be seen that the foregoing shows a greater number of forceps cases — one in 21 — than either the British, French or German statistics. The number of children born dead — forceps cases — is about one in five, says "Churchill's Midwifery."

Three cases of convulsions occurred during labor. One case terminated without the use of forceps — both mother and child did well; in the other two cases forceps were used — the mother did well in both cases, the child was still-born in one case.

In the four cases of placenta previa, three of the children were still-born; in the other case both mother and child did well. In one case (the patient lived out of the city and I made her but one visit) there had been hemorrhage at intervals from January 1st till February 8th, the date of my visit; the patient died soon after delivery. In another case the mother did well (child still-born); and in the fourth case the

mother did well (child still-born). Or, death of the mother in one case, and of the child in three cases, out of four.

It will also be observed that 15 breech cases occurred in a total of 867 cases, or about 1 in 57½.

"Churchill's Midwifery" says: "Thus in British practice, breech presentation occurred 1,363 times in 91,651 cases, or about 1 in 67½; in French practice, 1,169 times in 50,873 cases, or about 1 in 42½; and in German practice, 793 times in 54,794 cases, or about one in 66½; the entire number of breech presentations being 3,325 in 197,318 cases, or about one in 59½."

The number of still-born was 59. There were also 14 premature still-born. In the 59 cases still-born two were breech presentations, two footling, one left arm; three of them were placenta-previa cases. In 10 cases the forceps were used.

In one case of natural labor I used an ointment of cocaine, with lanoline and glycerine, applied to the os and vaginal cavity, without, as far as I could observe, any marked effect. Chloroform was requested by the patient, but the labor did not wait for it and perhaps (?) the cocaine hastened matters so that there was no time to use the anesthetic.

In one case, still-born, there was degeneration of the umbilical cord, and the limbs of the child were quite rigid.

Hare-lip occurred in one child, which died an hour after it was born. Opacity of the cornea (in one eye) was present in one child.

In the case of tubal pregnancy the patient was twenty-nine years of age, and had borne other children. A post-mortem examination showed total ulceration of the bowels, and cavity filled with fecal matter, from which the bones of the fetus were removed. I regret that my notes of this case merely allow the mention of it.

In the acephalous case the following was published in the *Maritime Medical News*, Halifax, N. S., December, 1891, under the title "Note Concerning a Monstrosity — An Acephalous Fetus."

I was summoned to attend Mrs. — in labor, in the summer of 1890. On my arrival she told me that there had been quite a quantity of water escaping, and the symptoms of labor had manifested themselves early in the morning. I at once made an examination *per vaginam*, and found that the membranes had been ruptured, and that the presentation was one of the inferior extremities. The pains increased. The left foot soon came down and, at the same time, a portion of the umbilical cord, which was without pulsation. A few more pains brought down the right foot and the body of the child; and to my astonishment, another pain expelled the entire fetus. The uterus soon contracted firmly, and without any traction, the placenta came away in about ten minutes; the entire labor terminating in about five hours after my arrival. The placenta was normal, and there was no post-partum hemorrhage of a serious nature. The patient, a woman forty-one years of age, made a rapid recovery. She had previously had one premature birth, and six abortions. She had also had six living children. Her health has always been good.

The fetus was a female — its body and lower limbs well-formed and plump. I did not weigh it, but am inclined to think it would weigh fully nine pounds and be about twenty-four inches in length. There was nothing unusual about the appearance of the fetus until you reached the upper part. Here the face had a depressed appearance and the ears were not fully developed. The calvarium was entirely absent, and with the termination of the spinal

column the development ceased. The skin covered a reddish pulpy mass, having a slight resemblance to brain. The frontal bone was rudimentary and thrown well back.

Monstrosities are of two kinds: there may be either a deficiency or an excess of some portion of the body. It has been said that many other forms of monstrosities are explained upon the principle of retarded development, and that those parts which are the last completed present the greater number of deviations from the ordinary or natural rules. Among the ancients, monstrosities were considered as mere experiments on the part of atoms to produce some other species or race.

In the case of uterine hydatids an examination at once revealed a softened condition of the os and cervix, and on dilatation was followed by an escape of cysts. Subsequent use of ergot, and increased uterine action, with manual assistance, brought everything away. There was but little hemorrhage. A compress and bandage was applied; and under tonic treatment a good recovery soon ensued.

In very few of the foregoing cases have I used either chloroform, ether or stimulants; and in those few but little has been required. After leaving the patient I have trusted to the efforts of a good nurse (you don't always have good nurses, though) — a woman with common-sense, to maintain peace and quietness in the sick-room, and to carry out any instructions she might receive, always endeavoring to help nature, whose teachings are often disregarded.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D.

MILIAM CONGENITALE (EN PLAQUES).

DR. RADCLIFFE CROCKER relates two cases which he calls by the above name, with accompanying portrait and drawings, in the *International Atlas of Rare Skin Diseases*, No. X.

The first case was seen by him in 1879. The subject was a boy, six weeks of age, whose health had been good from birth with the exception of occasional vomiting. There was no family history of significance. The face and scalp were occupied by congenital lesions distributed in irregular patches on the face, neck and scalp, the largest of which upon the occiput, measured $9\frac{3}{4}$ by $2\frac{3}{4}$ inches. The skin in other parts was perfectly normal. In color the patches were reddish-yellow; deeper when the child cried, and paler after exposure to cold. They were made up of very small yellow papules, closely grouped, and the whole patch was slightly raised. At the edge, which was sharply bounded and more elevated than the rest, were numerous comedones with black tops. These patches were present at birth, more raised than later on, and had been gradually fading ever since although their area remained unaltered. The case was shown at the Clinical Society, and as there had been slight snuffling, mercurial ointment was rubbed into the trunk for a month, but without result. The child continued to be troubled with vomiting; there was progressive emaciation; and he died four months after he was first seen.

A committee to whom the case was referred for investigation reported that the disease was congenital; that there had been no alteration in the extent of the

lesion after birth; that the color varied according to the vascularity of the part, this in turn depending on heat, excitement, etc., and that some of the sebaceous glands became filled with secretion and afterwards inflamed like an ordinary acne. They thought also that the snuffling, an eruption that had appeared upon the buttocks, and the progressive wasting suggested congenital syphilis strongly, but that the disease was unlike any known syphilitic lesion.

A portion of skin was excised post-mortem, and showed, on section, no material change in the epithelial layers, although the papillæ were less prominent than in the healthy part. The fibrous tissue of the corium was much increased in the deeper portions, moderately so in the upper, where the sebaceous glands were conspicuous, and on the whole, abnormally large. The hair follicles were in most sections absent, and there were few sweat glands or ducts. It was considered that these results indicated a preceding inflammation; and the committee's report was "that an intra-uterine inflammation had led to an increase of fibrous tissue which by its contraction pressed upon and atrophied the hair bulbs and sweat glands, and partially separated the component parts of the sebaceous glands."

In 1890 Crocker saw another case, where a girl of three months had a patch on the left cheek just in front of the ear, corresponding in its position to a portion of the much larger patch on the left cheek of the first case. In this case the condition was congenital also. No suspicion of hereditary syphilis could be detected in the case, and there was no family history of importance. Crocker re-examined the lesions in the light of Robinson's observations on milium, and came to the conclusion that the structures called sebaceous glands twelve years ago, are identical with the milium which Robinson thinks is derived from miscarried embryonic epithelium. He considers finally that the clinical and microscopical evidence tend to prove that there had been a deep-seated intra-uterine inflammation, or chorionitis fetalis, which produced an increase of fibrous tissue and an atrophy of the glandular structures of the skin, leaving only the milium-like bodies to represent them; hence this title, *Milium Congenitale*, is a proper one.

ERUPTIONS CAUSED BY ANTITOXIN.

Asch¹ relates the case of an infant of twenty-seven months, who was the subject of a mild case of diphtheria. Three days after the first injection of antitoxin, there was an outbreak of urticaria at the site of the injection, on the left thigh. The following day the diphtheritic deposit had diminished and the general condition was good; upon the flexor surfaces of the thighs, there was a confluent urticarial eruption, as large as the palm of the hand, occupying the site of the injection, which later spread over the whole flexor surface. On the right forearm there had appeared a punctate scarlatiniform eruption. The eruption soon began to desquamate and rapidly disappeared, an erythematous condition of the face and of the left side of the neck showing itself intercurrently. Soon after, although the child was cured of the diphtheria, transient erythematous patches made their appearance on different portions of the body. Finally there occurred a deep red, almost universal erythema, which had all the characteristics of erythema multi-

¹ Berl. klin. Woch., 1894.

forme, accompanied by a pain and tumefaction in the right tibio-tarsal articulation, and a rise of temperature, which persisted for some days.

Lublinski² observed a multiform exanthem appear in a child of eight years, after three injections of serum, together with serious general symptoms. Ten days after the last injection there appeared an erythema of the tibio-tarsal articulations of both feet, and on the following day an eruption closely resembling measles, which invaded first the extensor surfaces of the extremities. There followed a slight elevation of the temperature, pains in the knee-joints, elbows and feet, without swelling, and an extension of the eruption to the trunk. On the following days the temperature went still higher, the general condition was alarming, and the eruption invaded the face. A good recovery was entered upon a few days later.

Scholz³ gave to his son, a boy of ten years, an injection of antitoxin on the third day of a diphtheria, and to his daughter of six, an injection at the same time, with the aim of immunization. The little girl contracted the disease three days later despite the attempt at prophylaxis. In both cases ten days after the injection, there appeared an eruption of erythema multiforme, accompanied, in the case of the boy, by severe pains in most of the joints, in the muscles of the trunk, and especially in the popliteal spaces. The eruption was accompanied by great pruritus, was of an urticarial character, and attacked primarily the dorsal surface of the hands and feet, later the arms and legs; after some hours it had extended to the internal aspect of the thighs in the form of plaques of the size of the palm of the hand. In the case of the little girl there were reddish-blue plaques upon the dorsal surface of the hands and feet, which disappeared in a few days, but there were no pains in the joints. The eruption and joint pains disappeared in the boy at the end of three days.

At a meeting of the Dermatological Society of Great Britain and Ireland, Dr. Walsh commenting on the occurrence of a rash after antitoxin injections, suggested that these eruptions might be due to the vicarious elimination by the skin of an irritant circulating in the blood, as in the rashes that have followed the use of tuberculin also. Dr. Pye-Smith said that he had observed an erythematous eruption three or four times after the use of antitoxin. It was not the immediate effect of the puncture, as it appears in distant parts and has the form of a roseola with sharp margins, and without papules, vesicles or pustules. It fades after twenty-four hours, and lasts but a few days. He considers that its analogy to the eruptions in scarlet fever and measles is evidence that these also are due to the circulation of chemical poisons. It is very closely allied to the erythemata produced by eating mussels, and some other kinds of food. Dr. Mackey believed that in many instances these rashes were due to overdoses.

LOCAL ANESTHESIA IN DERMATOLOGY.

At the meeting of the Société de Dermatologie et de Syphiligraphie, of April 18, 1895, M. Dubreuilh⁴ in a paper on the above subject, declared that local anesthesia by means of cocaine had been very little adopted in actual practice. It is only in ophthalmol-

ogy, laryngology and rhinology that it is habitually used; dentists make use of it only occasionally, dermatologists almost never. In laryngology and rhinology its use is much simplified by the fact that anesthesia is obtained by a topical application and strong solutions, from five to ten per cent. may be used with very rare accidents.

Almost any dermatological operation may be done by the use of cocaine. In some quite exceptional cases it may be used as an application to ulcerated surfaces, in a solution as strong as ten per cent.; but the anesthesia is always very superficial in character and this method is only of use to mitigate the pain of a strong application or of a cauterization by nitrate of silver. It is not sufficient for curetting. Ointments or solutions of cocaine applied to the sound skin are of no value, and the same may be said of cataphoresis that has been so much vaunted.

The only practical method of anesthesia by cocaine is by interstitial injection. As the cocaine comes into direct contact with the ends of the nerve filaments, weak solutions are sufficient and almost all that is injected will be absorbed. Two important principles in the technique may be laid down: (1) The most sensitive portion of the corium is its upper part. (2) The solution should permeate the tissues that are to be anesthetized, in order to reach the nerve terminations. Hence the injection should be intradermic and not subcutaneous. A two-per-cent solution of cocaine in equal parts of distilled water and cherry laurel water is recommended, and two cubic centimetres is rarely exceeded. Needles bent at an angle of 45° are employed, so that by advancing the point a few-drops may be injected into different parts of the skin, without withdrawal. A certain sense of resistance is a favorable sign, for it shows that the injection has been properly made. A white anemic zone arises at the point of the needle, caused by a compression of the vessels by the liquid injected. The anesthesia is immediate and lasts from fifteen to twenty minutes. In certain places it is better to employ a straight needle, and proceed by multiple punctures, as on the alæ of the nose, the fingers and the nostrils. In places where the skin is very thin, as on the front of the neck, the eyelids or prepuce, an intradermic injection is almost impossible, but a hypodermic is quite effective. Certain individuals are more or less refractory to cocaine, especially women. The anesthesia is due to the cocaine and not to the simple imbibition of the skin with water, as stronger solutions often succeed where weaker ones fail. Dubreuilh has never seen the slightest accident from cocaine thus used. He does not, however, exceed four or six centigrammes. He considers this the best method for local anesthesia in dermatology. It is only in very short operations on inflamed tissues, as in opening an abscess, that freezing is to be preferred.

In discussing this communication, Dr. Besnier remarked that the question of local anesthesia at a large clinic was a very difficult one to decide. Only a small amount of time can be given to each patient, and cocaine is very slow in its action, requiring a wait of at least five or ten minutes. Moreover, cocaine is not indicated in all cases, especially when there are large surfaces to be operated on. He thinks that chloride of methyl ought not to be abandoned, as it is of great value in cases of small superficial epithelioma, tuberculosis verrucosa, etc.

² Deutsch. med. Woch., 1894, No. 45.

³ Loc. cit., 1894, No. 46.

⁴ Annales de Derm. et de Syph., April, 1895.

DERMATO-NEUROSES AND THEIR TREATMENT.

Leloir⁶ the accomplished advocate of the nervous origin of many dermatoses, whose place has not been accurately defined by the majority of dermatologists, calls attention to the importance that he has placed, since 1886, in pruritus as a forerunner of the dermatoneuroses. He had declared that pruritus and other nervous manifestations preceded the eruptions, and were frequently their cause. Besnier, Brocq and Jacquet followed later in this same path, Jacquet and Brocq declaring that pruritus was the cause of the eruptions.

Dermato-neuroses are defined as those cutaneous affections which are dependent on a lesion in the central ganglionic, or peripheral nervous system. Leloir divides them into

(1) The purely sensory dermatoneuroses, or those which exhibit as sole symptom, derangement of the sensory functions of the skin. These include (a) the different forms of hyperesthesia of the skin, especially pruritus, and (b) the different kinds of anesthesia of the skin.

(2) The purely motor dermatoneuroses, which are characterized by a single phenomenon, the contraction of the muscle fibres, as is especially seen in cutis anserina.

(3) The pure angio- or vaso-motor neuroses. Although often associated with tropho-neuroses, they are distinct from the latter forms, and Leloir regards it as established that the vaso-motor disturbances caused by affections of the nervous system are not sufficient in themselves to give rise to true trophic affections. This class comprises certain hyperemias and erythemas, certain anemias, urticaria, certain cutaneous hemorrhages, etc.

(4) The tropho-neuroses of the skin. This class he considered as one of the most important. It comprises a large number of active and tedious cutaneous affections, of which the manifestations are very varied. In this class he includes, among many other affections, certain papular and vesicular eczemas, zoster and certain forms of herpes, and of pemphigus, some pustular and ulcerated forms, some forms of ichthyosis and of sclerema, disturbances in the pigmentation of the skin, etc.

(5) The glandular dermatoneuroses. These are characterized by a disturbance in the secretion of the gland, in consequence of a functional disturbance in the nervous system. They include, hyperidrosis, perhaps certain forms of acne rosacea, certain forms of alopecia and of cavities, neuroses of the nail-bed, etc.

With regard to the therapeutics of the dermatoneuroses, Leloir confesses at the outset that rubbing and scratching of the skin, and contact with the outer air and with irritants must be avoided, as in other dermatoses. He uses pastes and ointments spread thickly upon linen, and covered with cotton, also the various preparations of gelatine, plasters and varnishes. In dermatoneuroses accompanied by severe itching, he has often obtained good results from scarification, after the manner of Vidal. In other cases, accompanied by more or less localized edema of the skin, especially in certain eczemas of the hands and fingers, the application of astringent substances, as alcohol, ergotin, ichthyol in alcoholic solution, have proved of value. Luke-warm douches along the spine were

found to be useful, and, especially in the case of trophic ulcers, the galvanic current. This method has been advocated in various other affections also, as in elephantiasis and morphea and vitiligo. Leloir has cured several cases of pruritus of the skin, and of vulvar pruritus which had defied all medication, by means of electrolysis; yet he hastens to remark that it is a very painful procedure, which can be used only in very localized forms. Faradization he has given up. Static electricity was used in a number of cases, which had proved obstinate, and with good results. These were cases of general pruritus as well as vulvar and anal forms. In other cases no benefit was derived from it. A large number of cases of dermatoneuroses, as eczema, lichen, urticaria, morphea, vitiligo, asphyxia of the extremities, trophic ulcers, alopecia areata, etc., were also treated by static electricity, but the results were varied.

Internally, Leloir speaks well of quinine, strychnia, bromo-camphor, hyoscyamine, etc. Arsenic is often of service, as are the hypophosphites. The neurasthenia that accompanies so often the dermatoneuroses, must be treated appropriately, and attention paid to the functions of the kidneys and liver, and to affections of the digestive tract.

He considers that a nervous lesion may often be diagnosed by the appearance of a skin affection, when the former would have remained unperceived without the latter. These eruptions he has named Dermato-neuroses Indicatrices.

ELEIDIN IN NORMAL AND PATHOLOGICAL SKIN.

Dreysel and Oppler,⁷ working in Jadassohn's clinic in Breslau, have studied the question of eleidin, the substance discovered by Ranvier, and which Buzzi differentiated from Waldeyer's kerato-hyalin.

The writers' procedure was to harden pieces of skin of medium size in absolute alcohol for from two to three days, as a longer hardening did not give such good results, and imbed them in colloidion. In cutting with the microtome they found it important that the sections should be dry, the knife not moistened. The sections may or may not be stained on the slide, and picro-carmin was the most valuable stain. A solution of nigrosin in water, as used by Buzzi, also proved of service.

The consistency of the eleidin was found the same as described by various authors—the drops became confluent under pressure on the cover-slip, and changed their form. Thus eleidin is a fluid, and lies in the stratum lucidum. Ranvier regards it as an essential oil, Buzzi as a fatty oil, a glycerine fat. The writers found that in the sections that were kept in distilled water, dilute or absolute alcohol, the eleidin had disappeared after a few hours. For this reason they adopted the procedure of cutting the sections dry.

All observers are agreed in localizing the eleidin in the upper and lower surface of the section, at the level of the stratum lucidum. The writers, like Buzzi, were able to demonstrate the eleidin, often in very considerable quantities, in the course of the ducts of the sweat glands, through the stratum corneum. It was also found between the inner and outer root-sheath.

It is especially insisted upon that eleidin and kerato-hyalin are two totally different substances, although they have certain properties of staining in common. Their relation to one another is not well understood,

⁶ Archiv. f. Derm. u. Syph., 1894.

⁷ Archiv. für. Derm. u. Syph., 1895.

and we can only say that they are both concerned in the process of cornification. Eleidin was found on all parts of the skin that were examined. Contrary to Unna, it was demonstrated on the junction of skin and mucous membrane of the lips.

With regard to the presence of eleidin in pathological conditions, it has been found by other investigators to be increased in warts, prurigo nodules, chronic dermatitis, etc. The writers examined a number of cases of cutaneous affections and found in a case of roseola syphilitica, of erythema multiforme, and in an acute eczema that the eleidin and kerato-hyalin were present in normal amount. The same was true of a chronic eczema, while in two cases of dry circumscribed psoriasisiform eczema, both eleidin and kerato-hyalin were much diminished. The same was true in several cases of psoriasis. In papular and pustular syphilides the eleidin was diminished at the edge of the lesions, and entirely absent in the centre, the kerato-hyalin also. In tuberculosis verrucosa cutis and in scrofuloderma the eleidin was less abundant than normally. In an impetigo pustule the eleidin was present in normal quantity.

In affections attended by little or no inflammation, but characterized chiefly by scaling, as pityriasis capitis, pityriasis tabescentium, pityriasis versicolor, no alteration in the amount of eleidin was found. In verruca acuminata, where there were nucleated horny cells, the eleidin was completely wanting, and the kerato-hyalin almost completely. In verruca dura they were both increased. In molluscum contagiosum, the molluscum bodies, intensely stained with picrocarmine, were found to be surrounded by a dense network of typically stained drops of eleidin in great profusion. In a case of clavus that was examined, eleidin and kerato-hyalin were found totally wanting in the centre, where the papillary body had completely disappeared; but at the periphery, where the rete was hypertrophied, they were both increased.

In general, the writers find that eleidin is present in the stratum lucidum wherever the cornification is complete, that is, where the upper horny layers exhibit no nuclei capable of staining. The more vigorous the production of horny cells, the greater the quantity of eleidin. In all places where the process of cornification is incomplete, the eleidin disappears almost wholly. Thus on the mucous membranes, which exhibit stained nuclei in the upper layers and on the labia minora and on the prepuce, there is little or no eleidin produced. In all sorts of pathological processes where there are anomalies of cornification—parakeratoses—the same is true. The amount of eleidin in the epidermis is not always proportional to that of kerato-hyalin.

CAMPHORATED SALOL.⁸

This is prepared by moistening one part of camphor with a few drops of alcohol, and rubbing this in a porcelain mortar with 1.4 parts of salol, until a transparent fluid is obtained. Elsberg has used this preparation in various cutaneous affections for two years, but has found it of especial value in furuncles and carbuncles. A change takes place in from twelve to twenty-four hours; the pain diminishes, the redness and inflammation of the adjoining parts disappears; and the tumor becomes progressively smaller, without the formation of pus. As a rule,

the secretion obtained from the vesicle at the point of the furuncle yields a pure culture of the staphylococcus aureus on nutrient media, as do also bits of the infiltrated tissue. After camphorated salol has been used for twenty-four hours, no such cultures can be obtained. When suppuration has already taken place in a furuncle, and after the slough has been removed, the pain and hyperemia may be much lessened by the application of the camphorated salol, and the suppuration diminished. The healing process then advances quickly, a slight discoloration, and some infiltration only being felt for a short time. The method of using the drug, is to lay bare the point of the furuncle, or in the case of carbuncle to make several moderately deep incisions, in order to facilitate penetration into the infiltration; afterward the lesion and the surrounding hyperemic parts are covered with cotton compresses soaked in camphorated salol, and an impermeable covering placed outside.

ERYTHROMELALGIA.

Gerhardt⁹ reports the case of a woman, forty-four years of age, who had never been strong, and had suffered especially from palpitation and fainting fits. Suddenly the patient was seized in the night with intense pain in the hands and feet, which still continued when the case was reported. At the same time with the pains there appeared an intense redness of the fingers and toes, with the exception of the left thumb. There was great sensitiveness to the touch. Arsenic was employed, with rest and protection of the parts; and some improvement was noted, when suddenly she experienced a fresh attack of pain. Antipyrine had a marked effect upon the pain, and there was great improvement until a third attack was experienced, associated this time with pain in the tongue and a disturbance of the speech. There was a marked thickening of the skin at the edge of the nail. The nutrition was poor. The sensibility of the affected parts was somewhat impaired, and there was an increase in the sweat secretion.

This affection was first described by Weir Mitchell in 1878 under the name erythromelalgia. This writer records six cases of his own and five from other sources. Lannois collected 24 cases, which were mostly in men, and which proved very obstinate, and rebellious to treatment. The lower extremities are affected in the majority of cases. The characteristic symptoms are pain and redness of the extremities, beginning at their distal end.

Another case of the same affection was reported by Senator at the same meeting of the Charité staff, where the patient, a man forty-four years of age, had been suddenly seized nearly two years previously with intense pain in the arms, especially the left one, soon followed by redness of the back of the fingers and hand, extending up the forearm. Several weeks later the feet also were attacked. The pain was so intense that no shoes could be worn, and he was obliged to give up his occupation. Some time later small red papules developed upon the erythematous area. There were no abnormal appearances of the skin of the rest of the body, except that urticaria factitia could be easily produced. The pain gradually diminished while the redness remained in varying degree, being especially marked in the summer, with edema of the hands.

⁸ Elsberg: Ref. Archiv. f. Derm., 1894.

⁹ Berlin. klin. Woch., 1892, No. 45.

Senator considers it evident that the redness and swelling are caused by an affection of the vaso-motor nerves, that we have to do with a vaso-motor neurosis, and that it is the direct opposite of symmetrical gangrene of the extremities. The persistent papules observed in this case are very seldom seen in angioneuroses generally, and have never before been recorded in erythromelalgia. Both the faradic and galvanic currents were tried on this patient without appreciable effect. The application of cold did not relieve him, as is usual in this disease, but antifebrin had a marked effect on the recurrent attacks of pain.

Bernhardt presented a woman of fifty years, unmarried, who had had the affection for five years. The hands were red, swollen and exceedingly sensitive to pressure. The feet also became affected later.

Reports of Societies.

FIFTH ANNUAL MEETING OF THE HARVARD MEDICAL ALUMNI ASSOCIATION.

(Concluded from No. 11, p. 273.)

THE PRESIDENT: A medical degree taken at the University of Berlin; a very successful career as a practitioner in the much medically beschooled city of St. Louis; a considerable acquaintance with various parts of our country, combined with a wide reputation, and above all a determination to make Boston his future home,—all this must qualify one to tell you much which you want to know about medical education and medical practice. I introduce Dr. George J. Engelmann, formerly of St. Louis. I do not know that he has made up his mind whether Professor Chaplin was right when he talked to us two years ago, or whether the open letters in the Western newspapers were right when they metaphorically howled at him a year later. At any rate, Dr. Engelmann has read those remarks and is warned. I see no blood in his eye. Dr. Engelmann, formerly of St. Louis.

SPEECH OF DR. GEORGE J. ENGELMANN.

MR. PRESIDENT AND GENTLEMEN:—First of all, let me thank you for this invitation to meet with you; let me say I have looked forward with much pleasure to this meeting of the Alumni of the Harvard Medical School, and to the meeting with friends, old and new, whose welcome has ever been warm, whose hearts beat ever responsive. I have looked forward with pleasure to this meeting, very much like Dr. Dock. I have trusted to the promise of your President; but this importation seems to have failed, for his ships have gone astray on that strange sea of medical education, turbulent, stormy,—or, perhaps, a westerly gale has struck them.

Your President has given me a very kind and a very broad introduction, and in his letter he has proposed a subject such as he has hinted at now—some remarks upon the medical education and medical practice of the East and West. Comparisons are a little dangerous, gentlemen, and the dissecting scalpel may sometimes cut too deep, and wound; and, moreover, I believe that in our broad medical science we should know no East, no West, as we know no North or South, that the lines should be drawn only by genius and intelligence.

So much has been said upon this subject of medical education; it has been revolved before you in all its phases, at least as regards the great schools of the Atlantic Coast, the schools of our country. And in speaking of the University of Pennsylvania, of Columbia, of Harvard, and of that new light which has come, the Johns Hopkins, nothing can be said. They represent the advanced medical education, the advanced science of the Atlantic Coast, as we see it in the University of Michigan upon the Lakes, in Tulane upon the Gulf. The University of California will soon follow upon the Pacific, and that of Texas in the far South. It is needless to touch upon them. And to speak of Harvard, after what we heard from President Eliot, after the propositions which have been made for the future, I can but refer to some lines of Tennyson:

"Good work is a fruit so ripe and rare
It bears no fingering. Let me then beware
To touch with venturous hand this curving branch,
Nor lean too heedlessly against the tree
Thus at its prime o'erladen heavily
With golden harvests full and sweet and staunch,
Lest I, by some rude shock, at this light hour
Bring down the virtues in a mellow shower."

Gentlemen, comparisons are odious, and they will lead to nothing. Let us believe that we are all doing the best work, doing the work that is suited to the locality. You know the schools of the East, and you have just heard from our advanced institution in Michigan. Now, those are all institutions with large endowments, or with State aid; and when the money does not flow, they complain. You use the term Western, and what does it mean? To some the broad expanse of country west of the Alleghanies, or west of the Mississippi, or west of the Rockies, just as they happen to be situated. To some it is but as the idea which they have in the great capital of our sister republic of France, that whatever is beyond the buzz and hum of the Boulevard is *la bas*.

As a rule, when such comparisons are made, when you speak of those schools of the West, they are involuntarily compared with a few of the great institutions of the East—of the Atlantic Coast. You think not of the mushroom growth or of the shrub which grows even beneath the shade of Harvard, or the walls of Pennsylvania; it is simply the great advanced schools compared with the pioneers that are doing the practical work.

Great changes have taken place in medical education in this country since the first move made by the State Board of Illinois; the schools are being brought into line; progress is forced upon them, and competition forces it. Yes, you speak of a city with eleven or thirteen medical schools. Chicago has fourteen, and she is none the worse for it. It stimulates; and let the best man win. The better schools will grow, and the weaker ones will die out.

It is unfortunate that there is too much in the status of medical work throughout this country; we have too many schools; we have too many doctors; and, unfortunately, the dignity of the profession suffers. You are not aware of that so much here in the fortunate circumstances in your great centres. And whilst I admire every diligent worker, every untiring student, I should say that the nobility of our profession must stand foremost. Our calling is not a business alone; neither honor, nor the desire for the soaring eagle of glory, or the heavy eagle of gold should

make us waver from our path. We have invalid conditions, or conditions of which you know little or nothing here.

As I say, you speak of those institutions which have rich endowments, State aid institutions, which stand at the apex of the great pyramid of medical education; but there is a broad foundation, a broad basis, which gives the mass of practitioners to this country, and those are schools which are dependent upon themselves. The small ones can train the students, but they have no laboratory facilities, perhaps no clinical facilities. The larger ones—and there are schools with over 700 paid-up students—have their laboratories, their hospital attachments, and their clinics; and it is the work of the faculty to secure that for them, not a dollar comes from the State or from any public-spirited individual.

The great difference in the leading schools of that great country and the schools of the great centres is that here—and, above all, in this school of Harvard—you can devote time and money to the study of medical science, to the laboratory work, whilst in the more practical and more distant regions the clinic and the hospital work is all important. But the laboratories are well furnished. Let me mention, for instance, Rush Medical College, which this past year has spent \$60,000 upon a laboratory, and \$60,000 from the pockets of the faculty. If you will, it is a self-sacrificing profession which does this work, but the hospital is the important feature. And in the city of St. Louis two or three schools have their hospital attachments, have their hospitals under their immediate control, by the side of the school, with their clinics, sometimes a double set of clinics running all day. In Chicago five schools have their hospitals, and under the immediate control of the faculty, with facilities of city hospitals and other institutions in addition. That is the essential feature. And whilst the four-year course is a nominal one—three years of the school and one under the guidance of the preceptor—that depends upon the student. And the improvement in those schools will depend upon the general education, the improvement of the student and of the legislator; and much, in fact all, has been done in the elevation of the standard of the medical schools by legislation.

A large number of the Western States demand a diploma from a three years' school, or they accept no diploma from any school whatever, but demand an examination before their board.

The State of Montana has just passed a law which admits to practice in that State only after graduation from a full four-term school after the 1st of July, 1898; and another step has been taken by one of our States, which perhaps may aid greatly in advancing the standard of the student, namely, that it takes away from the college, from the medical school, the privilege of admission, but admits to the medical schools of the State only after examination by its State Board. That, I believe, is a new departure, and is one which will tend certainly to attain the very point President Eliot and Dr. Dock have spoken of. You have no difficulty here, but the difficulty will be with the mass of schools throughout the land.

Mr. President, you have kindly in your note left it open for me to make such remarks, if not upon that subject, upon any other, and for that reason you will pardon me, too, if I will not touch upon the subject

you have mentioned; the answer the gentlemen will see for themselves. I would say but one thing more, and that is that I trust that this great school will not stand proudly aloof in the future, as she has done in the past, but that she will extend a hand to her younger sisters, though many of them be still in short frocks. Much good will thus be done. And let us in our broad humanitarian work during this important period of a struggling profession, a rapidly progressing profession, let us forget and forever cast aside those boundaries East and West, as you have of the North and South.

Let me say a few personal words however, that is, to thank you from my heart for your invitation, Mr. President and gentlemen, to be your guest upon this occasion. For years I have known the warm hospitality of my professional brethren of this city; and as I have come to live among you, I am doubly glad, gentlemen of the Harvard Medical Alumni Association, to have broken bread with you on this day.

THE PRESIDENT: I have received a letter of regret from one of our Vice-Presidents, Dr. Israel T. Dana, of Portland, who is unable to be with us, much to his sorrow, being engaged to-day at the Commencement of Bowdoin College. Another Vice-President, Dr. John Green, has come all the way from St. Louis. You remember the way in which Professor Chaplin referred to Dr. Green two years ago:

"Some thirty years ago the faculty of one of these medical schools formed an organization, which was a hard and fast agreement that they would turn over every dollar of profit to a fund, put it out of their control entirely, and devote that fund to furthering medical education. As a result of this they have lately built what I think is one of the very best educational buildings I know of. It has large laboratories; it has splendid lecture-rooms; it has every feature of the most modern methods of teaching. And that has been built out of the self-sacrifice of members of the medical profession. I believe it is a lone example of such self-sacrifice. I know of no other profession that can boast of such an example; nor do I know of any other school in the medical profession that can show it either. I like to mention it here because that building, exemplifying as it does the latest ideas in medical education, is the work of a graduate of this school, Dr. John Green."

I present to you Dr. John Green, of St. Louis, a graduate of the class of 1866, and will ask him to say a few words.

SPEECH OF DR. JOHN GREEN.

MR. PRESIDENT AND MEMBERS OF THE ALUMNI ASSOCIATION OF THE HARVARD MEDICAL SCHOOL: I feel a little like the Prodigal Son, both for having gone away from home, and stayed away so long, and now that I come back find myself entertained with the fattened veal as in the case of that historical personage.

You have spoken of the St. Louis Medical College, now the Medical Department of Washington University, of which Chancellor Chaplin is the head. The facts are essentially as they have been stated. The school was like the other schools in the country, much like the Harvard Medical School, the Medical Department of the University of Pennsylvania, Jefferson, the College of Physicians and Surgeons of New York, Bellevue, etc., a two years' school. It was

not as good a school as the Harvard Medical School was when I was a pupil in it, but its requirements for graduation were as high, and of the same kind as those of all the other institutions which I have mentioned, namely, attendance upon two annual courses of medical instruction during a period of pupilage of three years. That Harvard was better than any of these other schools in carrying out its solemnly published requirements is evidenced by the fact that Harvard has, from the beginning, uniformly insisted upon satisfactory and positive evidence that the candidate for graduation shall have fulfilled the condition of three full years devoted to medical study; and the certificate to that effect was always a certificate from a reputable physician, a member of the Massachusetts Medical Society in most cases, the Massachusetts Medical Society visiting with the greatest censure any one of its members guilty of the act of giving a false certificate of time to a student.

After the completion of my medical course here I went to one of the other great cities of the country, thinking that I might profitably spend a winter there listening to medical instruction by other noted American teachers. This was in the fall of 1858. I found there a gentleman, an attendant upon the courses of one of the great schools of the country, who had graduated at Harvard in July — commencement then occurred in July of the year before, 1857. He told me he expected to graduate in medicine in March or in April, 1859, about three months less than two years from the date of his graduation in arts at Cambridge. I said: "How are you going to do that? The published requirements of the school in which you are attending lectures are the same as the published requirements of Harvard, and Harvard requires three years devoted to medical study after graduation in arts when the student is such graduate. Who do you have to convince that you have studied three years?" Said he, "I shall hand in my two courses of tickets with an application for graduation and the graduating fee." "But," said I, "to whom do you hand these in?" "To the janitor. And I shall also hand to the janitor five dollars, for which he will give me a tin box in which to keep my diploma."

I believe that every leading medical school in the United States in 1858, with the exception of Harvard, contented itself with evidence that a student had taken out two courses of medical lectures, and cared for nothing else, provided he passed some sort of an examination, an examination differing in different schools. With Harvard came a reform. Harvard was then in advance, as I believe, in its real requirements of all the other schools in the country; but under the leadership of its young President about twenty-seven years ago, with the co-operation of men in its faculty who believed that the system of medical education here was miserably inadequate, a course of three full years of medical instruction was provided by Harvard as an indispensable requisite to candidacy for its degree. Harvard has been followed by other medical schools. I believe first by the University of Pennsylvania, and then by the College of Physicians and Surgeons, the Medical Department of Columbia University in New York. The date of Ann Arbor establishing a compulsory three years' course without permitting substitution in the way of time spent with a preceptor for one of three courses I believe was later, considerably

later. The great colleges of the East very slowly fell into line following the example of Harvard, and for the proud position that Harvard holds, of having been the pioneer in this work, I believe the medical profession of the country, with the Harvard Medical School, is indebted to the present President of the University. That the change would have come, and come soon, is certain. That Harvard would have been the first in the country to make that reform, is perhaps doubtful.

The reforms in medical education that have occurred within the past thirty years came in the beginning from within the medical colleges. We have now reached a period when reform in medical education through extension of number of courses of instruction required, lengthening of the number of years of study demanded, is coming largely from without, it is coming through the pressure of the State boards of health. Just so long as but few State boards of health — and I believe the Illinois State Board of Health was most conspicuous as a pioneer in making these requirements — just so long as but few State boards of health lay down effective rules looking to a more extended course of medical education, just so long did the temptation exist for a medical school to graduate cheaply, on short terms of study, as many students as they could. Only was it through the establishment of boards of health in many States in the interior of the country that the student who had got his degree cheaply, as measured by expenditure of money and of time, found it difficult to settle where he wanted to, impossible to settle in the place of his choice in many cases except by going through the further ordeal of an examination of the board of health of the particular State in which he wished to settle. These requirements of the State boards of health have done much. It is, however, a misfortune that the State boards of health, creations of the Legislatures of the States, have, as might be expected, acted independently of each other; and it is no easy task to-day for a medical institution as far West as where I live to adapt its requirements for graduation to the great number of conflicting requirements of State boards of health.

It has been the fashion now for the State boards of health in the interior of the country to make one of their requirements attendance upon three annual courses of medical teaching, but to append to that a requirement that the candidate shall have been four years engaged in the study of medicine, but without providing what sort of evidence shall be required that the student has so devoted another year. Practically, the condition of four years' medical study is but a nominal one, and is likely to remain a nominal one, and to fall into the contempt that the requirement of three years of medical study fell at the earlier period of which I speak, some thirty years ago or more.

You have said a word about the medical college with which it has been my pleasure to be in some way connected for over twenty years, as a member of its faculty some ten or a dozen years. The members of the faculty of that school did, as Chancellor Chaplin stated here two years ago, devote their very considerable emoluments derived from students to the consideration of a fund, and employed the ablest legal assistance to so tie up that fund that it must be forever devoted to the advancement of medical education. For a series of years each member of the faculty, instead of receiving his dividends, turned them into the creation of this fund, and through the investment of

that fund, and the subsequent sale of the property, the college building and the land upon which it stood, they were able to get money enough to warrant them in the erection of a new building designed with distinct reference to the modern teaching of medicine, with all that that implies in the way of laboratories, chemical, histological, physiological.

The Medical Department of the Washington University to-day, as in the past, devotes its entire income to the cause of education, employing on salaries much more modest than could be wished, competent teachers in chemistry, in physiology, in histology and bacteriology. Its members, who are practitioners of medicine, rely upon their practice for their income, draw nothing from the school, but all contribute something every year under the pressure of need of developing the school in some particular direction.

Let me say one word about the Medical Department of Harvard University, suggested by the remarks of the President. The Harvard Medical School is instructing, or attempting to instruct, simultaneously, and by the same methods, two notably distinct classes of students. The one class comprising somewhat over twenty per cent. at present, I believe, of the total number of matriculates, is made up of graduates in arts, letters or science. These graduates are normally of the age of twenty-three or twenty-four. A period of four years as medical students, as has been stated, brings them up to the age of twenty-seven as the average age of graduation. They come into school very largely through selection of subjects of study in college with reference to a medical career; they come well equipped with knowledge in the natural sciences, in chemistry, in physics and in modern languages, which open to them a literature of the greatest importance and of ever-increasing importance. The second class is young men whose entrance examination, I think, may fairly be stated to represent about the level of one year's work in a high school. The status of the university in prescribing a minimum age for graduation at twenty-one now contemplates the reception of such students at the age of seventeen. These are men untrained in methods of medical study, of laboratory; they are men of narrow education, extremely limited training. It seems to me that the logic of the situation is this, that Harvard University must before long do in the Medical Department what it has determined to do in the Law Department, receive only men holding a first degree in arts, letters or science, or else it must establish two courses of instruction, one suited to the limited capacity of the student admitted on examination and leading to a lower degree; the other a higher course suited to the abilities of the trained men six or seven years later. The outcome of it, I believe, will be the ultimate establishment of a requirement of a degree as a condition for commencing the study of medicine.

I have said that the pressure brought upon the medical schools in the interior of the country has come from State boards of health. As an illustration of how things are, the requirements imposed under the statutes of the different States as regards the candidacy for a degree in medicine, or in anything else, we have the statement of our guest to-night from New York of the working of the University of the State of New York in determining by examinations of the candidate, or of evidence in the way of diplomas, his fitness to be recognized as a student before the medi-

cal school can receive him as a candidate for a medical degree.

The requirements in another State were tersely stated and with a moderation which did not reach the actual state of facts, by a very judicious and well-informed man, at this moment acting as mayor of one of the large Western cities, in which he said, "Under the statutes of this State three barbers can associate themselves, call themselves a medical college, grant medical degrees upon any terms they please." The statute does not require that the three men organized as a medical college shall be so nearly affiliated to physicians as barbers; they may be the first three men who pass the window on the street, provided they are inhabitants of the State. That State, I am sorry to say, is the State from which I come, the State of Missouri. That state of things has existed under the general statutes of the State to my certain knowledge for thirty years, probably a good deal longer. It is the State Board of Health, a creation of a comparatively recent year, which exercised its pressure upon medical schools by refusing to register graduates of them unless they conformed to certain minimum requirements, rather than anything in the State law requiring the granting of degrees. The State Board of Health discriminates between degrees legally granted; or in the case of degrees which it valued highly enough, it enrolled the holder as a legally-qualified practitioner.

I must say that the cost of establishing a medical school, in the way of legal fees, provided you get the good-will of a lawyer acting in the court, and provided they do not conflict with property rights, as established by the State, is five dollars.

The number of medical schools in St. Louis at the present time—I took the trouble a few months ago to count them up—is eleven. Two of them are old, established medical schools, existing under charters obtained more than fifty years ago. The others, representing various degrees of respectability and aims on the part of their managers, are organized under this general law which I have mentioned. Of the eleven schools, seven are known as regular schools of medicine: one is called the School of Homeopathy; another is called the School of Eclectic Medicine, whatever that may mean; and another has the title of College of Hygienic Physicians and Surgeons, whatever that may mean. There is also a College of Optical Science, pretending to teach jewellers' clerks how to treat grave diseases of the eye. I thank you for your kind attention, Mr. President and gentlemen.

THE PRESIDENT: Gentlemen, I will detain you one moment for the final sentiment of the day, which is to the Dean of the Harvard Medical School. The sweet course is always served the last. There was a time when there was no benediction which each and all of you would rather have had than that of the Dean of the Harvard Medical School. I believe much of that feeling still lingers. I therefore intended to present to you Dr. W. L. Richardson, who can preserve the same impartial skill and unruffled gentleness at the birth of an infant, at the deading of a candidate for a degree, or on the martial field with the Cadets. The only thing which disturbs his well-balanced equilibrium is the prospect of making a speech, and I regret to see that he has fled to his Class Dinner where neither speeches nor reporters will be allowed.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

SEVENTEENTH ANNUAL CONGRESS, ROCHESTER, N. Y.,
JUNE 17-19, 1895.

FIRST DAY.

THE President, JOHN O. ROE, M.D., of Rochester, after thanking the Association for the honor conferred upon him, and welcoming the members to the city of Rochester, made some observations on

THE RELATION OF DAMP AIR TO DISEASES OF THE AIR-PASSAGES, PARTICULARLY IN THE LAKE REGION.

No one climate is good for every disease. That good for affections of the air-passages may be the opposite for biliary affections. Any climate may act by its direct effect upon internal organs, and by its indirect upon the habits and mode of life of the individual. In the Lake region biliary disturbances are comparatively rare, while air-tract troubles are common enough. It possesses a moist atmosphere with sudden variations of temperature and a low mean annual temperature.

The amount of moisture in the atmosphere in any given locality depends mainly upon four things: (1) the nature of the soil, (2) its cultivation, (3) range of temperature, and (4) the height with reference to the sea-level. Light, sandy, porous soils easily drain after rain, and consequently do not give off so much moisture as heavy soils with underlying clay which are poorly drained. In the Lake region both kinds of soil are found, and the land is, as a rule, highly cultivated—a condition also reducing moisture in the air. The air is apt to be cold, owing to the proximity of the chain of great lakes. This large body of cold water gives for Rochester a mean annual temperature of 40° F., while that of Albany, in the same latitude, is 43°, and for the spring, above 46°. The Lake region also has frequent and rapid changes. The early warm days of spring are followed by chilling blasts from the North. The amount of cloudiness is considerable, averaging, for the past twenty-five years, six and one-tenth days out of ten. The average rain-fall is 27.8 inches.

The bad effects of damp air upon the human body are in the way of checking insensible perspiration; and hence on mucous membranes, by osmosis and the hindrance of elimination, there results, especially in the nose, turgescence, hyperemia and hyperplasia—all of which are rendered more probable from the normally abundant vascular supply of this region.

Sleeping with open windows is another cause of frequent colds. A damp night-air is breathed which could not possibly be comfortably borne in the daytime. Bowditch, over thirty years ago, conclusively showed the relation of damp air and soil to phthisis, and though we then knew nothing about the tubercle bacillus, yet we now recognize the soundness of his views as to the share which the foregoing deleterious agencies bear in the causation of the malady. We must, therefore, learn how to drain our lands and houses and ventilate our sleeping-rooms.

DESSICATED THYROIDS IN GOITRE,

a paper by DR. E. FLETCHER INGALS, of Chicago.

For fifteen years the writer had treated bronchocele and exophthalmic goitre with the usual iodides, iodine and carbolized glycerine parenchymatous injections.

For the past three or four years he has used the thyroid products, and finds the dessicated preparations the best. Six grains represent one entire gland. He has used the remedy in six cases, all of which save one are still under treatment and had been previously on the old plan of medication. His six cases had seemed to do well, the neck decreasing in size and other symptoms being favorably modified. He had collected from the practice of other physicians some 50 cases similarly treated. In one series of 25, all but seven showed distinct improvement. Headache was noticed after the remedy was begun in 30 per cent., dizziness in 37 per cent., and increased cardiac rate in 25 per cent. Out of the 50 cases, the size of the neck was reduced in 35. Out of seven cases of myxedema five had been improved in the neck condition. As to weight, the gains and losses of the different patients about balanced each other.

As to disagreeable effects of the remedy, headache was noted in 18 per cent., dizziness in 20 per cent., trembling in 14 per cent., increased rapidity of the pulse in 11 per cent., weakness in 17 per cent., nausea in 7 per cent., loss of weight 25 per cent., and in one instance uterine contractions. Dr. Ingals drew the following conclusions:

(1) Thyroid products have a profound physiological effect upon the nervous and circulatory systems, causing painful feelings, vascular fluctuations and at times rapid heart action.

(2) Such symptoms can result from a daily dosage of from one and a half to two glands.

(3) The internal administration seems to give as good results as the hypodermatic.

(4) The dosage should commence with two grains of the dessicated preparation three times a day, and be gradually increased to six or seven grains.

(5) It seems to affect body weight; but this in a given case under therapy is uncertain, and varies in the same individual under varying circumstances.

(6) The gastric disturbances sometimes observed may be merely incidental and not due to the remedy.

(7) The remedy is good in myxedema.

(8) In cases of goitre, not exophthalmic, it seems to aggravate heart action.

(9) It reduces the size of thyroid, but does not seem to affect the cystic form of the disease.

(10) There is no proof whatever that it is of any good whatever in any maladies except these just enumerated.

DR. E. L. SHURLY, of Detroit, discussed the paper, saying that he had been disappointed in his results in some 15 or 20 cases. He narrated the case of a boy who had been operated on for removal of the thyroid and who had seemed to suffer from mental apathy, etc., after the operation. His voice was piping, though the larynx showed nothing but a slight loss of tension of the cords. Later, thyroid-feeding had done wonders for him, both as to his mind and his general physique.

Dr. Shurly thought that laryngologists should condemn the extirpation of the entire gland. The leaving behind of a single piece would suffice to avert the unfavorable mental condition resulting from complete ablation.

DR. W. E. CASSELBERRY, of Chicago, had had improvement with thyroid in one case of exophthalmic goitre, but no cure. He quoted from a recent article of Brun, of Tübingen, who had found that the younger the patient the better were the chances of

cure. In animal experimentation sudden death had been noted in one case.

DR. INGALS insisted upon the importance of giving the patients pure drinking-water. In many localities it seemed probable that the water had a causative septic influence.

ELECTROLYSIS BY A CURRENT-CONTROLLER FOR THE REDUCTION OF SPURS OF THE NASAL SEPTUM

was the title of a paper by DR. CASSELBERRY.

The writer exhibited a small, portable current-controller for use with the Edison (continuous) current, and designed by means of a lamp in the circuit to subdivide the powerful street current. It is known as the "Macintosh" instrument.

Electrolysis is not an universal substitute for old surgical procedures. The limits of the operation are well defined. The ideal electrolytic current is one of moderate high tension (voltage) and of a comparatively low-current strength (ampèreage). The current in Chicago is one of 110 milliamperes, and this is reduced by a lamp resistance just one-half, and further subdivided by the apparatus of the current-controller. The bi-polar method of electrolysis is the preferable one, and the seance should last from six to eight minutes. The electrodes are about 15 millimetres long and half a millimetre thick. They are made of irido-platinum.

He has had experience with ten cases, and would divide them into three types:

(1) Spurs, strictly cartilaginous. We must be careful not to push things too far. Cartilage will become devitalized in about eight minutes. Results are good.

(2) Spurs, a mixture of cartilage and bone. Here the result varies directly according to the percentage of cartilage present, and hence tabulated results of different writers show a wide discrepancy.

(3) Spurs, wholly bony. Here this method is inapplicable. Needles will not penetrate bone, nor will the electrolytic current dissolve it.

The advantage of the method where applicable is freedom from hemorrhage; but, in spite of this, it can never be a universal substitute for the saw or the trephine. It is more tedious and less brilliant than other procedures. It is useless in simple deviations. Under cocaine even it is not wholly painless. Care should be taken to watch the sound nostril and as soon as we observe on that side any discoloration or bubbling of gas or hear a faint crackling, we must desist, or else perforation will probably result.

Discussion was opened by DR. J. E. NEWCOMB, of New York, who had in two cases had fairly good results. He used steel needles, which of course corroded; but the metallic salts formed were ferric salts, consequently harmless and possibly hemostatic. He could not believe the statements of Moure and others that they can electrolyze bone.

DR. W. H. DALY, of Pittsburg, used electrolysis years ago, but laid it aside for the usual surgical measures. It is a waste of time, and is more a theory than a fact. Whatever is done is rather by a cauterizing action than by a true electrolysis. There is danger of middle-ear trouble, traumatic sepsis and prolonged discomfort. His ideal method is the trephine driven by the Vilbliss motor. We cannot use Dr. Casselberry's controller with the alternating current, which is the one now more commonly used in commerce; and as to measuring the current with an ampere meter,

he had said, and would say again, that he believed them to be as unreliable as gas or water meters.

DR. E. L. SHURLY, of Detroit, said he would as soon think of amputating a thigh with lunar caustic as to think of reducing nasal spurs with electrolysis.

DR. JONATHAN WRIGHT, of Brooklyn, thought there was a field for electrolysis in phthisical and other debilitated conditions where shock and loss of blood were to be avoided at all hazards. These patients are in a delicate condition, and it is easy to send them down hill. It is easy enough to remove the anterior spurs any way, as they are generally soft, but those situated farther back are apt to be hard.

DR. INGALS would use in the phthisical cases the galvano-point heated to whiteness.

DR. J. H. LOWMAN, of Cleveland, stated that at the last International Congress the weight of opinion had been against the method.

DR. S. HARTWELL CHAPMAN, of New Haven, thought Dr. Casselberry's controller faulty in that it did not subdivide the current sufficiently to prevent shocks, seeing that the current was used about the head. He had found Vetter's instrument free from this objection.

DR. A. B. THRASHER, of Cincinnati, inquired if the bi-polar method was less painful than the mono polar.

DR. J. W. FARLOW, of Boston, spoke in regard to hemorrhage, severe instances of which he had seen follow the use of the saw even in non-bleeders.

DR. DALY suggested the use of aluminium intra-nasal splints for checking hemorrhage.

DR. CASSELBERRY, in closing the discussion, admitted the validity of Dr. Chapman's objection, and hoped to remedy the fault in subsequent instruments. As to cauterizing cartilage, he had seen severe reactionary inflammation ensue from this procedure.

SECOND DAY.

DR. J. W. FARLOW, of Boston, gave the clinical histories of

TWO CASES OF LIPOMA.

CASE I was that of a male child, aged two years, in whom a reddish-lobulated pedicled growth grew from the inner side of the right cheek, just anterior to the mouth of Steno's duct. It was soft, movable and not ulcerated. Removed without hemorrhage with wire snare.

CASE II, male, aged sixty-six years, in good health. Fifteen years before a tumor was noted in the mouth, but it gave no great discomfort for several years, when finally a piece was cut off. In March, 1893, it had grown again so that the patient was obliged to hold a small piece of cloth about it to prevent injury from the teeth. It could be moved forward beyond the lips and seemed to run backwards toward the larynx. Occasionally a portion of it seemed to fall down between the cords into the trachea and thus cause suffocative attacks. With a cold-wire snare a part was removed, and the patient was soon lost sight of. Again it re-occurred, and again he returned. Finally, in December, 1894, it was removed with the galvano-cautery snare. No recurrence in three months. Attachment seen to be just in front of the arytenoid cartilage. Microscopical examination showed "sub-mucous polypoid lipoma."

SOME REMARKS ON REMOVAL OF THE TONSILS, a paper by DR. FARLOW.

He limited his remarks to the question of choice of operation. We must first break up adhesions between the tonsils and the faucial pillars; otherwise, whatever else we do, our results will be unsatisfactory. Dr. Farlow prefers the *écraseur*, and has devised a special instrument for this purpose based on Hooper's snare, but with several modifications. In case adenoids co-exist, he gives an anesthetic, otherwise not. The operation would be easy if all large tonsils were found in large mouths. Unfortunately, however, they are often found in small mouths with narrow jaws. He has also used the guillotine. He employs ice freely, and cocaineizes the tonsil. With the *écraseur* it is possible to clear out all the tonsillar tissue. He also employs the Ruanet punch-forceps and Hartmann's conchotome for the deep-seated masses high up between the faucial pillars; also dissection knives to open up the tonsillar surface so as to afford points of application for the punch forceps. He considers the galvano-cautery entirely too tedious.

DR. F. H. BOSWORTH, of New York, said that no one instrument would answer for the removal of the tonsils in every case. The guillotine will remove the large rounded masses, but the diffuse cases with adhesions must be dug out.

DR. INGALS had not found that cocaine anesthetizes the tonsils; and, moreover, he believes that it promotes bleeding. The latter often occurs from small tonsils whose removal is indicated but which are not large at the time of operation.

DR. DALY said that the ordinary tonsillotome only does half the work. We must thereafter trim with knife and forceps.

DR. CASSELBERRY believes that children may bleed, and never operates without having a reliable galvano-cautery at hand to use if necessary as a hemostatic. In fibrous tonsils he prefers the galvano-cautery snare. It is difficult to separate the faucial pillars; but if he can get their muscular fibres free, he does not mind the sacrifice of a little mucous membrane.

DR. SHURLY does not follow the crypts in ignition, but endeavors to burn diagonally to them, thereby crossing the lymph spaces and endeavoring to replace a fibroid induration by a process of contraction.

MELANCHOLIA CURED BY INTRA-NASAL OPERATION.

DR. BOSWORTH reported the case of a man forty-two years old, first seen in 1891. For ten years previously he had suffered from depression and melancholia. He was unfitted for business, complaining of a twisting feeling between the eyes at the root of the nose. Falling into the hands of various specialists, each one of whom thought he saw in his own class of maladies an explanation of the patient's trouble, he was operated on for varicocele, wore glasses, was operated on for stricture, was castrated, circumcised, had ligation of the internal pudic artery, operated on for hemorrhoids, had tenotomy of the eye muscles, enucleation of one eye, cauterization of the spine, and wore a seton in his neck. All these procedures were useless. It was discovered that the right nostril was occluded by a bulging of the cartilaginous septum nasi, and that the left middle turbinate was enlarged, in a state of myxomatous degeneration, associated with ethmoiditis. Clearing out of both nostrils started the man toward recovery, and he soon became mentally as well as ever.

SUPPURATIVE ETHMOID DISEASE, FOLLOWED BY INVASION OF THE SPHENOIDAL SINUS, ABSCESS OF THE BRAIN AND DEATH.

DR. BOSWORTH also related a case of this nature. A dentist, aged thirty-three, had suffered from left-sided offensive nasal discharge for some years, and latterly from the right side also, with headache, left-sided head-neuralgia, but no fever, for a period of four days. Pus was seen oozing down between the left middle turbinated bone and the septum. Free drainage of the ethmoid region was established by the sharp gouge, with relief of the symptoms for six days, when they again returned. With a burr an attempt was made to reach the sphenoid cells, but it was not possible to determine whether the sphenoidal sinus was actually penetrated or not. Next day patient had a chill, fever, 106°, semi-coma, paralysis of left face and arm, another rigor; and he died in twenty-four hours. No autopsy. The lesson from the case was that ethmoid disease, while usually harmless, may set up sphenoid disease leading to a fatal result; and sphenoid disease apart from ethmoid is exceedingly rare.

A CONSIDERATION OF SOME OF THE MORE IMPORTANT PRINCIPLES OF INTRA-NASAL SURGERY,

a paper by DR. W. K. SIMPSON, of New York.

The paper was a plea for conservatism in the surgical treatment of intra-nasal affections and for rigid antisepsis during and after such procedures. There is a pre-operative period during which we should do as much as possible for the patient by climate, diet, clothing and general environment. Care should be taken not to operate any more than necessary in mixed conditions of the mucosa tending to atrophy. Much of the so-called "grippe," "heavy cold," etc., after intra-nasal work is in reality mild sepsis.

DR. MULHALL, in discussing the paper, insisted upon the importance of using the cautery at a white heat and of never allowing it to cool *in situ*. Radiated heat might cause some trifling hyperemia, but this could be promptly removed by the use immediately after cautery of a saturated solution of bicarbonate of soda.

DR. J. H. BRYAN, of Washington, read a paper entitled

A FURTHER CONTRIBUTION TO THE STUDY OF SUPPURATIVE DISEASE OF THE ACCESSORY SINUSES,

in which he reported four cases: abscess of the right maxillary sinus, resulting from dental caries; suppurative ethmoiditis, terminating in caries of the anterior ethmoidal cells; abscess of the left frontal sinus, resulting from nasal polypi; and hypertrophic rhinitis and abscess of the frontal, ethmoidal and maxillary sinuses, with caries of the fronto-ethmoidal cells. The latter presented the anomaly of a communication between the frontal and maxillary chambers. This anomaly has been observed several times in the dissecting-room on healthy skulls, and it is at times doubtless the result of morbid processes.

The discussion on the two foregoing papers on sinus disease was opened by DR. WRIGHT, of Brooklyn, who related a case of undoubted maxillary disease in which it had been extremely difficult to detect the exact source of the pus. He would counsel against early operation in this class of cases.

DR. INGALS thought it better to reach the sphenoidal sinus from below than on its anterior aspect.

DR. GLEITSMANN preferred to open anteriorly, with Schaeffer's probe passed according to the usual method. He had had one severe case of secondary hemorrhage after operation for sphenoidal disease. The anterior wall of the sinus is not very hard, and it can be easily penetrated.

DR. SHURLY had seen cases of nasal discharge which he attributed to a neuritis following organic disease of the olfactory bulbs, and which he had not looked upon as ethmoid disease.

DR. DALY advocated opening the nose along one ala, and laying it over on the face so as to reach the sinus more easily.

DR. MULHALL thought the brain better protected against injury in the sphenoid region than in the ethmoid. He would again call attention to the value of the teachings of Grünwald, whose monograph had not received the attention it deserved.

DR. JAS. E. NEWCOMB, of New York, read a paper on

LUDWIG'S ANGINA.

He objected to this name on the ground that nomenclature in medicine should be based upon pathology and not on names of authors. Moreover, Heim, thirteen years before Ludwig, was probably the first to observe this malady, which is generally defined by modern writers as a diffuse, phlegmonous inflammation of the floor of the mouth and of the intermuscular and subcutaneous cellular tissue of the sub-maxillary region. To the latter many writers confine the site of occurrence. Different writers seem to have had different conditions in mind.

The specific identity of the affection has always been a mooted point. Ludwig gave as its characteristic features: (1) A peculiar wooden induration of the tissues, not receiving impression; (2) a uniform spread of this induration in such a way that it is always sharply bordered by a zone of entirely unaffected cellular tissue; (3) a hard sub-lingual swelling with a bolster-like mass around the interior of the lower jaw of a deep red or bluish-red color.

It is impossible to harmonize the various conflicting statements, but it seems fair to regard the disease as an intensely infectious phlegmon occurring under peculiar anatomical conditions. Only the ordinary suppurative germs have been found—nothing pathognomic. Fatal cases have shown a general tissue disorganization, with sloughs, ichor or offensive pus.

Causes favoring infection entrance are tonsillitis, labial herpes, eruption and caries of the teeth. Cold, as an exciting factor, is probably more often some undeterminable infection.

In the true Ludwig's disease, pus originates in a triangular pyramidal space, the apex of which, situated below, corresponds to the point where the myelo-hyoid muscle borders the genio-glossus, and the base of which, situated above, stretches along under the tongue. Its external (oblique wall) is made up of the internal face of the inferior maxilla and the myelo-hyoid muscle and the internal (or vertical) by the genio-glossus and hyo-glossus. The infectious germs, first invading the sub-lingual, may also penetrate the sub-maxillary sheath, or the latter may be attacked by the sub-lingual pus which has disassociated the fibres of the myelo-hyoid muscle.

The local and general symptoms are those of pus formation, with subsequent pressure on surrounding

parts. Special importance is attached to the appearance on the inner side of the dental arcade of a pad or button-like area of induration. A differential diagnosis must be made from simple sub-maxillary adenophlegmon, Fleischman's hygroma and osteomyelitis of the jaw.

Statistics of 58 cases are given with fulness sufficient for analysis. Of these, 44 were in men, nine in women, and five in infants whose sex is not stated. The oldest patient was sixty-six years of age, and the youngest three months. Forty per cent. of all the cases occurred between the ages of twenty and thirty years. Recovery is noted in 33 and death in 25. In nine, bacteriological examination was made with the following results: streptococcus pyogenes, four; staphylococcus pyogenes aureus and albus, one; erysipelas cocci, two; and in one instance an indeterminate microbe, a little longer and narrower than the bacillus coli communis but clearly distinguishable from the latter by culture reactions.

Treatment embraces early incision, subsequent rigid antisepsis and general support.

Reference was also made by the writer of the paper to a recent article by Semon, of London, advancing the proposition that edematous laryngitis, acute edema of the larynx, erysipelas of the pharynx and phlegmonous pharyngitis are but various varieties of septic inflammation of the throat, differing only in grade of severity and localization, but all having the same general etiology. He asserts that this view constitutes a simple clinical application of the bacteriological principles to this group of septic inflammations.

(To be continued.)

Recent Literature.

Manual of General Medical Technology, including Prescription Writing. By EDWARD CURTIS, A.M., M.D., Emeritus Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons, Columbia College, New York. Third Edition, conformed to the U. S. Pharmacopœia of 1890. William Wood & Co. 1895.

This volume is small enough to go easily in a pocket, and is an excellent book of its kind.

Both the chapter on Prescribing of Medicine and that on Modes of Medication have many excellent practical suggestions. At the end of the book is put the useful table of solubilities taken from the U. S. Pharmacopœia of 1890.

A NEW MEDICAL DICTIONARY.—The existing medical dictionaries, writes a correspondent of the *Westminster Gazette*, do not contain any reference to the following diseases, namely, "Brown Titus" (very prevalent in Yorkshire), and "Nervous Nobility." We had a servant who suffered from this, but her case was not so bad as that of a friend of hers who had an "eternal" complaint and took "interjections." This same servant was very indignant at the time of the last census. She refused to fill in the column headed "Sex." She thought Government ought not to be so inquisitive, and though she was a "Wesleyan Methodist" that was nobody's business but her own.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 19, 1895.

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*All communications for the Editor, and all books for review, should be addressed to the Editor of the Boston Medical and Surgical Journal 283 Washington Street, Boston.**All letters containing business communications, or referring to the publication, subscription, or advertising department of this Journal should be addressed to the undersigned.**Remittances should be made by money-order, draft or registered letter, payable to*DAMRELL & UPHAM,
283 WASHINGTON STREET, BOSTON, MASS.**EXPERIMENTAL DEGENERATIONS FOLLOWING UNILATERAL LESIONS OF THE CORTEX CEREBRI IN THE MONKEY.**

THE subject of cerebral localization remains, in many of its aspects, vague and incapable of exact demonstration. Opinions are still conflicting as to the real significance of the cerebral cortex in its relation to muscular action. Two schools stand strongly opposed to each other, both represented by men of unquestioned scientific attainment, and any unanimity of opinion seems even more distant now than it did ten years ago. We find Goltz and his followers, in the light of their experimental research, scoffing at exact localization, while Ferrier, Horsley and their school stand just as firmly entrenched in their teaching of the so-called "cortical centres." The ultimate outcome of all the discussion will doubtless lead to a compromise, or at least to a restatement of the facts in our possession, which will in some way reconcile the apparently conflicting views. It is self-evident that, in such a matter, no real and ultimate antagonism can exist. In the meanwhile we should welcome every painstaking research, which is likely to throw new light on the subtle and much-vexed question.

A communication recently made by Prof. V. Horsley to the Royal Society of England, on work done by Dr. E. Lindon Mellus, with a copy of which in abstract we have been favored by the secretary of the Royal Society, is but another evidence of the untiring zeal of English investigators in the difficult field of brain anatomy and physiology. The experimental work was done at the pathological laboratory of University College, London. The animal used was the bonnet monkey (*macacus sinicus*), the object of the experiments being an attempt to trace by the anatomical method the degenerations resulting from minute lesions of the cerebral cortex in distant parts of the brain and in the spinal cord, and so far as possible to determine the destinations of the various fibres concerned. The lesion, in each case, was made in the motor area of

the left hemisphere. Fourteen successful operations were performed, three being lesions of the hallux centre, four of the thumb centre, and seven of four separate centres in the facial area. In each case, after etherization, the skull was opened aseptically, and the centre to be removed located by stimulation with a weak faradic current. About sixteen square millimetres of cortex, embracing the chosen centre, were then excised with a certain amount of underlying white matter to insure the complete removal of all the cortical cells. The scalp wound was closed with horse-hair sutures and covered with borated cotton held in position by collodion. The wound healed by first intention, and but slight and transient paresis resulted. The animals were killed in from ten to thirty-five days, the brains and cords hardened in Müller's fluid and stained by the Marchi method.

The hallux centre was localized at the middle of the triangular space at the upper extremity of the ascending frontal convolution formed by the longitudinal fissure and the fissure of Rolando, and extending down the convolution to the posterior extremity of the superior frontal sulcus. Microscopic examination showed a considerable degeneration of association fibres, both coarse and fine. Many of these were traceable to distant parts of the brain, as, for example, to the paracentral lobule, the precuneus and the gyrus fornicatus. Some degenerated fibres were also found crossing in the corpus callosum; others could be traced into the convolutions of the right hemisphere, corresponding to the distribution of the degeneration in the left. Of the fibres going to deeper levels, both the fine and coarse were to be traced through the mesial half of the centrum semiovale to the left internal capsule, in the lower levels of which they were located in the middle third of the posterior limb. From the capsule most of the fine fibres were found to pass into the optic thalamus. In the left crus the degenerated fibres were evenly distributed over the middle third, and many passed from here into the substantia nigra. At the pyramidal decussation some fibres crossed and others did not; and the relations and extent of the degenerated areas remained practically unchanged through the cervical and dorsal cord. In the one case examined at the level of the third sacral root the degeneration had not entirely disappeared.

To destroy the thumb centre the portion of cortex removed was from the ascending parietal convolution between the lower extremity of the intra-parietal sulcus, and the fissure of Rolando, and a little above the inferior genu of the fissure of Rolando (Beever and Horsley). In these cases most of the degenerated association fibres passed to the ascending frontal and ascending parietal convolutions, rather more to the latter than to the former. As in the hallux lesions degenerated fibres were traceable to various convolutions at long distances from the point of destruction in the same side of the brain, and also to the opposite hemisphere, their distribution there corresponding closely

to that in the left hemisphere. The fibres passing downward through the centrum semiovale were found to be more scattered and the area of degeneration greater than in hallux lesions. The coarse and fine fibres, except in one instance, were indiscriminately mixed in this passage through the white matter. In that case, however, there was an apparent separation, with the coarser fibres anterior to the finer. The same arrangement prevailed in the inner capsule, the coarser, representing the pyramidal fibres, being found in the middle third of the posterior limb, while the fine fibres, mostly representing the corona radiata thalami, were largely situated in the posterior third of the posterior limb. Coarse degeneration, mixed with more or less fine, was found in the middle third of the crus. A large proportion of the degeneration passed to the substantia nigra. In the three cases in which the degeneration reached the cervical cord, its amount and relations remained unchanged in the upper and middle cervical regions. From the level of the seventh cervical root downward the degenerated fibres steadily disappeared, and were entirely lost at the level of the third dorsal root.

To determine the degeneration resulting from minute lesions within the facial area seven successful experiments were performed. In four of these the portion of cortex removed was just above the fissure of Sylvius, and immediately anterior to the plane of the fissure of Rolando, representing the movement of opening the mouth straight. By varying slightly the position of the lesion, the movement elicited on stimulation was, in one case, pursing the mouth toward the opposite side, in another, rhythmical movements of mastication; in still a third experiment, stimulation led to an elevation of the opposite angle of the mouth.

In these cases, a variety of degenerations were found post-mortem, for a detailed description of which we would refer the reader to the original article. As in the experiments already described, there was considerable degeneration of association fibres, both near the point of lesion and also at a distance. In all the lesions on the border of the fissure of Sylvius, anterior to the fissure of Rolando, most of the degeneration was found in the ascending frontal convolution from the border of the fissure of Sylvius to the level of the inferior genu of the fissure of Rolando. As before, fibres were found crossing in the corpus callosum, both of the coarse and fine variety. In most of the cases but little of the degeneration passing from the lesion to the left internal capsule appeared in the centrum semiovale, since it reached the capsule by passing over and around the anterior angle of the putamen at a lower level. In all the lesions of the facial area, the degenerations in the uppermost layers of the capsule were situated in its anterior portion, and in the lower levels moved backward till they occupied the middle third of the posterior limb. Many fibres passed into the thalamus from the internal capsule, others were traceable to the facial nuclei, and to the motor nuclei of the glosso-pharyngeus and

vagus on both sides, the majority crossing the raphe to reach the nucleus on the opposite side.

Dr. Mellus summarizes his conclusions as follows:

Attention is called to the fact that the distribution of the degenerate association fibres in the thumb lesions corresponded with the measurements made by Bevan Lewis of the corpuscles of the fourth layer of the cortex in this region, that is, that coarse fibres were distributed to the upper part of the motor area and fine fibres to the lower part. In four of the experiments (one thumb and three facial) neither pyramidal fibres nor fibres connecting the nuclei of the cranial nerves directly with the cortex were found to have degenerated. Yet in each of these cases the characteristic movement was obtained from stimulation of the area removed quite as readily as in any other case. The degenerate fibres passing through the internal capsule in these cases apparently belong to two distinct systems, which are also more or less represented in the other experiments. One of these, composed almost entirely of fine fibres, passes from the posterior limb of the internal capsule into the outer surface of the optic thalamus, and represents the corona radiata thalami. These fibres are to some extent mixed with the pyramidal fibres in the posterior limb of the internal capsule, but are mostly situated in the posterior third, and, as they pass from there into the thalamus, make room for the entrance of the sensory (non-excitabile) tract. The other of the two systems referred to, largely composed of coarser fibres, passes through the internal capsule into the crus, and apparently ends in the substantia nigra. These fibres are of much the same calibre, but apparently occupy the same position in the internal capsule and crus as the true pyramidal fibres. Both these tracts appear to arise in all portions of the motor cortex coming within the range of these experiments. All the degenerated pyramidal fibres from the hallux and thumb lesions were found to enter the capsule at or near the posterior extremity, while the corresponding fibres from the facial lesions entered the capsule at or near the anterior extremity, and the former were displaced forward and the latter backward until in the lower levels of the capsule they all found a place in the middle third of the posterior limb. It is also shown that a line can be drawn from the fissure of Sylvius upward, so dividing the motor area into two parts, that all the facial lesions from which fibres enter the anterior portion of the capsule would be in the anterior division, and all the hallux and thumb lesions from which fibres enter the posterior portion of the capsule would be in the posterior division. In the movement of the facial fibres backward between the upper and lower levels of the capsule they would necessarily, at some level, envelope the genu, which would account for the fact that they have always been described as occupying that position. The location of these degenerations in the internal capsule corresponds very closely with the results of excitation of the fibres in the living animal of the same species (Bevor and Horsley). In all the cases in which there was coarse degeneration in the internal capsule it was, with two exceptions (both hallux cases) grouped on the outer edge of the capsule. Attention is called to the fact that a large proportion of the coarser fibres passing down through the capsule enter the substantia nigra, and these experiments show this tract to be nearly or quite as large as that passing down into the pyramid. These are apparently fibres which have been looked upon as pyramidal, and, as the "pyramidal tract" has been shown to be even more extensive in the medulla and below the decussation than in the internal capsule, it follows that the fibres passing to the substantia nigra are probably replaced by others arising at lower levels. These degenerations show that in the monkey the facial fibres are situated in the middle third of the crus, in which they are mingled with the fibres of the pyramid, and that they do not occupy a space by themselves mesial to the pyramid.

It is a matter of regret that beyond the mere fact of the method used, no details are given, in the abstract before us, of the technique of determining degenerations often of so slight a degree in parts of the brain distant from the point of lesion. The mere mechanical difficulties of such an undertaking are exceedingly great, and especially so if the method of serial sections be employed.

Valuable as the work as a whole is, we should attach especial weight to the painstaking study of the cortical association fibres. All our modern knowledge tends to demonstrate the functional importance of these fibres, but hitherto our methods have been too crude to admit of anything approaching exactitude in tracing their course and destinations. The use of the comparatively recent method known, from its originator, as the Marchi method, has, in the hands of Dr. Mellus led to anatomical results of surprising delicacy. We may look, with a fair degree of confidence for future work in this field which will do, at least, something toward clearing up our altogether hazy notions of the intimate relations between convolutions, lobes and hemispheres. That such confidence is justified Dr. Mellus' careful investigation goes far to demonstrate.

THE INFLUENZA BACILLUS AND ABSCESS OF THE LUNG.

As is well known, the influenza bacillus of Pfeiffer is regarded by those who believe in its etiological relation to influenza, to be also the cause of the pneumonia which in certain cases follows this disease. Whether it may also be capable of causing abscess-formation is an interesting question.

The following case reported by Hitzig,¹ of influenza-pneumonia followed by unmistakable signs of abscess of the lung, in which Pfeiffer's bacillus was the only organism found in the sputum, is of extreme interest in this connection. The attack of pneumonia occurred during an influenza epidemic, and the clinical picture was that of influenza-pneumonia. In the sputum, at the time the physical signs of the abscess were present, were found numerous round cells, elastic fibres, alveolar epithelium and hematoïdin crystals. No tubercle bacilli were found.

The bacteriological examination of the sputum was conducted in the following manner: After thorough disinfection of the mouth and throat the patient expectorated into a sterile Petri dish. The central portion, as nearly as possible of the ball of sputum was then seized with a pair of sterile forceps, and thoroughly shaken up in three separate glasses of sterile bouillon. The ball of sputum, having been thus cleansed, was then examined by the microscope directly and in the dried preparation, after staining with weak carbol-fuchsin solutions or by the method of Gram. A few masses of bacilli were found, the bacilli being of very small size with rounded ends, here and there in pairs, but never showing chain-formation. Staining by Gram's method was easy, by carbol-fuchsin rather slow. A few bacilli were found within the white blood-corpuscles, but they were mostly extra-cellular.

Cultures from the sputum were made upon agar, glycerine-agar, gelatine and bouillon. The bouillon and gelatine cultures remained sterile, except in one tube where an indeterminate organism grew, the ap-

pearance of which was believed to be due to contamination.

The agar and glycerine-agar cultures showed, after remaining for twenty-four hours in the incubator at 38° C., a scanty growth of single, small, translucent colonies, visible for the most part only with the aid of a lens, which proved to be pure cultures of a bacillus corresponding in character to the one above described as found in the dried preparation. These organisms could not be further cultivated on agar, glycerine-agar, gelatine or bouillon, although numerous trials were made; but rapid and luxuriant growth took place on agar upon which blood-serum had been smeared. In twenty-four hours thick, transparent colonies appeared, a little larger than those described above, and showing on microscopic examination the same bacilli.

As the bacillus present in this case was found to correspond in its principal characteristics with the influenza bacillus of Pfeiffer, two fresh serum-agar cultures, with corresponding cover-slips, were sent to Professor Pfeiffer, in Berlin. They were examined in his absence by Dr. Kolle, his assistant, and found to be cultures of the influenza bacillus.

In favor of the etiological relation between Pfeiffer's bacillus and this abscess we have the absence of streptococci, staphylococci and capsule diplococci in the numerous cultures and cover-slips examined; and the fact that Pfeiffer's bacillus was constantly and almost invariably present.

In the presence of the fact, however, that in this case no anatomico-pathological data are forthcoming, and that the case is the only one on record in which bacteriological examination has given this result, we cannot yet be sure that to the influenza bacillus was due the abscess of the lung.

MEDICAL NOTES.

SCHUDE SUCCEEDS TRENDELENBURG.—Professor Schude has been chosen to succeed Trendelenburg as Professor of Surgery at Bonn.

THE TRI-STATE MEDICAL SOCIETY.—The Seventh Annual Meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held in Chattanooga, Tuesday, Wednesday and Thursday, October 8th, 9th and 10th. Dr. Frank Trester Smith, Secretary.

THE LIBRARY OF PROFESSOR LUDWIG.—Professor Ludwig's library at Leipsic, is for sale. A catalogue will be sent to any one who sends a written request. A collection comprising 10,000 scientific papers and memoirs is offered at 6,000 marks. The books will be sold separately.

THE METRIC SYSTEM IN GREAT BRITAIN.—The metric system of weights and measures will be adopted in the next issue of the British Pharmacopœia.

THE GERMAN SOCIETY OF NATURALISTS AND PHYSICIANS.—This association is now in session at Lubeck, Professor Wiliscenus of Leipsic and von

¹ Münchener med. Woch., 1895, No. 35.

Ziemssen of Munich are the presiding officers. Among the medical communications are a report of Professor Behring on sero-therapy, a paper by Rieche of Jena on cerebral surgery, and a discourse by Rindfleisch of Würzburg on neo-vitalism.

AN ADEQUATE CHARACTERIZATION. — The *Cincinnati Medical Journal* publishes the following strong, but none the less just, denunciation of a so-called "vitapath," who was arrested and fined (by Judge Dustin of Cincinnati), for practising without a license. The judge, who was doubtless actuated by the fact that a man was known to have recently died without medical attention other than that of the prisoner, said, in pronouncing sentence: "Men who knowingly go into a sick-room and prevent anything being done for a dying man by silly incantations and laying on of hands, are responsible for his death, and ought to be on a par with a murderer in the eyes of the law. God help the dying man who relies upon you or any of the so-called graduates of quackery. You speak of vitapathy being of a higher power than medicine, and you say you ordain ministers at the same time you matriculate vitapathic physicians. Your methods are an insult to intelligence, their practice is a criminal abuse of ignorance, and your college a disgrace to civilization."

A PARISIAN REMEDY. — A Parisian physician is said to have prescribed a nightly dose of infusion of fig leaves for a patient whose dreams were peopled by visions of naked women.

A MEDICAL POET OF FINLAND. — In Finland there is a country doctor, says *Le Progrès Médical*, who has been termed the "Christopher Columbus" of Finnish poetry. His name is Elias Loenrot, and he is the man who has revived the work of the ancient bards of his country in his "Kalevala," an epic poem which is said by those who have read it to rank with the *Iliad* and *Odyssey*.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During week ending at noon, September 18, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 91, scarlet fever 18, measles 8, typhoid fever 42.

DIPHTHERIA IN BEVERLY. — It is reported that several cases of diphtheria have appeared among the school-children of Beverly, Mass.

THE CARNEY HOSPITAL IN NEED. — A meeting of citizens interested in the Carney Hospital at South Boston was held last week at the Parker House, with the object of devising means of raising money for the running expenses of the institution. It was announced that the hospital already owed \$10,000 in bills for necessities, and that the annual outlay for free patients is \$30,000 more than the income. Dr. W. N. Bullard, of the staff of visiting physicians, said that if its friends did not pay the running expenses, the hospital must raise money by some means or it would be compelled

to refuse the poor. A statement in the hands of the meeting, showed that in the last year more patients were treated and more operations performed than in any year previous. The total number treated was 2,201, an increase of 152 over the previous year; and of this number 1,359 were treated gratuitously. In the out-patient department there was a corresponding increase. The expenses of conducting the hospital had been considerably enlarged, about \$110 a day being necessary. The hospital has no endowment, and is dependent on voluntary gifts.

THE TRAINING-SCHOOL FOR NURSES AT LONG ISLAND. — The training-school for nurse attendants to which editorial reference was made in our number of July 25th, was opened on August 21st, at the City of Boston Almshouse and Hospital, Long Island. The course is to last one year, and the training embraces medical, surgical, maternity and infant nursing. Miss Elizabeth A. McPhail, a graduate of the training-school for nurses in connection with the Massachusetts General Hospital, has been appointed to the position of superintendent. Instruction is given by means of lectures and recitations, as well as teaching at the bedside. A course of six months in ward management, hospital house-keeping, and administrative work is open to graduate nurses from any organized training-school. A diploma will be given on a satisfactory fulfilment of the requirements of the course, and the passing of an examination which will be required at its termination.

NEW YORK.

BEQUEST TO THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL. — The New York Post-Graduate Medical School and Hospital has received a gift of \$5,000 from the estate of the late Henry M. Cram. The bequest was made by Mr. Cram in memory of his wife, who was for many years identified with the charitable work of the institution.

PUNISHMENT FIT FOR THE CRIME. — The health authorities have of late been proceeding with great vigor in the prosecution of fraudulent milk-dealers, and for the first time those found guilty of adulteration have been sentenced to imprisonment, as well as the payment of fines. As a result, it has been found that the sale of impure milk has almost entirely ceased in the city.

THE WALKER MEMORIAL HALL. — Dr. Henry F. Walker, of New York, who was for many years associated in practice with Dr. T. Gaillard Thomas, has presented his native town, Pittsford, Vt., with a handsome building, to be known as Walker Memorial Hall, in memory of his parents, the Rev. Dr. Charles Walker and wife; and the dedication services were held on September 11th. Addresses were made by Dr. Walker, his brother Rev. George Leon Walker, of Hartford, the Rev. Dr. George A. Boardman, and others. The building is to be mainly occupied by the MacClure Circulating Library, which was founded nearly a century ago. Dr. Walker, besides being the

donor of Walker Memorial Hall, has furnished Pittsford with an excellent system of water-works and sewerage.

A RACE COURSE BECOMES A RESERVOIR. — Work has just been commenced on the enormous new reservoir for Croton water at Jerome Park, the former race course. It will have an area many times larger than any of the present reservoirs, and will cost several million dollars.

AN UNSEASONABLE DEATH FROM HEAT-STROKE. — Probably the last death from sunstroke for the present season occurred on September 14th at the Hudson Street Branch of the New York Hospital. The patient, who was a grocery clerk thirty-six years of age, was admitted to the hospital on the morning of September 13th, the last day of the recent period of extreme heat. His temperature was then 110°, and he never rallied from the attack.

SUICIDE OF DR. LYON. — Dr. David Stewart Lyon committed suicide on September 11th at Lake Mohausie, near Peekskill, where he had been ill for several weeks. Dr. Lyon was born in New York in 1839, and was graduated from the Medical Department of the University of the City of New York. After receiving his degree he served for some time at the New York Hospital, and then went to North Carolina. He finally located in Florida, and was at one time Vice-President of the Florida State Medical Association. It is stated that he had of late been a confirmed victim of the morphia habit.

BROOKLYN'S DEATH-RATE DECREASES. — During the week ending September 14th, 454 deaths were reported in the city of Brooklyn, against 474 during the preceding week; the death-rate being 21.3 per thousand. There was a marked decrease in the deaths from diphtheria.

Miscellany.

THE DEAN OF NORWICH ON DOCTORS' BILLS.¹

It is always pleasant to find the profession to which we belong properly and justly appreciated by those outside its bounds; perhaps all the more pleasant from the infrequency with which such appreciation is expressed. We therefore thank the Dean of Norwich for the kind eulogy of the medical profession which he introduced into his sermon at the cathedral on Hospital Sunday. His remarks concerning doctors' bills should be widely read, for they deserve the attention of many whose position in the world is undisputed, who stand well with their neighbors, and are looked on as honest men, but nevertheless relegate the payment of their doctors' bills to the dim and distant future. The dean is reported as having said:

"Nor can I, nor shall I, be silent about the wrongs to which scores of medical men are subject. I refer to the startling contrast there is between the inexorable demands which society makes on medical men and the elasticity of the social conscience with respect to their

remuneration. I have known cases where men are summoned, at all hours, and at all seasons of the year. Their bills are presented with timidity, if not anxiety, and they are received sometimes with amazement, sometimes with indignation, and sometimes relegated to oblivion. Nor are cases unknown where the righteous demand for work done is met by calling in another practitioner, he in turn to suffer as his brother did before him. I cannot permit myself to imagine that I address any such wrongdoer here to-day. But if I do, then, in my Master's name, I entreat you to remember that the medical men of this nation are the highest type of their class in the world; they are entrusted with the secrets of domestic life; they have all our liabilities, with the special liabilities of their order; they frequently die as martyrs to science, to suffering, to sympathy, to destitution. . . . Believing this, my plea is that every unpaid medical bill be discharged generously, gratefully, cheerfully, and that whatever account must be deferred in payment, the last to be deferred is the account of him who is the human agent who has brought us into the world, enables us to continue our work in life, and many a time lays down his own in endeavoring to baffle death."

How much more comfortable would be the life of many a hard-working practitioner if his patients would but act up to the duty so eloquently taught.

HYSTERIA IN THE MALE.

DR. N. P. DANDRIDGE, in a recent number of the *Cincinnati Lancet-Clinic*, gives an interesting account of certain cases of hysteria in the male which have come under his observation. He recognizes the fact that the disease is more rarely seen in men than in women, but in the male the disease usually presents itself in one of the milder forms, and such manifestations as the contractions, the vomiting, the hysteropilepsy rarely occur. In his experience the disease has approached the type found in neurasthenia, and has been due to overwork, intense application, or overpowering anxiety.

As an example is cited the case of a self-reliant and successful business man who broke down under the strain of a crisis of great importance in his affairs. The crisis was successfully passed; but as soon as it was over, he was overwhelmed with an attack of apprehension and fancied pain, with chills and gasping for breath.

A night's rest under the influence of a Dover's powder restored him to health and self-control. It should be stated that he was of a decidedly neurotic temperament, an excessive user of the strongest tobacco, and at times had depended largely on stimulants to keep him at his work, and on chloral and other anodynes to procure sleep. The attack of hysteria above described was the only one he is known to have had.

A second case, that of an army engineer who had become morbidly anxious about an investigation into a faulty piece of work, also recovered under a simple anodyne. The recovery, however, was far from permanent, as it finally proved to be the forerunner of dementia and death, which followed it in two and six months respectively.

A third case was that of a man of about thirty,

¹ British Medical Journal.

filling a responsible business position, well possessed, self-reliant, and free from bad habits. On becoming engaged to be married he broke down completely with apprehension lest he should be unable to fulfil his marriage relations. He was subject to fits of weeping, and utterly lost his self-control. For a year's time he subjected himself to treatment by various specialists, travelled, and was kept from all business. He finally recovered, was married and became the father of a family.

Dr. Dandridge asks: "Is there in such a case some hidden and unconfessed experience, which remains concealed, and which is the cause of this want of mental and moral balance? And is such a mind likely, under some future strain, to become more permanently unbinged and unbalanced? Some of these cases, I believe, have their real origin in fancied sexual incompetency."

Another phase of hysteria is shown in the case of a successful professional man who became so alarmed lest a sore on his nose should prove to be a cancer, that he lost his self-control, became sleepless, and wandered about aimlessly, asking advice of everybody. Hard work and continuous exertion in hunting would temporarily bring this man back to his normal condition.

The detailed description of these cases given by Dr. Dandridge is of marked interest, and will repay perusal. His statement that some of these cases have their origin in fancied sexual incompetency is to the point. Any experience, no matter how short, in the daily run of cases at a genito-urinary clinic, will suggest to the attending surgeon the query whether the numerous cases of fancied sexual incompetency do not after all indicate a much greater frequency of hysteria in the male than is ordinarily stated. The advertisements in the newspapers and pamphlets scattered broadcast over the country, of cures for "loss of manhood," "seminal emissions," etc., certainly are responsible for a considerable amount of neurasthenia in the male. For example, a patient at one of our genito-urinary clinics in Boston, who complained that he had seminal emissions once a week, on being told that they did him no harm answered that he knew they weakened his brain. He was informed that the weakness of the brain was the cause, not the result, of the harm done him by his emissions, which hardly seemed to satisfy him.

Dr. Dandridge states, with regard to the treatment of hysteria in man, that it is less frequent than in women, dependent on anemia and want of proper nourishment, and therefore the question of a sufficiency of nourishing food is not so important and so hard a difficulty to meet. In those cases, however, where excessive use of stimulants and anodynes or narcotics have been indulged in, proper feeding is of extreme importance, in order to place the individual in a position to combat the cravings to which he has yielded. Massage, especially in connection with Turkish baths, will often have a happy effect, but prolonged rest in bed is not, in my experience, of frequent benefit. Relief from the anxiety of wearing and anxious duties, combined with prolonged and even severe out-of-door exercise, is more likely to restore the true and healthy condition of mind and body than anything else. The ability to take rational and refreshing sleep is usually the first step towards improvement.

METEOROLOGICAL RECORD.

For the week ending September 7th, in Boston according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.		Daily mean.	Maximum.	Minimum.		Daily mean.		Daily mean.		Daily mean.		
S... 1	30.02	66	73	58	49	48	N.W.	N.	12	5	C.	C.	.45
M... 2	30.03	61	71	57	53	53	N.W.	W.	4	9	F.	C.	
T... 3	30.03	66	79	54	50	60	W.	S.W.	4	15	C.	C.	
W... 4	30.06	73	84	62	75	76	W.	S.	10	12	C.	C.	
T... 5	30.14	72	82	63	84	70	W.	S.W.	12	10	C.	C.	
F... 6	30.13	68	74	62	71	97	N.W.	E.	4	4	C.	C.	
S... 7	30.12	63	66	60	91	87	N.	N.E.	13	9	O.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 7, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,956,000	735	356	24.64	12.46	14.84	1.12	4.06	
Chicago . . .	1,600,000	—	—	—	—	—	—	—	
Philadelphia .	1,139,457	—	—	—	—	—	—	—	
Brooklyn . .	1,043,000	439	233	31.05	11.73	19.78	1.84	6.75	
St. Louis . .	540,000	—	—	—	—	—	—	—	
Boston . . .	494,005	197	84	27.54	9.69	16.32	3.56	5.61	
Baltimore . .	500,000	—	—	—	—	—	—	—	
Cincinnati . .	325,000	79	31	17.64	7.56	8.82	2.52	3.78	
Cleveland . .	325,000	109	62	6.44	4.60	2.76	—	3.68	
Washington .	285,000	95	46	30.45	7.35	12.60	10.50	1.05	
Pittsburg . .	272,000	—	—	—	—	—	—	—	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	31	13	29.07	25.84	22.61	—	—	
Charleston . .	65,165	42	11	21.42	19.04	19.04	2.38	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,687	27	15	33.33	11.10	18.50	—	14.80	
Fall River . .	88,020	30	17	39.36	10.00	29.97	6.66	—	
Lowell . . .	84,359	40	20	32.50	5.00	30.00	—	2.50	
Cambridge . .	81,519	26	15	42.35	23.10	7.70	—	7.70	
Lynn	62,355	24	9	33.28	8.32	12.48	4.16	—	
New Bedford .	55,254	18	9	16.66	5.55	11.11	5.55	—	
Springfield .	51,534	21	12	47.61	14.28	42.84	—	—	
Lawrence . .	52,153	12	7	33.33	—	8.33	—	—	
Holyoke . . .	40,149	—	—	—	—	—	—	—	
Salem	34,437	11	3	18.18	9.09	18.18	—	—	
Brockton . .	33,157	10	0	30.00	20.00	20.00	10.00	—	
Haverhill . .	30,185	10	5	20.00	10.00	20.00	—	—	
Malden . . .	29,706	7	2	28.56	14.28	28.56	—	—	
Chelsea . . .	31,295	10	5	20.00	10.00	—	—	10.00	
Fitchburg . .	26,394	8	4	37.00	12.50	37.00	—	—	
Newton . . .	27,022	9	3	—	—	—	—	—	
Gloucester . .	27,663	—	—	—	—	—	—	—	
Taunton . . .	27,093	9	4	11.11	—	—	11.11	—	
Waltham . .	20,877	7	3	28.56	—	—	28.56	—	
Quincy . . .	20,712	8	3	12.50	25.00	12.50	—	—	
Pittsfield . .	20,447	6	2	80.00	40.00	80.00	—	—	
Everett . . .	18,578	5	5	16.66	—	16.66	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport .	14,554	5	0	16.66	16.66	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,139; under five years of age 1,014; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 545, consumption 233, acute lung diseases 151, diarrheal diseases 353, diphtheria and croup 85, typhoid fever 43, whooping-cough 29, cerebro-spinal meningitis 11, malarial fever 11, measles 9, scarlet fever 9, erysipelas 5.

From whooping-cough New York 13, Brooklyn 9, Washington and Cincinnati 2 each, Boston, Providence and Lawrence 1 each. From cerebro spinal meningitis New York 5, Lynn 2, Brooklyn, Lawrence, Springfield and Chelsea 1 each. From malarial fever Washington 4, Brooklyn 5, New York 2, Boston and Nashville 1 each. From measles New York 5, Brooklyn 2, Washington and Lawrence 1 each. From scarlet fever New York 4, Brooklyn, Boston, Nashville and Worcester 1 each.

In the thirty-three greater towns of England and Wales with

an estimated population of 10,591,530 for the week ending August 31st, the death-rate was 19.9. Deaths reported 4,042; acute diseases of the respiratory organs (London) 102, diarrhea 762, measles 99, whooping-cough 65, diphtheria 56, scarlet fever 43, fever 40, small-pox (London 4, Oldham and Preston 1 each) 6.

The death-rates ranged from 14.2 in Bristol to 35.6 in Burnley: Birmingham 17.1, Bradford 23.5, Brighton 22.2, Gateshead 23.9, Croydon 17.2, Leeds 19.6, Leicester 16.1, Liverpool 29.3, London 15.9, Manchester 25.1, Newcastle-on-Tyne 22.7, Nottingham 18.4, Sheffield 25.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 7, 1895, TO SEPTEMBER 13, 1895.

So much of S. O. 202, A. G. O., August 29, 1895, as relieves **FIRST-LIEUT. CHARLES E. B. FLAGG**, assistant surgeon, from duty at Angel Island, Cal., and assigns him to duty at Fort Hancock, Texas, is revoked.

Upon the abandonment of Fort Buford, North Dakota, **CAPTAIN EDWARD C. CARTER**, assistant surgeon, will report for duty at Fort Harrison, Montana.

FIRST-LIEUT. CHARLES F. KIEFFER, assistant surgeon, when his services are no longer needed at Fort Buford, will be relieved from duty at that post and will report for duty at Fort Omaha, Nebraska.

So much of the order as directs **FIRST-LIEUT. FRANCIS A. WINTER**, assistant surgeon, on being relieved from duty at Fort Hancock, Texas, by **FIRST-LIEUT. FLAGG**, to report for duty at Fort Grant, Arizona, is amended to direct him to so report upon the abandonment of Fort Hancock.

So much of S. O. 112, A. G. O., May 13, 1895, as directs **CAPTAIN CHARLES RICHARD**, assistant surgeon, to take station at St. Louis, Mo., for duty as attending surgeon and examiner of recruits, in that city, is revoked, and upon the expiration of his present leave of absence, he is ordered to Fort Brady, Michigan, for duty, relieving **CAPTAIN WILLIAM B. DAVIS**, assistant surgeon.

CAPTAIN DAVIS, on being thus relieved, will proceed to and take station in New York City, for duty as attending surgeon and examiner of recruits, relieving **CAPTAIN WILLIAM H. CORBUSIER**, assistant surgeon.

CAPTAIN CORBUSIER, on being thus relieved, is ordered to Fort Monroe, Virginia, for duty at that post.

CAPTAIN WILLIAM W. GRAY, assistant surgeon, upon the expiration of his present leave of absence, will be relieved from duty at Fort Schuyler, New York, and ordered to Philadelphia, Penn., for duty as attending surgeon and examiner of recruits in that city, relieving **CAPTAIN SAMUEL Q. ROBINSON**, assistant surgeon.

CAPTAIN ROBINSON, on being thus relieved, is ordered to Fort Reno, Oklahoma, for duty, relieving **MAJOR WILLIAM H. GARDNER**, surgeon.

MAJOR GARDNER, on being thus relieved, is ordered to Fort Thomas, Kentucky, for duty, relieving **MAJOR JAMES C. WORTHINGTON**, surgeon.

MAJOR JAMES C. WORTHINGTON, surgeon, on being relieved from duty at Fort Thomas, Kentucky, is ordered to Vancouver Barracks, Washington, for duty, relieving **CAPTAIN WILLIAM STEPHENSON**, assistant surgeon.

CAPTAIN STEPHENSON, on being thus relieved, is ordered to the Presidio of San Francisco, Cal., for duty at that post.

The following named officers will report in person on Monday, September 23, 1895, to **COLONEL CHARLES H. ALDEN**, assistant surgeon-general, president of the examining board, appointed to meet in this city, for examination as to their fitness for promotion: **CAPTAIN LOUIS S. TESSON**, assistant surgeon; **CAPTAIN WILLIAM H. CORBUSIER**, assistant surgeon; **CAPTAIN DANIEL M. APPEL**, assistant surgeon; **CAPTAIN SAMUEL Q. ROBINSON**, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 14, 1895.

J. L. NEILSON, surgeon, detached from the U. S. Receiving-ship "Wabash" and to the U. S. S. "Maine."

V. C. B. MEANS, passed assistant surgeon, from Naval Hospital, New York, and to the U. S. S. "Maine."

T. W. RICHARDS, assistant surgeon, from the U. S. Receiving-ship "Minnesota" and to the U. S. S. "Maine."

D. O. LEWIS, surgeon, detached from the U. S. S. "Mohican" and to the U. S. S. "Marion."

J. E. PAGE, passed assistant surgeon, from the U. S. S. "Philadelphia" and to the Mare Island Hospital.

R. K. SMITH, assistant surgeon, from the U. S. Receiving-ship "Vermont" and to the U. S. S. "Philadelphia."

A. L. GIBON, medical director, detached from the Naval Hospital, Washington, D. C., and placed on Retired List, September 28th.

GEO. A. BRIGHT, medical inspector, detached from the Navy Yard, New York, and to Naval Hospital, Washington, D. C.

A. F. PRICE, medical inspector, detached from Torpedo Station and to the New York Navy Yard.

B. F. STEPHENSON, surgeon, from the Marine Rendezvous, Boston, and to the U. S. Receiving-ship "Wabash."

J. F. URIE, passed assistant surgeon, ordered to the Marine Rendezvous, Boston, Mass.

J. M. STEELE, surgeon, detached from Marine Rendezvous, New York, and to the Torpedo Station, Newport.

L. G. HENEBERGER, surgeon, ordered to Marine Rendezvous, New York, in addition to present duties.

J. H. MOORE, assistant surgeon, detached from the U. S. S. "Atlanta" and ordered to the U. S. Training-ship "Constellation."

PHILIP LEACH, passed assistant surgeon, ordered to the Naval Hospital, New York.

APPOINTMENTS.

DRS. JOEL E. GOLDTHWAITE and **JOHN DANE** have been appointed visiting surgeons to the Marcella Street Home.

SOCIETY NOTICE.

AMERICAN ORTHOPEDIC ASSOCIATION.—The ninth annual meeting will be held at Chicago, September 17, 18 and 19, 1895.

By the courtesy of Mr. H. J. Furber the meeting will be held in room 709 Columbus Memorial Building, 103 State Street.

There will be a morning session each day commencing at nine o'clock, and an afternoon session on Tuesday, and if necessary on Thursday at two o'clock.

The first executive session will be at noon on Tuesday, and the last at noon on Thursday.

DR. F. S. COOLIDGE will receive the members and guests of the Association at his residence, 2636 Prairie Avenue, on Tuesday evening from eight to eleven o'clock.

On Wednesday, upon adjournment, the members will be the guests of the Chicago Orthopedic Society for an excursion to the Drainage Canal. A light luncheon will be served on the train. In the evening the annual dinner will be served at 7.30 o'clock at the Chicago Club, Michigan Avenue and Van Buren Street. The usual charge of five dollars will be made, and members should send their checks at once to the Treasurer and signify their intention of being present.

On Thursday, after the adjournment of the Executive Session, if there should be no necessity of an afternoon session, the members will be the guests of the Chicago Orthopedic Society, for luncheon at Lincoln Park Beach, on the north shore and for a drive.

JOHN RIDLON, M.D., President.
ROYAL WHITMAN, M.D., Secretary.

RECENT DEATH.

LEMUEL DICKERMAN, M.D., of Foxboro, Mass., August 14th, aged sixty-nine. He was born at Brattleboro, Vt., January 4, 1826. Following in the steps of his father and grandfather, he early chose the medical profession for his life work. After graduation at the Vermont Academy of Medicine, Castleton, Vt., in 1845, he spent a year in practice with Dr. James Lewis in Boston. He then took up his residence at Medfield, Mass., where he remained seven years. From there he removed to Foxboro, where he has been in active practice for forty-two years. He was so devoted to his work that he is said to have taken only one month's vacation in forty-two years. He was beloved and respected in the community in which his life-work was done.

BOOKS AND PAMPHLETS RECEIVED.

State Boards of Medical Examiners vs. Medical Colleges. Reprint. 1895.

Herniotomy—Osteotomy. By Samuel E. Milliken, M.D., New York. Reprint. 1895.

The Bryson Symptom in Exophthalmic Goitre. Hypnotism at Nancy. The Combination of Hysteria and Organic Disease. By Hugh T. Patrick, M.D. Reprints. 1895.

Black on the Urine; The Urine in Health and Disease, and Urinary Analysis, Physiologically and Pathologically Considered. By D. Campbell Black, M.D., L.R.C.S., Professor of Physiology, Anderson College Medical School. Philadelphia: Lea Brothers & Co. 1895.

Address.

PERSONAL SERVICE AS THE ESPECIAL EXPONENT OF A GREAT PROFESSION.¹

BY HENRY O. MARCY, A.M., M.D., LL.D.

As we stand by the opening door of the twentieth century, we would gladly draw aside the curtain and forecast for present profit something which the experience of the coming decades will have in store.

To the graduates of to-day, how interesting the vision!

From henceforth life is seen by you through a new medium.

We have witnessed the ceremonies as interested spectators. You have approached the sacred altar and taken upon yourselves the vows to-day, which from this time, set you apart for a special service. From nothing, which the demands of an intelligent citizenship places upon her supreme rulers, are you exempt, but in addition have you openly accepted new duties, new obligations, which are fraught with the heaviest of responsibilities. Wedded to the profession of your deliberate choosing, it becomes our pleasing privilege to bestow the benediction, as you emerge from your faithful apprenticeship. To your beloved teachers these annual graduations are interesting occasions; but to you it is the culminating point in the life-history which has no repetition.

Do we, your elders, not remember it? Years, few or many, are not sufficient to intervene, which do not place us to-night upon a level of common interest and sympathy. New recruits in this great army, you have been given the countersign, and the query at once arises,

What shall the service be?
Of what shall it profit me,
May I the future see
Of success a certainty!

The parable of the talents, as given by the Great Master, may be read to-night in a new light, the law of self-interest governed by a new force. Life is a bank into which we make a daily deposit of service rendered to others, against the value of which we may freely draw, as our own, the entire credit for personal benefit.

If this is true, the acquisition of the means for deposit is the one subject of absorbing interest, for are we not agreed that personal needs are likely to continue very pressing and that educated men are expensive animals!

"How I may best serve others as the especial exponent of a great profession," might seem the fitting topic of the hour upon which to address you.

Is it that you are to treat the rank and file of suffering humanity as bad priests of the mother church give absolution to suplicants, who accept the same without thought of a regenerative life, and thus you dole out bitter potions of doubtful drugs in answer to "What shall I take for my cure?" rather than sit as the real high priest of our most noble calling and teach the violation of physical laws and the means of their harmonic dispensation!

Remember while you reverently profit by all the lessons of revealed religion, that you are the *more* rather than the *less*, the teacher of natural laws, which you read in the living light of the unerring repetition

of the generations about you; that the physical, the mental and the moral are but phases of the one great vital force which we call life.

Until a recent period scientists thought that heat, light and electricity were independent forces. He who demonstrated that they were only different phases of one and the same great power, and gave to man the key of transposition, heralded a new age of progress, the foreshowing of which is beyond present estimate.

This day you are invested in the panoply of office which makes you the high priests of a trinity, the teaching of which has not been handed down through twenty centuries by a priesthood and subject to multiple error, but read in letters of living light in the life about you. May it be your mission to lay broad the foundations of right living, a properly-developed vitality in the race, making easy transposition of the same into mentality and morality, the spiritual efflorescence which stamps us as divine.

As we approach a new era, very naturally we ask ourselves, What has been the fruitage of the past? and has the century just lapsing into history added to the store of the world's wisdom which challenges a favorable comparison with earlier periods and upon which coming generations may look back with approval?

The year to come will be set apart for the proper commemoration of the first great medical discovery which heralded the dawn of the present century; the arrest by vaccination of that great plague, the small-pox, which for centuries had stalked unchecked throughout all lands, leaving its unburied dead by the thousands, as the harvest of its destruction. Scarcely less fortunate were those who survived its withering touch, since the maimed, the helpless and the blind were left in every hamlet, as life-long witnesses of the terrible scourge. To Edward Jenner belongs the immortal fame of having presented to mankind this boon, the value of which it is difficult even for us to estimate.

When some one great event crowns the life of an individual, it is often remarked, that, but for this, he would have remained unknown, and that it was a lucky accident which made him famous. Thus some general, by chance in command of veteran cohorts, wins a battle, when the fate of a nation hangs trembling in the balance, and the laurels of immortality are entwined about the brow of a world's hero. If it ever happens, it comes as the exception to prove the rule, that behind the opportunity lay the life-long preparation which fitted the seizure of the supreme moment, and under the guidance of such a training moulded the destiny of empires.

Since the days of the Caesars, the world had never seen a military genius equal to that of the "Little Corporal," who, at this hundred-years' period, had suddenly sprung full-fledged into the arena of victorious battle; but a careful study of Napoleon's character teaches that, young as he was, he had been schooled in a life-long training of adverse circumstances which had moulded his iron character, and had given him the power of concentration of all his splendid faculties upon the one problem of the hour.

To every individual comes some time, the full testing of his powers, and then, if found wanting, he falls deservedly into the rear of the column in disgrace, and is rarely heard from again. In the phraseology of the Biblical writers, "God calls us, and, if we hear not his voice, woe betide us." Thus will come to you, my

¹ Delivered at the Annual Commencement of the College of Medicine of Syracuse University, June 6, 1895.

young friends, some day the voice; will you be ready to answer the summons? The Roman philosopher said, "Let the training of the youth be in that to which he is to devote himself in life-long pursuit."

Let us pause for a moment, and see if Edward Jenner was a fitting example of the preparation which crowns a life with deserving success. Born in 1749, the son of a clergyman, with an elder brother of the same profession, young Jenner was carefully trained in the classics, but at an early age, showed a taste for natural history. In the method of the period, he served an apprenticeship to a surgeon near Bristol, and upon its completion in 1770 went to London, entered as a student at St. George's Hospital, and had the singular good fortune to become the inmate of the family of the famous John Hunter. He soon became a favorite pupil. At this time, Mr. Hunter was forty-two. He was already a well-known teacher, had been a senior surgeon in the wars in Portugal; and in 1771 there was placed at his disposal the collections in natural history which had been brought home by the famous circumnavigator, Captain Cook.

Jenner was remarkable for the neatness and precision with which he made preparations of anatomy and natural history. His dissections of tender and delicate organs, his success in minute injections, and the taste which he displayed in their arrangement is said to have been almost unrivalled. He was solicited by Captain Cook to become the naturalist of his succeeding expedition, the following year, but Jenner's desire to settle in the place of his nativity was too strong to admit the acceptance of the appointment. He preferred the seclusion of a country village, and to this selection do we owe his transcendent gift to mankind. John Hunter, from the first, was very proud of Jenner. He wished him to unite in establishing a school in London to teach natural history, human and comparative anatomy. Although declined, the instructions of his great master were not lost upon the young country surgeon. Jenner not only possessed the proper spirit of inquiry necessary to a student of nature, but he endeavored to excite it in others. He was instrumental in establishing two societies of professional men in his neighborhood, meeting for the common purpose of advancing their knowledge upon subjects connected with their pursuits and for better personal acquaintance. He was of a lively disposition, and distinguished for mirth, playfulness and wit. As a consequent, he was a general favorite. The following lines, addressed to a lady upon the recovery of her daughter, and sent with a pair of ducks, afford a specimen of his humor:

"I've dispatched, my dear madam, this scrap of a letter,
To say that Miss May is very much better;
A regular doctor no longer she lacks.
And therefore, I've sent her a couple of quacks."

Although separated, the master and pupil were kept in touch by a regular correspondence. From a letter of Mr. Hunter, I quote you these inquiries, since they give a glimpse of the thoughts of both: "See if you can catch the number of pulsations, and the frequency of breathing in the bat without torture. If the frost is hard, see what vegetables freeze; bore holes in large trees and see whether the sap runs out, which will show it is not frozen."

Seeming trivial accidents often lead inquiring minds to most important conclusions. To the ordinary boy, the falling of the apple from the tree would have been accepted as a matter of course; not so to Newton.

The clatter of the lid of the boiling tea-kettle, as lifted by the escaping steam, formulated to the mind of Watts, the harnessing into service a power which revolutionized the motor forces of the world.

While yet a pupil of Mr. Ludlow, a young country woman remarked, "I cannot take small-pox, for I have had the cow-pock." This incident never escaped Jenner's recollection. He describes the process of inoculation which at this time was considered, and truly so, a very important discovery, "bleeding until the blood was thin; purging until the body was wasted to a skeleton; and starving on vegetable diet to keep it so." The patience manifested by Jenner in the prosecution of his studies upon cow-pock, the scrutiny to which he subjected every appearance that presented itself, and the fortitude with which he withstood every untoward circumstance, are entitled to all praise, and exhibit his capabilities for conducting original investigations. He divested the subject of its difficulties and obscurities, and gave to vague, inapplicable, useless rumor the certainty and precision of scientific knowledge.

It would be interesting to know the influence and aid of his great master during this period; since at this very time Hunter, with a rare devotion, was pursuing his investigations upon the origin, course, and development of the great pox.

Dr. Jenner's first vaccination was on the fourteenth of May, 1796. Two years later he visited London for the purpose of demonstrating its value. Although he remained nearly three months, he was unable to induce a single professional friend to make the experiment, and returned to the country without having succeeded in prevailing upon a single individual to submit to inoculation of the virus. He pressed the subject so much with his professional brethren in the country that, at a medical club at Redborough, to which he belonged, he was threatened with expulsion if he persisted in harassing them with a proposition which they then conceived had no foundation but in popular and idle rumor, and which had become entirely distasteful to them.

Mr. Cline, of St. Thomas's Hospital, to whom some virus had been sent, clandestinely inserted it into the thigh of a patient suffering from hip disease with the thought of producing counter-irritation. The development of the vesicles interested him, and they were permitted to run their course without disturbance. Small-pox matter was after introduced in three places, but the slight inflammation soon subsided. The demonstrations were repeated with much enthusiasm. Mr. Cline soon urged Dr. Jenner to settle in London, with the promise of an income of ten thousand pounds a year. I quote from his letter in reply: "Shall I who, even in the morning of my days, sought the lowly and sequestered paths of life, the valley and not the mountain; shall I, now the evening is fast approaching, hold myself up as an object for fortune and for fame? Admitting that it is a certainty that I obtain both, what stock should I add to my little fund of happiness? My fortune, with what flows in from my profession, is sufficient to gratify my wishes; indeed, so limited is my ambition, and that of my nearest connections, that were I precluded from future practice, I should be enabled to obtain all I want. And, as for fame, what is it? A gilded butt, forever pierced by the arrows of malignancy. The name of John Hunter stamps this observation with the signature of truth."

It is very probable that this letter was written when smarting under the sting of ridicule and the sharpest criticism from the profession, from whom he had looked for support.

Sooner or later the world, however, recognizes the true value of its servants. Fortunately, Dr. Jenner lived long to enjoy his well-earned fame. Foreign societies and academies enrolled him in the list of honorary membership, and the home societies adorned their transactions with his name. Oxford granted him an honorary degree such as had not been conferred before in seventy years. Vaccination was instituted in the army and navy. Napoleon ordered the soldiers of the empire to be vaccinated; and the practice soon extended through the civilized world. Large sums of money were sent him, subscribed in various countries, even the far off East. Parliament voted him special honors. The following incident is worthy of mention: Dr. Wickham, one of the travelling Fellows of the University of Oxford was imprisoned in France. Dr. Jenner addressed a petition to Napoleon for his liberation at the time when his animosity to England was at its height. It was presented when in his carriage, changing horses. "Away, away," exclaimed the emperor. "But do you see, said Josephine, who was beside him, do you see from whom it comes, Jenner?" The tone of Napoleon's voice was immediately softened; "What that man asks must not be refused." And the petition was granted.

Dr. Waterhouse, of Cambridge, who wrote his thesis in Latin and received his degree from the famous university at Leyden, introduced vaccination into America, an event spoken of to this day as reflecting honor upon this university city. Treasured to the last was the snuff-box sent by Dr. Jenner which contained the precious virus.

In connection with this subject, should ever be coupled the name of the late Dr. Henry A. Martin, of Boston, who introduced into America and established the cultivation of bovine virus, who eradicated small-pox from the armies of the Union during the late war, and who, since Jenner, was probably the best authority upon the subject of vaccination.

Cotemporaneous with Dr. Jenner and also a student of John Hunter, was England's most famous surgeon of the generation, Sir Astley Cooper. During his career as a teacher, he had under instruction eight thousand pupils, moulded the surgical thought of two continents, and was the author of several works never surpassed in accuracy of description and in beauty of illustration.

Scarpa, the celebrated Italian surgeon, now known to most of you only by the name of a triangle, was scarcely less famous, and was the originator of the important branch of anatomical teaching so valuable to the practical surgeon — regional anatomy.

My genial master, the poet and autocrat of modern New England literature, was a student of Baron Larrey, the great Surgeon-General of Napoleon, whose works upon military surgery may still be studied with profit.

The achievements of the yet living masters are too recent to require enumeration — Pasteur whose early scientific investigations were the inspiration to the genius of Mr. Lister, which has revolutionized surgery; Virchow, the man of letters, equally distinguished in statemanship as in science, who, as the President of the Berlin International Medical Congress, freely

awarded to American surgeons present pre-eminence — histology, pathology, anatomy, bacteriology, surgery, re-written for your instruction by men yet active in moulding and formulating new truths.

What of America and her contributions to the science of medicine during the century? Science is cosmopolitan. Wherever best taught, there her votaries flock to fill the open doors. Thus during the early part of this period, America's best medical men were educated abroad. Upon a proper pedestal we have yet to place a memorial statue to Dr. Benjamin Rush, of Philadelphia — a statesman, signer of the Declaration of Independence, member of Congress, Surgeon-General of the Continental Army, founder of Dickinson College, President of the Society for the Abolition of Slavery, Treasurer of the United States Mint for fourteen years, promoter of public improvements. He was graduated at Princeton, studied medicine in Edinburgh, was a professor in the Philadelphia Medical College, and published many works which were long quoted as authority.

Ephraim McDowell of Kentucky, rendered the world his debtor. He is often referred to as the obscure backwoods surgeon, who stumbled upon a new idea as by accident. It is just a century since Dr. McDowell returned from Edinburgh, where he had been for two years a pupil of the famous John Bell. To the teaching of this great master, Dr. McDowell refers as the source of the conviction which fourteen years later found fruitage in the first successful ovariectomy.

Nearly midway in the century did the discovery of ether and its practical application by Morton render to surgery the priceless boon of anesthesia. Within a few days have I seen two of the physicians who were present in the amphitheatre of the Massachusetts General Hospital, and who witnessed the first surgical operation ever performed under an anesthetic.

It is almost invidious to repeat, even in your hearing, names selected from the many who have contributed to the knowledge of our art in America: Bigelow, father and son, of Boston, each equally famous in their respective subdivisions of labor; Bowditch, world-wide known as physician and philanthropist; Warren, for three generations a famous name in the annals of surgery, the senior, John, student of Sir Astley Cooper, whose teachings served as inspiration to his latest day; Muzzey, Crosby, Smith, Holmes, all New England names; Sims, Flint, Gross, dead yet living; Sayre, Davis, Didama, living and active, around whose memories in early association we fondly linger, from whose teachings we derived inspiration and help, — these and a host of others, we gladly hold up to you as models of good citizens, wise teachers, thoughtful counsellors, in sickness and in health, men who leave the world better for their living, immortal because having exerted influences for the moulding of higher life, which will continue to the end of time.

Science takes no backward step. All these co-related, kindred branches have developed in such a way that each is more difficult to teach, and each requires more time on the part of the pupil to master. The general preparation must also be of a much higher order to fit for the proper entrance upon the study of medicine. By general consensus of opinion, although there are many excellent physicians who have not had this preparatory training, the medical student of to-day should have had a college course of instruction or its

equivalent. During the last generation the methods of teaching medicine have greatly changed. Earlier, as a supplement to the personal instruction which the student was supposed to receive by an apprenticeship to the physician selected, the winter courses of lectures were planned. These, together with a limited knowledge derived from dissections, were repeated with slight variation; and at the end of two courses, the student was usually supposed to be fitted for practice and was granted a diploma. There was no prescribed preparation, and the country school-boy was taught, side by side, with the college graduate. The lecture, filled with Latin technicalities, of necessity expressed in terms beyond the comprehension of the immature youth, was often equally unfitted to serve the better purpose of the collegiate. The criticism was apparent, but the remedy not patent.

Your own college was among the very first to take the initiative and demand entrance examinations and graded courses of instruction. You also set the example of permitting final examination only after three years of thorough, careful, satisfactory pupilage. More recently the movement is developing to demand a four years' course of graded instruction and to supply this, it is obligatory to have better teachers and more of them. This necessitates smaller classes, recitation instruction, quite as much as lectures and laboratories. These are veritable workshops, alike for master and apprentice. Anatomy, chemistry, physiology, pathology, bacteriology, *materia medica* — for all these branches of science, shop-room is required, and in extent quite beyond earlier needs.

The medical college of to-day demands another building, or series of buildings, than that of the former pattern. The amphitheatre as the lecture-room — cramped, crowded, stifed in the upper rows; to the last degree inconvenient of access; reached by garret-stairs, to descend to seats, as upon an illy-constructed ladder; a nightmare dream of our earlier years — should be relegated to the past. Bright, airy, well-lighted rooms are required, made pleasing and attractive, with good seats and tables, where the personal work may go on under the direction of well-trained assistants.

The modern medical college should be so closely connected with the hospital that the clinical teachings may be made illustrative and profitable. Indeed, the hospital should be the *workshop* in the better sense, where the student becomes familiar with the "living pictures" of our poor broken humanity, the reconstruction of which is to be his future life-long labor.

Hospitals are important for the care, especially, of the poor, the home for the homeless. These, the public have long held in kindly interest and support. As a rule, the best physicians of the respective localities have willingly rendered gratuitous service; but the medical college has been too often looked upon as a private affair, a doctor's business venture, entered into for gain. Should it not, the rather, be considered by the public as a *technical school* of the highest order?

The general public has long felt it a wise investment to furnish the very best opportunities for the education of ministers, teachers, engineers, architects, artists even. Should they not easily see that they have a *vital personal* interest in the proper fitting and training of that large body of *physical engineers* who are to have the oversight of their own persons, to care for and keep in order their own *vital machines*?

In large degree the physicians of Syracuse are graduates of the medical department of your own university. Note the honor which they reflect upon the persistent, self-sacrificing efforts of your teachers in the years when the standards of medical learning were here first advanced with regard to the quality and attainment of the pupil, rather than to the numbers to be graduated.

The self-interest of the entire public, the rich by no means excepted, demands that the best possible advantages be given the student of medicine, to whom later is to be entrusted the life and welfare of the body politic.

Let the general public, represented by your goodly city, show their approval of the work here so well inaugurated by a generous support given to the medical department of your university. A new building should be erected at once, so commodious and so well equipped that it may not suffer in comparison with any in the great Empire State.²

Within a few days I have examined with some care the Johns Hopkins Hospital in Baltimore, in regard to the advantages offered for the instruction of medical pupils. Here the usual process is reversed. The hospital predominates; but there are laboratories in considerable number with facilities for the teaching of the *science* of medicine, while the *art* is in daily practice in its many splendid wards. The medical college proper is yet to be, but the thought tends directly in the line of small classes, personally trained by competent teachers. These to be competent require special instruction in the art of teaching, now more lacking in medicine than in any of the great departments of science.

The really successful instructor is he who imparts of himself as well as his subject. This has been termed the "divine afflatus" of his calling; but it is really because such a master knows his subject, and this knowledge begets affection for it. He is "eaten out" by it. It becomes a part of himself, and *it*, as well as *he*, must talk.

There is nothing difficult to understand about such divinity. It is in the boy, when he catches his first rabbit, visits for the first time the circus, and he must tell the whole household about the new experiences. Such love begets knowledge, and to the real student the border lines of the same widen from day to day. Nothing is so detrimental as a half-truth. Let the line be drawn as clearly as possible between ignorance and knowledge.

There is an *art* in medicine as well as a *science*. Let me quote you in illustration from our inimitable Dr. Holmes — mourned by us all — who had the power of imparting even dry facts with the admixture of a wit which had the effervescence and flavor of champagne.

"You will remember, of course, always to get the weather gauge of your patient. I mean to place him so that the light falls on his face and not on yours. It is a kind of ocular duel which is about to take place between you; you are going to look through his features into his pulmonary, hepatic and other internal machinery; and he is going to look into yours quite as sharply to see what you think about his probabilities for time and eternity. No matter how hard he stares

² At the banquet following the graduation exercises, a subscription was opened. Funds have been received, and a new building to cost \$100,000 is rapidly approaching completion.

at your countenance, he should never be able to read his fate in it. It should be cheerful as long as there is hope, and serene in its gravity when there is nothing left but resignation.

"The face of a physician, like that of a diplomatist, should be impenetrable. Nature is a benevolent old hypocrite; she cheats the sick and dying with illusions better than any anodynes.

"If there are cogent reasons why a patient should be undeceived, do it deliberately and advisedly, but do not betray your apprehensions through your tell-tale features. We had a physician in our city whose smile was commonly reckoned as being worth five thousand dollars a year to him—in the days, too, of moderate incomes. You cannot put on such a smile as that, any more than you can get sunshine without sun; there was a tranquil and kindly nature under it that irradiated the pleasant face it made one happier to meet on his daily rounds. But you can cultivate the disposition and it will work its way through to the surface. Nay, more—you can try to wear a quiet and encouraging look, and it will react upon your disposition and make you like what you seem to be, or at least bring you nearer your own likeness."

Science has not alone shown the safe and sure way in which wounds tend toward recovery, but, as is usually the case, the really, in the end, easy path for the surgeon to pursue. Let the coming century find no practising surgeon who is not master of his surgical technique, as the high priest of a most sacred calling.

Almost unconsciously we are led to think of modern surgical technique as an *art* rather than a science. Let us so accept it. Based upon scientific principles, the work should be artistic; a blundering surgeon may be aseptic, but this should never be an excuse for clumsiness. The true surgeon is skilful, which term means so much, full of that skill which makes his work really automatically correct; like the master of a musical instrument, who through it pours forth the enraptured strains of soul-inspiring, moving power, with never the thought of hand or bow or string.

Anesthesia and asepsis have brought into surgery a small army of men who lack the training which, half a century ago, was considered absolutely essential to success. Then to be a surgeon meant an apprenticeship. Should it be less at the present time? The greatest danger to-day lies in the willing, enthusiastic, but half-trained recruits with whom our ranks are overcrowded. Here as elsewhere comes the law of the survival of the fittest, but at what fearful cost of life, matched, almost overshadowed, by the self-condemnation which permits of no condonement!

The recent Address on Surgery before the British Medical Association, by Mr. J. Grieg Smith, "The Art of the Surgeon," should be read by every student, by every surgeon.

"That the art of surgery is teachable there can be no dispute; that it is worth teaching is still less disputable. Why, then, is it not taught? The art can be taught only in one way, the way of teaching all the plastic arts.

"The young artist must, while beginning the practice of his art, have a master at his elbow, a master who will guide him in the use of his hand, his eye, and his instruments; who will in the fullest sense make him his pupil, and personally lead him on, step by step, toward such excellence in the art as he himself has attained. . . .

"We might ask to be put on the level with the fine arts, and seek for a Royal Academy of Surgery, as we have Royal Academies of Painting, Sculpture and Music. To such an academy a school of teachers should be attached. The school would be a surgical hospital, with every known excellence of hygiene and nursing and appliance. The teachers would be those who are superior in our art, the pupils men who are already qualified, who seek for practice in the higher walks of surgery. Then let us work for it."

A great art is not builded in a day. We profit from the experience of our predecessors. The coming centuries will have much to criticise in the review of our labors. Let them also find themselves indebted to us for much experience of real value in both the science and the art of surgery.

The venerable oath of the great Father of Medicine which you repeat to-day, binds you, as in ancient times, to visit the sick man for the sole purpose of doing him good, and to so conduct yourself as to avoid the appearance of evil. This same bond makes us brethren in a common cause. The teachings of our science, which you are called upon to disseminate are already of such mighty import that, if they were universally adopted, they would divide the sufferings of mankind, increase the longevity of the race one-third, and double its productive power.

In the evolution of medicine and sanitary science lie, in large measure, the happiness and destinies of the ages to come. In the everchanging kaleidoscopic pattern, the individual factors of man's personality should intertwine and blend, as the colors, at the hand of a great artist, in perfect harmonic symmetry and relationship.

Contribute your part to the better development of the mental, the moral, and the physical nature of man; the great *tripod* upon which must ever rest the advancement of the race; and in the harmonic action of these great forces there must evolve the already heralded progress of the twentieth century.

Original Articles.

COTTAGE HOSPITALS.¹

BY MORRILL WYMAN, M.D., CAMBRIDGE, MASS.

(Concluded from No. 12, page 287.)

HUMAN beings are so constituted that they can resist to a certain extent the noxious agents to which they are constantly exposed, otherwise a single bacterium might prove fatal, or the spread of contagium be unlimited.

Lister, early in his investigations, pointed out that the tissues of the body must exert a powerful bactericidal effect in many wounds and after operations of small extent to which bacteria gain access in considerable numbers. The human saliva and the adenoid tissue of the tonsils, and that about the esophagus, are believed to have this bactericidal effect, the active cells even coming out from the tissue to get within striking distance of the approaching bacteria.²

¹ Read before the Cambridge Society for Medical Improvement, March, 1895.

² Dr. Sims Woodhead on Channels of Infection in Tuberculosis. London Lancet, November 17, 1894, p. 957.

Dr. E. M. Buckingham on Medical Treatment of Diphtheria, Importance of Open Air. Boston Medical and Surgical Journal, February 14, 1895, p. 147.

It is the object of ventilation to remove or dilute unavoidable and constantly recurring impurities until they come within the limits of this bactericidal influence.

Although carbonic acid is held by many to be an index of the pollution of air in closed rooms, it cannot, as already said, be accepted as an index of the amount of dust or the impurities that do not produce carbonic acid, yet dust of various kinds and bacteria are found in hospitals by the microscope and the koniscope of Atkins in bewildering numbers. With the latter instrument the products of combustion have been demonstrated to have spread 24 feet from their source in less than 35 seconds after striking a match to light the gas in a room of over 5,000 cubic feet of space; showing the movements of air and the delicacy of the test for these kinds of impurities.

R. Stern, of the Hygienic Institute of the University of Breslau,⁶ has made some valuable experiments on the influence of ventilation on the numbers of organisms, either alone or attached to and riding about on particles of dust floating in the atmosphere, and has come to these results: when the air was perfectly still, the dust and bacteria thrown into the room prepared for his experiments, sank quickly to the floor; when ordinary dust from library shelves was employed, the air was almost entirely free of bacteria in an hour and a half. "The lowest limit of ventilation that caused an appreciable acceleration in the disappearance of germs from the air was an exchange of from six to seven times an hour of the whole volume of air in the room"; except by very strong winds bacteria were never driven from moist surfaces.

From a consideration of these conclusions Stern feels justified in recommending as a means of disinfecting rooms which have been occupied by persons suffering from infectious diseases, that as soon as the patient has been removed, the room be closed and allowed to remain so for at least twenty-four hours, after which, it should be quietly entered, and the floor, wall surface and furniture mopped with cloths saturated with corrosive sublimate 1 to 1,000. Under no consideration is dusting to be countenanced.

In connection with Stern's paper, it may be again stated that the winter ventilation of two feet a second at the Cambridge Hospital dilutes the air of the ward with an equal quantity of fresh air six times an hour. The summer ventilation is much larger.

Air is not chemically or physically pure; it contains beside its normal constituents something from the various objects or gases with which it comes in contact. Water which is claimed to be pure, healthy drinking-water is not, and ought not to be, chemically pure; but if it contain visible impurities, it cannot be regarded as good drinking-water. So the air of our wards may vary in many respects as to its chemical and physical constituents, but if it has an evident animal odor, it cannot be regarded as good breathing-air.

It is certain that expired air and the exhalations of the skin contain organic matter of an unknown nature, of offensive odor, which when existing in considerable quantity causes discomfort and oppression, and have to those examining ventilating ducts proved actually poisonous without other known change than that detected by the sense of smell.

It may be accepted on good authority that the amount of carbonic acid in the air is no certain index

of the quantity of organic matter in it; nor does the process with the permanganate of potassium solution, which requires considerable time and much apparatus, prove satisfactory.⁷ It is quite unfitted for use by those upon whom the management of hospitals usually falls. We must seek for the desired test elsewhere than in chemistry.

The question belongs to physiology; chemistry does not teach physiology. The sense most readily affected by the air of our habitations is that of smell; it is the one first appealed to. No competent observer would consider a ward well ventilated which has a distinct musty or animal odor, whatever may be its other conditions.

Dr. De Chaumont, who has made many observations on the condition of the air as indicated by our senses, found that air with a temperature of 63° F., which has no animal odor and is called "fresh," does not contain above two volumes of carbonic acid in 10,000 due to respiration.

Humidity, inasmuch as it intensifies the effect of odors, adds still more value to the sense of smell as a guide to good ventilation. We know well that the evening air, which, as a rule, is moister than the day air, has great influence in bringing out the perfume of flowers. Man has not the wonderful sense of smell of some of the wild animals, and yet there are few persons who fail to recognize the sea breeze by this sense before it can be demonstrated by chemical methods or instruments of precision.

It may be objected that this sense varies with different individuals and with the same individuals at different times. This is true. The testimony is of the class of subjective symptoms, but it is from this class that we draw the testimony upon which much of our medical reasoning is founded. Physiological and pathological problems must be investigated and solved by physiological and pathological methods. Some of the specific diseases have a peculiar odor of diagnostic value to the experienced physician.

Leaving out of consideration, then, those tests requiring a laboratory and chemical experts, which can seldom be obtained in our hospitals, and not forgetting its limitations, this sense affords us practically one of the best, if not the best single test we have; it is a good common-sense test. It is well to adopt it, at least until a better is found, for, whether we do or do not, it is the test our visitors will apply, and if just from the open air, it acts with full force, and upon it they will rightly ground an opinion as to the cleanliness of our hospitals. It will be hard to find one who perceives in the air a musty or animal odor who will say, "This is good, fresh, breathing air." It is the reverse; the continuous breathing of air containing such odor is unhealthy. The nurses at Cambridge Hospital are enjoined, when going from the open into the ward, to notice the difference in smell, and to set their ceiling ventilators accordingly, and if necessary put the fan in motion, which should soon restore the air to its proper condition.

The following determination of the relative proportion of carbonic acid in the wards of the Cambridge Hospital, March 16, 1894, we owe to the kindness of Dr. Theodore Williams Richards, Assistant Professor in Chemistry in Harvard University.

The air was taken with bellows from the middle of the ward and blown into the bottles standing on the

⁶ Johns Hopkins Hospital Bulletin, vol. i, p. 15.

⁷ Ventilation and Heating, by John S. Billings, M.D., p. 200.

ward table, care being taken to avoid anything from the breath of the collector; the bottles were stopped with paraffined corks.

The number of volumes of carbonic acid in 10,000, as determined by Pettenkofer's method, was as follows:

Bottle No. 1	7.1
Bottle No. 2	5.9
Bottle No. 3	6.5
Mean,	6.5

Prof. H. B. Hill has determined, as the mean of eleven observations, that the proportion of carbonic acid in 10,000 in air taken 20 feet north of Boylston Hall in the "College Yard" is 3.39; deducting this from 6.5, the mean of Dr. Richards's determination, we had at that time in the ward 3.1 volumes in 10,000, as the excess of the carbonic acid in 10,000 above the normal. The air entering the ward at the same time was the usual winter supply of 2.2+ feet a second for each of the sixteen beds.

The cost of heating large quantities of cold air is a very important matter to those interested in the management of hospitals. The general heating of the Cambridge Hospital is by the hot-water system. The space heated includes the two wards of 64,000 cubic feet, with the ventilation as above described, and the Administration Building of 60,000 cubic feet, with ordinary house ventilation. The boiler fires are lighted in the last week of September and put out the last week in May. The coal burned during eight months' firing (average of three years) was 75 1-2 tons.

TEMPERATURE OF WATER IN THE BOILER AND RETURN PIPE AND COAL BURNED IN DECEMBER AND JANUARY, 1887-88.

		Temperature.			
		6 A. M.		12 M.	
	Coal lbs.	Boil.	Ret.	Boil.	Ret.
Dec. 20.	800	148°	100°	180°	138°
21.	800	150	102	184	130
22.	800	160	110	186	132
23.	1,000	138	100	192	140
24.	1,000	160	110	200	140
25.	1,000	150	110	200	142
26.	800	140	110	200	144
27.	1,000	140	106	206	146
28.	1,000	150	110	210	148
29.	1,000	170	120	210	160
30.	1,000	170	120	208	162
31.	1,000	170	120	206	160
Jan. 1.	800	150	118	210	148
2.	800	140	95	200	140
3.	800	150	110	200	142
4.	800	136	106	210	152

NIGHT TEMPERATURE OF WARDS.

	9	10	11	12	13	14	15	16	17	18
1888. Jan. 8 P. M.	73.5°	73°	71°	68°	75°	77°	77°	71°	70°	74°
9 "	72.5	71.5	68	70	74	75	72	69	69	73
10 "	71	70.5	65	74	71	71	70	68	68	71
11 "	70	69.5	61	70	70	69.5	68	70	68	69
12 "	70	68.5	63	64	68	69	69	71	67	71
1 A. M.	70	67.5	65	63	69	68	70	71	68	71
2 "	69	66.5	62	62	68	66	68	71	68	69
3 "	68	68	60	63	69	66	65	71	68	68
4 "	68	70	60	64	70	66	66	70	67	66
5 "	67	65	62	64	69	69	67	70	69	64
6 "	66	60	64	70	69	69	70	70	70	66

COAL BURNED UNDER THE BOILERS FROM APRIL 1, 1887, TO APRIL 1, 1888.

	Tons.
April, 1887	2.75
May	2.75
June	.6
October	4.75
November	9.
December	11.7
January, 1888	19.25
February	13.6
March	11.1

75.50

The preceding tables give the temperature of the heating boilers and of the return pipes, with the night

temperature of the wards; the amount of coal burned in the months of December and January, the two most expensive months; and, what is of great interest in a charity hospital, the quantities burned during the whole period of firing.

The following table of temperature and relative humidity of the ward is given for March and a part of April, 1894. The readings of the wet and dry bulb thermometers were taken from Prof. Joseph Winlock's hydrophant; its place was on a shelf in the ward without any whirling or swinging; a part of the time it was over the ventilating opening in the floor, where it was exposed to a good draught; no material difference between these two places was noted.

RELATIVE HUMIDITY BY WET AND DRY BULB THERMOMETERS.

	Ward.			Outside.		
	Wet	Dry	R. H.	Wet	Dry	R. H.
1894						
March 5.	60°	71	45%	44	56	35%
6.	60	71	49	49.9	60	44
7.	62	71	58	42	56.5	47
8.	60	70	52	38	42.5	42
9.	58	71	43	37	41.5	41
12.	50	69	47	38.5	46.2	43
13.	56	67	47	38	46	40
14.	57	68	47	36	39	44
15.	55	69	35	31	38	51
16.	58	69	47	38	39	86
17.	58	69	47	37	45	39
18.	63	73	54	46	55	44
19.	67	76	60	57	62	65
20.	60	74	39	37	50	18
21.	58	68	51	31	42	20
22.	58	70	44	43	51	40
23.	58	70	44	38	38.2	98
24.	55	67	41	27	36	21
25.	60	71	49	49	44	44
26.	55	66	44	27	32	50
27.	52	66	32	21	26	40
28.	53	67	34	24	31	36
29.	53	63	47	35	36	95
30.	55	68	38	32	38	45
31.	54	64	48	40	51	25
April 1.	60	70	52	49	61	33
2.	56	70	36	35	45	27
3.	53	67	33	26	33	37
4.	56	67	46	42	47	66
5.	60	73	42	48	57	44
6.	58	70	44	36	40	65
7.	56	69	39	33	43	21
8.	57	69	43	34	34	100
9.	55	67	41	32	34	74

The table of temperature and relative humidity of the outside air is, by the kindness of Prof. Edward C. Pickering, Director of the Observatory, taken from his record.

There is much difference of opinion as to the proper percentage of humidity for health. In the open air it must always be considered with reference to its temperature. In this hospital, where the temperature varies very little from 70°, the average percentage through the winter was 43.6; in a sitting-room warmed by an open wood-fire in a house with halls warmed moderately by a hot-air furnace the humidity through the winter was about 60%.

The above table is given as indicating the physical condition of the hospital; no attempt is made to change this condition by artificial means; in summer it must necessarily be that of the outside air.

The motive power for winter ventilation is the difference of temperature, within and without, together with warm air from the wards at 70° which reaches the ventilating chimney through the foul-air ducts (losing less than 10° of heat on its passage), and the waste heat from the boilers and kitchen. In the late spring and early fall the heat in the ward chimney and kitchen, in which a good fire is kept up night and day, and the windows, have done fairly well for a great part of the time. Although the air entering the windows even in what seems to us a calm, is much greater than

one would suppose, its distribution is unequal and very different in this respect from that which comes in by the ten allotted channels. Neither at times is the weather suitable, or air movement enough, for the proper flushing of the ward.

Then again in the heats of summer, in the hot sultry weather without a breeze, the sick are liable to suffer, in a manner depressing to both mind and body. This requires a much larger ventilation than has yet been considered.

In the Cambridge Hospital the principal motive power in summer is the fan. It is what is known as the heliacal or "screw" fan, 36 inches in diameter. It is set in the side of the air-chamber, firmly fixed by wedging tightly into the brick door-jambs in the wall, without connection with any resounding woodwork. It moves quietly, and produces no other sound than that of the cutting of the air by the blade — a slight buzz. It makes 500 revolutions a minute, and is driven by an electric motor of 500 volts — about three horse-power. It has an air-moving power of 10,200 cubic feet a minute, and is equally well fitted to exhaust as to propel, but it is more convenient to use it as a propeller.

The air is taken in at about the same height above the grass-covered lawn around the hospital as that for the winter ventilation, and pursues the same course through the air-chamber, heating-boxes and register into the ward. The pressure on the air-chamber, when its windows and doors are closed, and the ten ward registers alone open, is about one-tenth of an inch of water, as measured by an anëroid barometer. In the following table is the amount of air delivered in the ward by the ten registers at the dates named during the summer of 1893:

AIR DELIVERED BY HELIACAL FAN,
(36 inches in diameter, 500 revolutions a minute).

	Each of 10 registers, cub. ft. per min.	Each of 16 beds, cub. ft. per sec.	For whole ward, cub. ft. per hr.
1893			
July 22,	662	6.9	397,000
Aug. 30,	687	7.1	412,000*
Sept. 2,	650	6.1	390,000†

* Average 4 observations.

† Average 5 observations.

No doubt a certain amount of force is lost by using the whole air-chamber as a duct for reaching the several heating-boxes. So would force be lost by the resistance offered by the walls of multiple ducts for the same purpose; a loss that increases with their surface and length and as the square of the velocity of the air passing through them. Another and still greater objection to long air-ducts, is the difficulty of keeping them clean. Of this we have full evidence in the constant accumulation of dust in various forms in our foul air-ducts, requiring more frequent cleaning than one would suppose. The cleaning is a very troublesome matter even in those ducts large enough for the cleaner to creep through. On the other hand, every part of the air-chamber is open to inspection, and accessible with proper cleaning appliances. Again, the transmission of sound from the fan through metallic and wooden ducts has sometimes been found objectionable. Undoubtedly, the loss through the walls is considerable.

The table shows that six cubic feet a second is delivered to each bed; three times that given in winter. In its course as already described, this large quantity of air draws along with it much air from its immediate vicinity, and materially aids in its distribution through

the ward. In the winter, as already said, the wards are more under the influence of the ventilating chimney, and air finds its way by a multitude of other passages besides the registers; in the summer when the fan is at work, the wards are more or less under pressure from without, and only that entering by the registers is to be considered in estimating the ventilation. This table shows that a quantity of air equal to the whole capacity of the ward, 21,000 cubic feet, is poured into it twenty times an hour.

It is sometimes questioned whether the movement of these large volumes may not cause draughts injurious to the sick.

The registers are so arranged that no bed is in the direct draught. We have a good illustration of the distribution of air through a room in the common hot-air furnace. The warm air from a register in the floor at first rises directly upward, drawing with it more or less of the surrounding air until it reaches the ceiling, where its current is diverted and more or less equally distributed through the whole room. It is not the current, but the diffused warm air that reaches us.

So of the ward, it is the general air of the ward, with a movement inappreciable by the senses, that reaches the sick.

The injurious effects of draughts probably depend for the most part on difference of temperature caused by the unequal or one-sided cooling of certain portions of the body only; if there is perspiration this local influence is still greater. These effects are first felt by the vaso-motor and sensitive nerves of the skin, disturbing its circulation in the first instance, and then spreading and throwing into confusion the nerves of other parts, and even reaching the circulation of the internal organs. This confusion does not happen when the whole body is equally exposed to the same influence, even if it is a wind.

A one-sided radiation from our bodies when near a cold wall or a cold closed window may cause a sensation as objectionable as that of a draught of cold air from them, and is often mistaken for one.

The most important general ventilation is "the flushing of the wards." Formerly when this was in process, the greater part of the air entered through the large windows at the end of the ward, passing through its middle to the opposite end, while the beds, which are near the walls, are quite out of the way of the first movement but enjoy the full benefit of the general change of air which follows.

The fan now does the greater part of the "flushing" through the ten registers. In cold weather very large volumes of warm air are thrown into the wards for a short time, the heat of the boilers being temporarily increased for this purpose. Although the temperature of this large quantity of incoming air may be somewhat lower than that ordinarily supplied, that of the walls is practically unchanged, and on stopping the fan the air soon regains the degree it had when under the influence of the ventilating chimney alone.

The fan is so valuable an agent in supplementing the chimney and so readily meets the varying condition of the atmosphere, that without it the equipment of the Cambridge Hospital would be incomplete.⁸

The summer ventilation, as already said, is three times that of winter; it dilutes the air of a ward with

⁸ See experiments and observations on the summer ventilation and cooling of hospitals, Proceedings of the American Academy of Arts and Sciences, Vol. xxx.

an amount equal to its capacity, twenty times an hour. It carries away so much of whatever is diffusible or miscible in the air that the relative organic or chemical impurities remaining as measured by the proportion of carbonic acid, compared with Dr. Richards's determination in winter (6.5 in 10,000 volumes), does not add one volume in 10,000 to that normal to the atmosphere in Cambridge, as determined by Prof. H. B. Hill near Boylston Hall — not half the proportion (two volumes in 10,000) generally adopted as the index of good ventilation. No pollution can then be detected by the sense of smell.

BOW LEGS.¹

BY FRANK E. PECKHAM, M.D., PROVIDENCE, R. I.

THE deformity of bow legs is of very common occurrence in young children and even infants; and judging from the stories the parents tell, a great many physicians advise and really believe that expectant treatment is the proper one to pursue. In other words, if every family with a bow-legged child should call upon their "family physician" for advice, the largest number of answers would be, "Let it alone; the child will outgrow it"; and in the majority of cases I am inclined to think the physician would be perfectly right.

But it cannot be denied that there are a certain number where the deformity persists, and remains a lasting monument to the neglect of the parents or the physician, or both.

The object of this paper is to enter a plea for the unfortunate minority.

Bow legs is one of the many deformities resulting from rhachitis, and consists of an outward bending of the bones of the leg, which may involve both femur and tibia, or only the tibia. Rhachitis is due to defective nourishment, in consequence of which calcification of the bones is interfered with, thus rendering them soft and pulpy and unable to resist the forces which are brought to bear upon them. These forces are the superincumbent weight and muscular action.

When in this softened condition it will be of interest to know just where the bending will occur and what direction it will take; because in any case of rhachitis, before deformity results, a great deal may be done to prevent it.

When a perfectly healthy child stands in the erect position with the heels together, the line of gravity falls outside of the knee-joint; but the minute the knees become separated to any extent by this deformity, the line of gravity falls inside the joints. The child then instinctively separates the feet, which enables it to stand more firmly; and the superimposed weight of the body is thus placed at a greater mechanical advantage to slowly increase the deformity.

If the anatomy of the femur be recalled, it will be seen that the anterior surface is convex and twisted on its axis, the upper part looking forward and slightly outward, while the lower part looks forward and slightly inward, the upper and lower portions being broader than the central.

Then, looking at the bone in cross-section, at the upper end it approximates somewhat to a circle (Plate I, Fig. 1); as you go towards the middle, it is smaller and more oval antro-posteriorly (Plate I, Figs. 2 and

3); and below the middle it broadens laterally as it emerges into its lower extremity, and forms the condyles for articulation at the knee-joint. The whole shaft of the bone is slightly convex anteriorly.

PLATE I.



FIG. 1.

Section at lesser trochanter.



FIG. 2.

Upper third.



FIG. 3.

Middle.

[Reproduced from Wyeth's Surgery.]

With these anatomical points in mind, it is very evident that if the femur is to bend it is most likely to arch forward in the direction of its convexity or outwards and forwards near its middle portion.

Examining the bones of the lower leg, we also find natural curves showing the direction which the deformities will take. Thus, looking at the anterior surface (Plate II, Fig. 1), the crest of the tibia, which divides the two lateral surfaces, is very markedly curved. The curve may be seen on any leg unless very fleshy. Beginning at the top well on the outside towards the fibula, it crosses a perpendicular line drawn through the middle of the bone; then at the centre of this

PLATE II

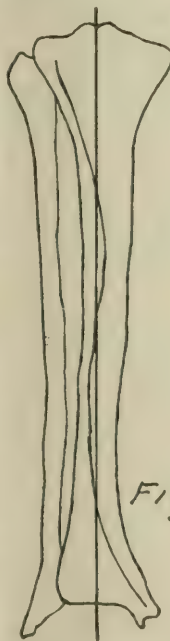


Fig. 1



Fig. 2

perpendicular it recrosses to the outside, and at the middle of the lower third once more goes over the line to the inside, making its most marked curve an outward one, with its greatest convexity at about the junction of the middle and lower thirds of the bone.

It is at this point we should expect the most marked deformity; and as a matter of fact it is at this point that the anterior bowing takes place, and also the outward curving which in many cases is so troublesome and is the last portion of the curve to yield to treatment. Looking at the tibia from behind, the

¹ Read before the Providence Medical Association, May 6, 1895.

same general curve of the bone is observed on the posterior surface (Plate II, Fig. 2).

Thus a short review of the anatomy of the bones of the leg shows us where to expect the deformities, and where to put forth our efforts in the line of preventive treatment.

Most cases develop at about the time the child begins to walk, for it is at this time that the legs first bear the weight of the body. The bones, already softened and pulpified in the rhachitic process, gradually yield to the superimposed weight of the body; and the result is curvature, slight at first, but slowly increasing until the maximum degree is reached.

In some cases the condyles of the femur become affected. As the deformity becomes more aggravated, more and more weight must of necessity be thrown upon the inner condyle; and the natural consequence is an atrophy, while the outer condyle increases in size and is apparently elongated. This condition about the knee-joint has sometimes been considered the cause of the deformity, but looked at in the way just described it is rather the result of deformity,

The diagnosis of bow legs is easily made. As has been shown, the child stands with the feet separated, the thighs somewhat flexed and the body tilted forward. Walking in this position results in the waddling gait which is so characteristic. There is also a tendency in these cases for the toes to turn in; and at times this position of varus is very marked. As the child stands erect, the curve looks to be a gradual one, including both femur and tibia, and in the books this is put down as the most usual distribution; but the majority of cases coming under my observation have been curved mostly in the tibia, and in these cases, as the improvement continued, it was a noticeable fact that the last portion to yield was at the junction of the middle and lower thirds, just at the point where the anatomy has led us to expect it.

The only deformity which resembles bow legs is congenital dislocation of the hips; but with the child stripped and a careful physical examination, especially with reference to the trochanters and Nelaton's line, the diagnosis is easy.

As it is a fact that the majority of the cases would become straight without treatment, it may be of interest to see what nature's method is. The first process is that of rhachitis; and in this process there is an inflammation of the bone-forming tissue. The formation of bone takes place in the inner layer of the periosteum, and in the marrow at the growing ends of the bones. When inflammation begins, these portions become very much thickened and enlarged by being filled with a spongy mass, and the deposition of the lime salts necessarily ceases. In this softened condition the bones readily yield to the weight of the body and the action of the muscles. When recovery begins, the active inflammation ceases, the spongy mass is gradually absorbed, and the mineral salts once more deposited.

Bone substance is made up of dense, fibrous connective tissue, generally lamellated and arranged in a perfectly definite manner. When healthy bone tissue begins to be re-formed and the lime salts deposited in the bone substance, this lamellated structure tends to assume its original position; hence with the re-establishment of the normal process, and with the bones slowly increasing in length, the legs are noticed to be slowly growing straighter.

All cases, however, are not cured by nature's method, as any one may prove to his own satisfaction by noticing the number of bow legs to be seen in adults on the streets of Providence. Slight degrees of curvature are not readily noticeable in the female, being concealed by the dress. During the last three or four months I have noticed thirty adult males with varying degrees of outward curvature of the legs. I have only looked for the deformity in the male, but have no doubt it would be noticed in the female if looked for. This is proof positive that some cases never become straight if allowed to go untreated; hence it would seem proper to treat every case that comes under observation.

The treatment in each case would depend upon the age of the patient and the condition of the bones.

If the patient were an infant, the condition of rickets would probably be present and demand attention. The food would be regulated, the legs rubbed or massaged daily, and the legs grasped firmly and bent toward a corrected position. If the child had begun to walk and was under four or five years of age, then a mechanical appliance would be advisable; but the manipulation just described ought to be applied morning and night just the same.

There are various appliances for bow legs but the one in most common use consists of a rigid, metallic, inside upright extending from the sole of the shoe nearly to the perineum, to which leather pads are buckled extending around the points of greatest curvature. A joint is inserted in the metallic upright for motion at the ankle, but there should be none at the knee, as motion at the knee-joint would destroy the leverage. If the toes turn in and demand treatment, a metallic arm may be added running from the top of the upright upwards and outwards over the anterior and outer surface of the thigh and being buckled in the back, the toes may be held at any angle.

When the child gets beyond four or five years of age, the bones are much firmer, and do not yield to the mechanical methods. These cases must submit to operation in order to be straightened.

Operative measures include osteoclasis and osteotomy.

Osteoclasis is a perfectly safe procedure, and is used when the curve is not too near the joints. Its use has been objected to by some on the ground that the fracture did not always occur opposite the point of pressure; but experiments made by Bradford and Lovett demonstrated that the fracture was a transverse one and always opposite the point of pressure.

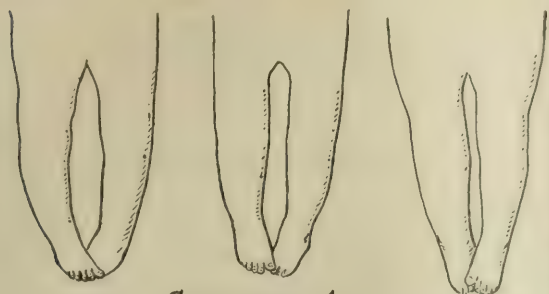
Osteotomy is to be employed in cases where the curve is near the joint, and also in the anterior curvature.

In curves with a very sharp angle it is sometimes necessary to remove a wedge-shaped piece of bone.

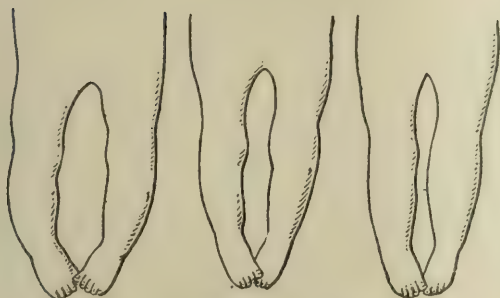
As a report of any number of cases would necessarily be a repetition, I have selected only two illustrative cases, and shall show by means of photographs the results of treatment.

CASE I. Patient was a boy, one year and eight months of age. The usual apparatus was applied. The distance between the knees when first seen, April 9, 1893, was two and a quarter inches. The second tracing was taken July 19, 1893, the distance then being one and a quarter inches. The last tracing was taken October 8, 1893, when the distance was a little less than an inch.

This patient never returned again; but in March, 1895, I accidentally met both parents with the child. They said the apparatus had been continued several months after the last office visit, and omitted when they considered the legs straight. As the boy walked away from me the legs looked straight, but I had no opportunity to get a final tracing. The photograph therefore shows the improvement obtained in six months.



Case -- 1 --



Case -- 2 --

CASE II. Patient was a girl, two years of age. Apparatus applied February 7, 1893, the distance between the knees being three and one-eighth inches. The second tracing was taken April 5, 1893, the distance between being one and seven-eighths inches. The last tracing, June 25, 1893, shows a distance between the knees of three-quarters of an inch; but at the junction of the middle and lower thirds of the tibia the distance is one and three-eighths inches. The photograph in this case shows the improvement for four months and a half.

These two cases show about how the people continue treatment in practice; but the more marked the deformity, the more likely is the patient to come as long as the physician thinks it necessary.

One point about these cases is that when seen walking, the deformity appears to be much more marked than it actually is when the feet are placed together and the tracing taken. This is due to the feet being so widely separated, as they are in the characteristic waddling gait which has been previously explained in the paper.

THE LECTURES AT THE LONDON COLLEGE OF PHYSICIANS for the coming year will be delivered as follows: The Bradshaw lecture by Dr. Bradbury; the Lumleian lectures by Sir Dyce Duckworth; the Gullstonian lecture by Dr. Mason; and the Croonian lecture by Dr. Oliver.

CATARACT OPERATIONS BETWEEN THE AGES OF EIGHTY AND NINETY, WITH A TABLE OF CASES.

BY HASKET DERRY, M.D.

INTERCOURSE with the aged is peculiarly the privilege of the ophthalmic surgeon. In that "his eye was not dim or his natural force abated," a prominent personage in the Old Testament is cited by the inspired writer as an exception to the common lot of humanity, well advanced in years. This can be said of comparatively few. Failure of vision, resulting from retinal changes or from impairment of the transparency of the crystalline lens, is relatively frequent when life is prolonged far beyond the allotted span. It is with the latter cause of blindness, cataract, that the surgeon is more frequently concerned.

This being a fairly common affection of latest life, and the only method of treatment as yet known to science being operative removal, the extent to which age should influence our prognosis becomes a very practical question. It would be difficult for one unfamiliar with the subject to realize how much both patient and family physician are apt to be misled by the feeling that the operation for cataract is not worth undertaking after a certain age. While the chances of success are popularly underestimated, the effect of the operation and confinement on the patient's general health are apt to be unduly exaggerated, and many an individual has spent his closing years in blindness which might have been greatly alleviated, if not entirely removed.

Mr. Higgins has recently published in the *Lancet* (No. 3702) a list of patients, the youngest over eighty, on whom he has operated for cataract. Among 925 cases he has found 19 who could be embraced in this category. He cites 17 cases of entire success, one of failure, and one of partial recovery of sight.

Out of a smaller number of cases of cataract I am able to give a larger number of aged patients. And although my statistics of success are not as brilliant as those of Mr. Higgins, I feel that an analysis of the histories, nearly all of which I have kept in full, will not be without interest. Cataract patients of this age are not met with every day. The longest professional career may embrace a relatively limited set of such statistics. It seems fitting that I should give in my own, as a contribution to that common fund of experience on which we are all so glad to draw.

I find that I have records of 34 cases of patients aged eighty or upwards in which I have operated for the extraction of cataract. With a single exception all these were operated on according to the method of Graefe. These I proceed to summarize in the order of their ages. There is one point to which I wish to draw special attention. The cases marked with an asterisk were treated after asepsis had become the rule in ophthalmic surgery, and it is perhaps hardly fair to compare the results here obtained with those of former years. The table is arranged simply according to age.

In explanation of the unrecorded results I would say that these cases occurred early in my practice, when the custom of making exact measurements of vision at the conclusion of the treatment was not yet fully established. These results sum up as follows:

Entire success	29 (85%)
Partial success	2 (6%)
Failure	2 (6%)
Unrecorded	1

Entire success was estimated at an amount of vision equalling one-tenth and over, the usual standard. The two partial successes had each a certain amount of useful vision. The two failures retained perception of light, but gained nothing by the operation.

No.	Age.	Sex.	Duration of Treatment.	Resulting Vision.	Remarks.
1	80	M	11 days	0.2	
2	80	F	16 days	0.1	
3	80	F	15 days	0.3	
4	80	F	15 days	0.1	
5	80	F	14 days	0.1	
6*	80	M	14 days	0.5	
7*	80	M	13 days	0.3	
8*	80	M	68 days	0.1 (nearly).	Much cortical substance left in pupil. Patient kept under observation while absorption was going on.
9*	80	F	13 days	0.2	
10*	80	M	14 days	0.4	
11	81	F	30 days	0.1.	Severe iritis ensued.
12*	81	F	17 days	0.2	
13	82	M	16 days	0.1	
14	82	M	21 days	0.13	
15	82	F	22 days	0.3.	Iritis followed a blow on eye.
16	82	F	16 days	0.3	
17	82	M	14 days	0.2 (nearly).	
18*	82	M	14 days	0.2	
19	84	F	22 days	0.05.	Patient childish and uncontrollable.
20	84	F	14 days		Perception of light. Severe iritis.
21*	84	F	15 days	0.25	
22*	84	M	13 days	0.4	
23*	84	F	14 days	0.1	
24	85	M	?	0.05.	Severe iritis.
25	85	F	27 days		Regained power of reading and writing; exact vision not recorded.
26	85	F	19 days	0.3	
27	85	M	13 days	0.5 (nearly).	
28	86	M	50 days		Regained power of reading; no record of exact vision.
29	86	M	17 days		Result unrecorded.
30	86	M	17 days		Regained useful vision.
31	87	F	10 days	0.2 (nearly).	
32	87	F	21 days		Perception of light; pupil blocked at time of discharge; did not return.
33	89	F	12 days	0.35	
34*	89	M	14 days		Recent operation; patient still under observation; can tell time by his watch, and the case is evidently a success.

Patients of eighty and upwards form a very considerable proportion of the cases of cataract that come within the experience of the average ophthalmic surgeon here in New England. According to my estimate they amount to about six per cent. of the whole number. It would seem that six per cent. of total failure, large as it would be between the ages of

sixty and seventy-five, as contrasted with 85 per cent. of success, does not form a valid reason for denying the operation to those advanced in years. The use of cocaine renders ether unnecessary, and the senile eye is moreover much less sensitive than in youth or even middle age. Under ordinary circumstances the confinement lasts but a fortnight, the patient remaining in bed only the first day. With a prospect of the recovery of sight as good as these figures show, is it right to allow a fellow-being to pass the last years of life in blindness, deterred from the operation by an unreasoning and unreasonable dread of the effect of extreme age on the result?

Clinical Department.

A CASE OF CANCER OF THE URETHRA.¹

BY A. T. CABOT, A.M., M.D.

THE rarity of a primary urethral carcinoma is my reason for putting the following case on record.

C. W. T., an elderly man, entered the Massachusetts General Hospital March 29, 1895, and gave the following history:

Thirty-five years ago he had gonorrhea, from which he entirely recovered. Nine years ago an abscess formed in the perineum through which, however, no urine passed. At that time the urine passed in a good stream, and he never noticed any trouble in urination until one year ago when he began to have some difficulty in passing water. He did not, however, have complete retention, and his condition improved somewhat under medical treatment. Nine weeks before entrance, a swelling appeared in the perineum which was painful, and confined him to bed. At the end of a fortnight it was lanced, and pus was evacuated from it. A week later the urine began to come through the opening. For a time after this he improved in his comfort; but then the swelling began to spread, and less and less urine passed through the natural passage, until all of it came through the fistula. Examination showed the perineum to be occupied by an indurated mass, extending forward beneath the scrotum, with two fistulous openings over it. The urethra was impervious to instruments, even of the smallest size, all of which were arrested at about the peno-scrotal angle.

On April 1st, the perineum was widely laid open, considerable pus being evacuated from various side pockets. The walls of the abscess were of such a sloughy character that nothing unusual was noticed at that time in the character of the case. A drainage-tube was carried through the cavity of the abscess and was brought out in front of the scrotum. The greater part of the induration cleared up in a few days, but there still remained a hard sloughing mass at the bottom of the cavity about the urethra.

Ether was again administered on April 15, 1895, and a careful examination showed this hard tissue to be distinctly of the character of a neoplasm. It extended forward to the peno-scrotal angle and backward to just anterior to the triangular ligament. The prostate was slightly enlarged, but not more than is usual in a man of his age.

A piece of the new growth was cut out for examina-

¹ Read before the American Association of Genito-Urinary Surgeons, at Niagara Falls, May 30, 1895. Microscopical sections of the growth were shown to the Association.

tion. Dr. W. F. Whitney, who kindly examined it, reported as follows: "The bulk of the fragment is composed of large solid masses of rather small, slightly cylindrical epithelial cells, separated by a relatively narrow stroma of vascularized connective tissue. The central parts of the epithelial masses, which have a more or less branching character, have undergone necrosis." The tumor was thus shown to be a cancer, of which the cells were small and cylindrical in character.

Its origin from the urethral mucous membrane, or from some of the glands associated with it, was made clear by the anatomical relations found at the operation. The tumor was separated by a wide interval from the skin and did not extend in either direction beyond the perineal portion of the urethra.

As regards treatment, the case came under observation too late to admit of any possibility of eradicating the tumor by operation and the escape of urine was perfectly free and painless after the perineum had been freely laid open. The only further treatment was directed to keeping the urine in a bland and unirritating state by the use of benzoate of soda and to diminish the discomforts of the sloughing mass in the perineum by the use of antiseptic applications.

Dr. F. Tilden Brown, in the preparation of his article upon urethral diseases, in "A System of Genito-Urinary Diseases," etc., was able to find but five recorded cases of urethral carcinoma:² those of Schustler, Thiersch, Guyon, Tyzebicky and Guiard. In four of these, exact post-mortem and microscopic examinations were made, and in all four cases the urethral cancer was found situated in the perineal portion of the canal. In Schustler's and in Guiard's cases the perineal swelling simulated an abscess and led to incision. These two cases were very like the one just reported.

In these cases, also, the carcinoma had undergone colloid degeneration and softening. In the case that I have reported, a marked feature was the tendency to necrosis of the cells in the centre of the masses of epithelium. This was easily explained by the scanty supply of nourishment supplied by the sparse connective-tissue network.

Brown says: "The origin of urethral cancer is from the urethral mucous membrane, and Thiersch has drawn attention to the possibility of its originating in the region of a stricture. Poncet and Paget record cases in which the carcinoma seems to have originated from the margin of an old fistula."

Although in my case there had once been an abscess, this had not resulted in a fistula and there had been no evidence of a stricture, although one of large calibre may have existed. The cylindrical character of the epithelial cells suggests the possibility of the disease having started in one of the mucous glands (of Littre); but the fact that the epithelium that covers the urethral mucous membrane in the bulbous portion of the canal is rather cylindrical in shape, leaves us unable to argue anything from the character of the cells.

While undoubtedly a cancer of the deep urethra is a great rarity, I can remember one case of cancer of the penis in which the disease seemed to have started in the region of the fossa navicularis. In this connection, too, it may be interesting to put on record a case in

which a cancer of the prostate extended forward into the urethra.

D. A. P., an old gentleman of seventy, had been troubled for ten years with some difficulty of urination. In September, 1894, this difficulty became much aggravated, and the straining to pass water became extreme. In November he began to suffer pain through the penis and rectum, and considerable burning as the water passed.

I first saw him February 4, 1895. He was then a thin, frail-looking man. The bladder at this time formed a distinct elastic ball above the pubes. The prostate was found to be very large and nodular. A diagnosis of probable malignant disease of the prostate was made, and the use of a catheter advised. He returned to the care of his regular physician, Dr. Frank Blaisdell, of Goffstown, N. H., and was for a time somewhat more comfortable.

I saw him again in consultation with Dr. Blaisdell, May 16, 1895. He was using the catheter twice in the twenty-four hours, and getting five or six hours of ease after its use. The examination now showed the prostate to be still larger and more nodular than at the previous examination. The point of especial interest was that at this second examination, I found a nodular hard mass, from three-fourths of an inch to an inch in diameter, extending forward along the urethra through the perineum and to the perineo-scrotal junction.

This is the only case in which I have observed the extension of malignant disease forward from the prostate along the urethra. The tendency in other cases that I have seen was to extension backward into the bladder.

Reports of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

SEVENTEENTH ANNUAL CONGRESS, ROCHESTER, N. Y.,
JUNE 17-19, 1895.

(Concluded from No. 12, page 301.)

TUBERCULOSIS OF THE UPPER AIR-PASSAGES.

A DISCUSSION on this topic was opened by DR. JONATHAN WRIGHT, of Brooklyn, who spoke of Etiology.

Recent advances in bacteriology have compelled modifications in the postulates so boldly enunciated by Koch some years ago. We now know that bacteria can penetrate epithelial surfaces, and that in the body some of them are destroyed by phagocytosis and others by fibroid induration which they themselves occasion. It is possible that tubercular infection may occur through the lymphoid tissue at the base of the tongue. Tuberculosis is a frequent disease, as is shown by the revelations of the autopsy table; but its mortality is due not so much to the bacillus as to the unhealthy environment in which many of its victims live. Doctors constantly meet with it, and yet the mortality-rate from tubercular disease is not high.

As to laryngeal tuberculosis, the corrosive sputa theory of Louis has been long abandoned. Pyogenic cocci first make a breach through the epithelium, and then the bacillus enters. The latter does not of itself cause abscess. The larynx, moreover, is protected by the peculiar wavy arrangement of its epithelial layer especially in the inter-arytenoid space, so that its lin-

² At the time that this paper was read Dr. R. W. Taylor cited a recently reported case of Oberländer's in the *International Centralblatt*.

ing can stretch during vocal strain without causing a solution of continuity. Tuberculosis of the pharynx occurs in acute miliary tuberculosis or in the later stages of lung diseases as does also nasal infection.

Dr. E. L. SHURLY spoke of the Medical Treatment.

He enumerated a large number of remedies which have been used in this disease. Locally, ice, rest of voice, chlorine gas, solution of sodium formate, and iodoform are in his judgment of positive value; also oil of cloves and oil of castor. Gavage will fortify the system, and it also reduces fever. We should give vegetable and animal diet together, and never the latter alone. Alcohol is generally irritative in laryngeal tuberculosis. We should not take away hope from our patients. A mixture of eucalyptus, cocaine and morphine will greatly relieve the painful dysphagia.

The Surgical Treatment of Laryngeal Tuberculosis was discussed by Dr. J. W. GLEITSMANN, of New York, who confined his remarks to curettement. He has found on record eight cases of total and seven of partial laryngeal extirpation for tubercular disease. In four of the former, diagnosis was made before operation, two were done for lupus, and two were regarded, before being attacked, as carcinomatous. In the latter, five were for tuberculosis one for lupus and one for supposed carcinoma.

Curettement does not, of course, exert a favorable influence upon accompanying lung disease. We are, however, justified in calling a laryngeal case cured when, even if the lung process continues, the laryngeal symptoms disappear, the parts assume a normal appearance, and the post-mortem shows a complete absence of local disease.

Indications are as follows:

- (1) Primary tubercular lesion with untouched lungs.
- (2) Cases with lung disease which is incipient or has not gone on to softening and hectic.
- (3) Circumscribed infiltrations or ulcerations.
- (4) Dense, hard, arytenoid swellings, ventricular bands on posterior wall, tubercular tumors or lesions of the epiglottis.
- (5) Cases even with advanced lung disease, with distressing dysphagia from arytenoid infiltration.

Curettement is contra-indicated:

- (1) In advanced lung disease and hectic.
- (2) Disseminated laryngeal tuberculosis leaving little or no healthy tissue.
- (3) Extensive infiltration, producing stenosis (here tracheotomy).

There is no proof that the operation has ever hastened the lung process. Cocaine will subdue pain and a mixture of lactic acid and liquor ferri chloride will arrest hemorrhage, which is generally very slight. The operation must be looked upon as analogous to the excision by the surgeon of a tuberculous joint. We remove a constant source of further systemic poisoning. The double curette easily removes the arytenoid swellings, which constitute the great cause of dysphagia.

As to technique, Heryng's single curettes are best for scraping and cleaning off ulcerations; Krause's double and Heryng's rotary instruments, for removing infiltrations; Scheinmann's forceps for sub-glottic lesions; and laterally-bent forceps for the laryngeal ventricles. Post-operation rest is absolutely necessary. Cicatrization occurs in from one to four weeks; and until it is complete daily applications should be made

of lactic acid or pyoktain in two-per-cent. strength. Better results are reached in well-defined though deep ulcerations than in shallow and more extensive ones: dense infiltrations (generally localized) do better than conditions of edema.

Dr. Gleitsmann's personal statistics are as follows: Total number of cases, twelve, all with lung disease; infiltration of posterior wall alone, two; of posterior wall and ventricular band, one; arytenoidectomies, four; same, with excision of ventricular band, three; excision of the band alone, two. In two, a second arytenoidectomy was necessary on account of recurring infiltrations. One died from heart-failure, and another from advanced lung disease. Four were without recurrence from six to ten months after operation. Of the latter group, one had an affection of the posterior wall, another of the ventricular band, and two of the arytenoid region.

THIRD DAY.

DISCUSSION ON TUBERCULOSIS OF THE UPPER AIR-PASSAGES.

This discussion was continued from the session of the previous day.

Dr. T. MORRIS MURRAY, of Washington, had seen some good results from lactic acid in laryngeal and pharyngeal ulcerations. One case had remained healed for five years.

Dr. INGALS thought that the number of cases for surgical operation was a very limited one. Some cases recover under very simple measures, but in the deeper cases we must curette. It is, however, of doubtful propriety to cut away large masses of tissue. Terchloride of iodine (one to three grains to one ounce) in solution will heal some cases of ulceration. He does not like to use cocaine, from its effects on the nervous system. Moreover, after its use, patients are less able to stand pain than before. His favorite laryngeal sedative is a mixture of tannic and carbolic acids with morphine.

Dr. DALY has seen cases heal under iodoform, with which he saturates the patients.

Dr. A. B. THRASHER, of Cincinnati, followed with a paper on

NECROSIS OF THE MIDDLE TURBinate.

This is a rare condition though ethmoid disease is a common thing. The position of the middle spongy bone and its relation to the natural openings of all the accessory sinuses makes its diseases a matter of much significance. The sinus fluids becoming pent up rapidly grow purulent.

There is no reason, apparently, why necrosis of the middle turbinate should not be more common. The development of polyps in this region from a membrane bathed in the secretion from a purulent ethmoiditis is quite analogous to aural polypi growing in the purulent discharge of an otitis media. Cysts of the middle turbinate do not necessarily lead to necrosis. Two clinical histories were given.

CASE I. Woman with severe pain on left side of nose, spreading over same side of face and head, constant, but with periodical exacerbations, and referred to a severe influenza one year before. Creamy pus escaped from under the left middle turbinate, the anterior extremity of which was swollen, and pressed on the septum and lower turbinate. The projecting mass was removed by a cold snare and found to be necrosed.

The adjacent ethmoid cells were curetted, and there had been no recurrence in four years.

CASE II. Male, aged twenty-six, with severe infra- and supra-orbital pain for two years. The right middle turbinate appeared as a large round mass, pressing out the nasal wall and filling up the middle meatus. On attempting removal with snare, it crushed, leaving a large cystic cavity. The bony fragments removed appeared necrosed. No opening was detected between cyst and ethmoid cells.

The general symptoms of this affection are (1) pain (infra- or supra-orbital) in orbit itself, and occasionally in ear; (2) discharge often offensive; (3) nasal obstruction and anosmia, but in some cases of even severe disease of the middle turbinate the breathing is not impeded; (4) obstruction of accessory sinus openings; (5) external deformity (even in orbit with concomitant ethmoidal disease); (6) various reflex neuroses.

Mild or recent cases may be cured by alkaline sprays, cocaine, scarification or incision. In older and more chronic cases, the removal of the offending mass is indicated with either cold snare, drill, trephine or serrated scissors.

Dr. Thrasher also reported a case of

CONGENITAL OSSEOUS OCCLUSION OF THE NARES

occurring in a male infant of eighteen months, well nourished but a mouth-breather, with a muco-purulent discharge from right nostril and adenoids in vault. A thin bony partition existed just at the posterior choana, and it was easily broken through with a curette.

Dr. INGALS had seen no congenital cases. He thought partial occlusion of the posterior nares very common in adenoid cases, and always made it a rule when operating for the latter condition to pass a probe or other instrument into the naso-pharynx before the patient came out of the anesthesia to determine the patency or non-patency of the nostrils.

Dr. NEWCOMB had recently removed with a cold snare and without hemorrhage a cyst from the naso-pharynx of a young man aged twenty. A portion of the growth still remained to be extirpated, and he thought that perhaps he had a multilocular condition to deal with.

Dr. S. W. LANGMAID had recently removed by avulsion a fibro-cyst of the naso-pharynx, the attachments of which forbade the use of the wire snare. No hemorrhage occurred. Recurrence of these growths was perhaps due to the fact that a portion of the cyst wall was left behind at the time of his first extirpation.

RELATION OF VASO-MOTOR DISTURBANCES TO DISEASES OF THE UPPER AIR-TRACT.

This topic was discussed by Dr. W. H. DALY, of Pittsburg. He reiterated his well-known views, speaking of the usual turgescence condition so frequently found in catarrhal and hay-fever conditions and of the pallid variety where we had a leakage of serum from the parts. He was able to report a cure by intra-nasal treatment in 63 per cent. of asthma cases due to the catarrhal condition, and in 40 per cent. of the spasmodic variety. He concluded that

(1) Abnormal disturbances of a vaso-motor nature may be primary or secondary.

(2) Both may be coactive and progressive.

(3) The surest and quickest relief is afforded in

those cases in which surgical interference finds a proper election.

Dr. MULHALL thought that there were two kinds of vaso-motor disturbance, the pallid and turgescence, just as anger makes some people grow white and others red in the face. Diet and exercise will frequently relieve these cases without any further treatment. He advocates cold-water frictions, mild galvanism, atropia to be taken mornings on an empty stomach, and one-drop doses of Fowler's solution after meals.

Dr. SIMPSON thought that in many instances the reflex theory was false, as we would find on thorough examination of our cases some causative lesion near the seat of the disease we had to treat.

THE CIGARETTE HABIT.

This was the title of the closing paper of the Congress read by Dr. J. C. MULHALL, of St. Louis.

The evils of cigarette smoking are largely due to the habit of inhaling, and therein this method of using tobacco differs from all others. The smoke does not go below the first division of the bronchi. The result of inhalation is, physiologically speaking, a pleasurable irritation of the laryngeal and tracheal filaments of the pneumogastric nerve—a sort of nicotine satisfaction. This is in amount according to the absorbing surface, which from the added laryngeal and tracheal areas has been estimated to be three times as great in inhalers as in non-inhalers.

An inseparable evil from cigarettes is the frequency with which they are smoked. Hence the "deadly" habit. The effect of this frequent smoking of a small amount of tobacco is comparable to the mere acid effect which we can obtain by giving a definite amount of drug in divided doses. The constitutional effects are those of tobacco in any form, and upon the young they are especially pernicious. Cigarettes may be said to teach the use of tobacco. They are cheap and easily procurable. Moreover, the first cigarette never nauseates as does the first cigar. Locally they may aggravate a pre-existing sore throat, but they do not themselves cause any throat disease worthy of the name. Nothing occurs beyond a slight hyperemia, with perhaps an insignificant catarrh. An occasional bronchial r  le may be heard, and sometimes a pearly, viscid drop of mucous is expelled by a single effort of coughing.

Dr. INGALS differed from the writer of the paper as to the harmlessness of tobacco. He had seen it produce a distinct tracheal cough.

Dr. SEILER thought that much of the local effect of tobacco came from the frequent habit of spitting, particularly with cigar and pipe smokers, whereby an abnormal dryness of the pharynx was brought about.

Dr. LANGMAID believed it possible to tell by the color of the pharyngeal mucosa whether a man smoked or not. The especially bad effect of tobacco on the young lies in the fact that it destroys the habit of consecutive thought by means of its insidious narcotism.

During the Congress the following papers were read by title: "Foreign Bodies in the Esophagus," by Dr. Harrison Allen, Philadelphia; "The Influence of Chronic Diseases of the Throat upon Certain Defects of Speech," by Dr. D. Bryson Delavan, of New York; "Is Acute Tonsillitis in any way dependent upon the Rheumatic Diathesis?" by Dr. Geo. B. Hope, New York; "Cyst of the Maxillary Sinus," by Dr. Charles

H. Knight, of New York; "Pemphigus of the Pharynx and Larynx," by Dr. M. R. Brown, Chicago; "Compensatory Arytenoid Movement," by Dr. Wm. Porter, St. Louis; "A Study in Diphtheria," by Dr. S. Hartwell Chapman, New Haven.

The following gentlemen were elected to Active Fellowship: Drs. J. E. H. Nichols and F. E. Hopkins, of New York, J. E. Boylan, of Cincinnati, and Thomas Hubbard, of Toledo.

Pittsburg, Pa., was chosen as the next place of meeting, the time to be determined by the Council.

The following officers were elected for the ensuing year: President, Dr. W. H. Daly, Pittsburg; First Vice-President, Dr. Jonathan Wright, Brooklyn; Second Vice-President, Dr. O. W. de Roaldes, New Orleans; Secretary and Treasurer, Dr. H. L. Swain, New Haven, Ct.; Librarian, Dr. J. H. Bryan, Washington.

AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-FIRST ANNUAL MEETING, BOSTON, JUNE 5, 6 AND 7, 1895.

FIRST DAY. — MORNING SESSION.

THE President, Dr. PHILIP COOMBS KNAPP, of Boston, delivered the opening address.¹

DR. J. ARTHUR BOOTH, of New York, read a paper on

HYSTERICAL AMBLYOPIA AND AMA ROSIS — REPORT OF FIVE CASES TREATED BY HYPNOTISM.

Hysteria we might define as such a condition of the general nervous system, original or acquired, as rendered it capable of simulating most local diseases, of complicating them in their progress and modifying them in their associated phenomena. This special form, not due to alcohol or tobacco, was by no means common. The onset, usually sudden, followed some shock either mental or physical. The globe of the eye did not present anything abnormal, except in a certain number of cases some anesthesia of the cornea. Media, lens, vessels and fundus normal. The patient complained of defective vision, supra-orbital pain and great sensibility to light. There might be absolute loss of sight in one eye. Also local and general symptoms of hysteria.

CASE I. Amblyopia, contraction of the fields of vision, restored after twelve seances.

The patient, age sixteen, single, was seen first June 12, 1894. Always nervous; otherwise no trouble until appearance of menstruation two years ago. During the first year suffered much pain each month. For the past year menstruation irregular, now absent two months. During past six months patient much depressed, emotional; had two convulsive seizures of hysterical nature. One month ago brother committed suicide, and immediately after this she noticed failure of vision, at times becoming entirely blind for a few seconds.

No organic lesion of the nervous system discovered. Any attempt to examine the eyes caused spasmodic closure of the lids. Pupils moderately dilated, and reacted normally. Vision of right eye twenty-fifteenth; left, twenty-fortieths. Fields of vision very much contracted. After seven seances, fields markedly improved. Treatment by suggestion continued until Au-

gust 15th, when the patient was discharged with perfectly normal fields, and vision perfectly restored.

CASE II. Amblyopia, contraction of visual fields. Improvement after six seances.

The patient was a male, age twenty-eight. General health good up to eighteen months ago. After business troubles and excesses, became depressed and nervous. Six months ago periods of temporary blindness. Two months later vision blurred, which condition persisted when first seen March 29, 1895. Never diplopia. During last month more or less occipital headache. Emotional. Gets confused sometimes. Urine normal. At one time herpes preputialis; and, being told it was due to syphilis, he thought all the symptoms due to this disease. Stands well with eyes closed. Knee-jerks equal. Speech normal. Pupils equal. Muscles all act well. Optic nerves and retinal vessels appear perfectly normal. Visual fields very much contracted. No loss of color perception. No loss of power. Hypnotized. Treatment continued two weeks, resulting in disappearance of many symptoms. Visual fields still somewhat contracted. On April 12th, more or less pain of the abdomen for several days. Passed a number of links of tænia. Proper treatment instituted. Two worms obtained with heads. Three days later, eye symptoms all disappeared. Visual fields normal and have remained so.

CASE III. Monocular blindness, cured in five seances.

The patient, age thirty-eight, married, was seen November 23, 1892. Perfectly well until one month ago, about which time became depressed, and had a number of crying spells. Three weeks later, pain in the left eye, accompanied by blurring of vision, which gradually increased until for three days past there was complete blindness in this eye. Three healthy children. No miscarriages. Complete loss of vision in the left eye. Vision in right eye normal, pupils active and normal in size. No color paresis. On exposing eyes to a bright light, there was a certain amount of photophobia. Ophthalmoscope showed nothing abnormal. With exception of slight amount of anesthesia of the cornea, no sensory changes. Hypnotized. November 25th, recognized a clock on the wall, twelve feet distant. Pain gone. December 9th, perfectly well, no pain, vision entirely restored.

CASE IV. Monocular blindness.

The patient was an Armenian, age eighteen, married, two children, no miscarriages. Fairly well up to past month. At this time became depressed, emotional; complained of lump rising in the throat. Few days ago some headache and failure of vision in the left eye; could not distinguish any object at any distance. Can distinguish light from darkness. Anemic. Pupils moderately dilated, left not reacting as actively as right. Fundus normal. Diagnosis of functional amaurosis made. Hypnotized. Complete recovery after six seances.

CASE V. Monocular blindness. No improvement by any treatment.

The patient was fourteen, single. Perfectly well up to eighteen months ago. Fell on the ice, striking the back of the head. Did not vomit or lose consciousness; was frightened and jarred. Menses appeared shortly after; never regular. Two months after the accident, headache — chiefly frontal, sometimes in occiput and back of neck. May 5, 1894, under treatment for dimness of vision. Almost total

¹ See Journal, vol. cxxii, No. 23, p. 557.

loss of vision in the right eye without change of the fundus vessels or discs. In the hospital had two epileptoid attacks hysterical in character, and frequent crying-spells. Treatment with strychnia, iron, etc.; no improvement. Complete loss of vision in right eye. Field much contracted in all directions. In a moderate light pupils dilated, right little larger. Marked loss of sensation of the right eye. No anesthesia of the face, body or extremities. Colors recognized. Knee-jerks exaggerated. Hypnotism tried and failed.

Amblyopia or amaurosis in hysteria might be light and temporary or severe and long. If the condition persisted any length of time and alteration of nutrition or any morbid process be set up by prolonged disturbance, it was probable that the condition would change into amaurosis from inflammation or congestion. This latter condition he believed had taken place in Case V.

He thought we possessed in suggestion an important aid in the treatment of this condition. He recommended its use early, instead of waiting to try other methods.

DR. DERGUM, of Philadelphia, said that the fact that in all these cases the color perception was normal, was interesting in view of the statement of certain foreign and American observers, that in hysteria the color field was very often reversed. In his own experience this reversal was not as common as we had been led to think.

DR. PRINCE, of Boston, asked whether Dr. Booth had made tests while the patient was hypnotized to ascertain whether the patient really recognized objects which were claimed not to be seen in the waking state. He referred to the experience of a French observer who showed that a certain proportion of these hysterics with apparent blindness were not really blind. He had demonstrated in a certain number of cases in hysterical people that loss of vision, of hearing, of sensation did not exist in reality. In regard to the pathology of these cases it seemed to him that the sensory nerves were not connected with that portion of consciousness which was awakened at the moment, but that in the hypnotic state that connection returned. He doubted whether that was an universal law. He also believed that the person with monocular blindness had that blindness so long as one eye was open, but had binocular vision when both eyes were open. If that were true the ordinary tests for the detection of simulation and persistence of blindness were not applicable to cases of hysteria.

DR. BOOTH, of New York, said these cases were thoroughly tested for binocular vision, and in the cases of monocular blindness they all showed that they did not have binocular vision with the prism test.

DR. WALTON, of Boston, said he agreed with Dr. Prince regarding the probability of hysterical amaurotics really seeing more than they realized they did, through lack of activity of the higher centres. When, however, we had to deal with medico-legal cases, it was not a sufficient demonstration of genuineness to prove that the patient saw what he claimed that he did not see. There was a link wanting in the chain of evidence, even if we acknowledged that he was not necessarily simulating, but might be a victim of hysteria. It seemed to him we were in danger of regarding cases as genuine hysteria because they followed certain types, whereas the variations of hysteria were so great that hardly an anomaly could be imagined

which might not be included under this diagnosis. For example, none of Dr. Booth's cases saw with the blind eye when binocular vision was tested by prisms, a condition the exact converse of that described by Dr. Prince.

DR. GEORGE J. PRESTON, of Baltimore, described

A CASE OF TOTAL HYSTERICAL ANESTHESIA IN THE MALE.

Loss or alteration of sensation was a most constant characteristic of hysterical stigmata. Total anesthesia was very rare.

The patient, age thirty-one, was a plasterer, family and personal history unimportant. A fairly temperate man. Christmas night had been drinking, and was kicked in the face. Some slight ecchymosis about the face. Breathing very rapid for a day or two. The day after entrance a patch of anesthesia in the left parietal region was noted. There had been no injury to this part of the scalp. General anesthesia developed. Tactile and pain sense lost, cornea insensitive, temperature sense gone, and muscular sense impaired. The patient not able to distinguish between quinine and sugar. Unable to distinguish between various odors. Hearing impaired. Marked constriction of the visual field and reversal of the color fields. The visual fields examined a great many times with great care. Superficial and deep reflexes normal. Electrical reactions normal. Patient was hypnotized on January 28th, and while other suggestions were potent, the suggestion that sensation had returned had no effect. Hypnotized several times a week, and same suggestion made. By middle of April marked improvement. Visual field cleared up rather gradually. At present he has regained normal sensation in all respects. No suspicion of the genuineness of the case.

DR. JACOBI, of New York, said he had seen a number of cases of hysterical anesthesia, particularly among the insane. He has had a case recently in a girl who had anesthesia over the entire surface of the body, was partially deaf, taste affected, sight not affected. With eyes closed there was absolutely no sign of ataxia in the case, which seemed an interesting observation. He had observed that women with total anesthesia of the skin presented points of pain upon deep pressure. The fact that notwithstanding the anesthesia and analgesia of the superficial tissues, there should be pain upon deep pressure seemed to him rather characteristic of hysteria.

DR. WALTON, of Boston, said that it had been claimed that a patient could not be simulating because the visual fields taken at different times always corresponded. That was in line with the view already advanced that constancy of anesthetic boundaries, pressure on the dynamometer and similar tests established genuineness in claimants for damages. He was not prepared to accept that dictum. When we considered the variations of anesthetic boundaries, dynamometric pressure and visual fields often found in genuine cases, variations for which we must make due allowance before we declare a claimant a fraud, we should not be too hasty in regarding a case genuine because his answers come within these limits, nor even necessarily because he maintained the greatest exactitude. His own tests would lead him to believe that an intelligent and practised simulant could maintain even greater constancy in some of these sub-

jective tests than the average genuine patient is likely to do.

DR. LESZENSKY, of New York, said that it was impossible even for an ophthalmologist to simulate successfully regarding the parametric chart. There were many means by which simulations might be overcome.

DR. PUTNAM, of Boston, said that the point raised by Dr. Walton was real and practical. No one who studied these cases much thought that they were absolute. There was no doubt that the hysteric varied from day to day under various circumstances. Having seen vast numbers of these cases and putting the comparatively accurate information we got from these tests, together with what we knew of the laws of hysteria and the laws of the person in health, we did form, it seemed to him, in almost every case an accurate judgment. Persons in health were what one might call hysterical to a certain degree. The explanation of the peculiarities of the field of vision depended largely upon certain methods of attention, and one saw evidences of that attention or lack of attention in daily life.

DR. PRESTON, in closing and in answer to questions, said that there was no disturbance of motion in this case. The muscular sense was only slightly impaired. The man possessed a relatively good idea of the position of his limbs. He had seen two cases somewhat similar to the ones Dr. Jacobi alluded to, one clearly insane in which there was total anesthesia, and in the other case he was unable to say whether the anesthesia was purely hysterical or not. As to the point raised by Dr. Walton as to the importance and usefulness of the visual test, he thought it the best test we had, and that it could not be successfully simulated. He agreed with Dr. Putnam that we were to judge of hysteria by the *tout ensemble*. To specialists it was the general impression the case made, and not any single symptom or set of symptoms. We were too apt to forget that hysteria had nothing to do with the peripheral organs. The peripheral organs might send in all sorts of stimuli, but they were received and interpreted in very different ways. While we were ignorant of the true pathology of hysteria, we knew that the disturbance was more or less transient, that under the influence of certain strong stimuli the cells might be made to functionate. The cell might very rapidly regain its power, so that in considering the genuineness of the various symptoms he thought we were liable to regard the peripheral rather than the central organs.

(To be continued.)

TER DIE. — It is not always good to be too curious, especially if you happen to be a hospital patient. One such was greatly concerned about what the physician wrote on the card at the top of his bed. While the nurse was not watching he took down the card, and immediately set up a great hullabaloo, groaning and sobbing in a dreadful manner. The nurse came to him asking him what was the matter. "Oh dear, oh dear!" was the response, "I've got to die!" "What is it? Do you feel worse?" asked the nurse in tender tones. "Not particular, mum, but I've got to die. The doctor has wrote it on my ticket." The poor fellow had so interpreted "ter die," and it was difficult to calm his fears. — *Exchange*.

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THE LAW OF COMMITMENT OF THE INSANE.

AMONG the notable papers read at the recent Medico-Legal Congress (a somewhat heterogeneous gathering) in New York City, was one by Albert Bach, a lawyer of New York, on the necessity of greater care in the commitment of the insane. It was alleged that the laws of New York State are especially lax in this particular. The ground was taken that it is possible under existing conditions, not only to commit a sane person to a lunatic asylum, but also to release from confinement a dangerous lunatic. It was argued that a law which permits incarceration in an asylum upon the mere certificate of two physicians, without any hearing of the accused, is contrary to the constitution of the United States.

Mr. Bach insisted that such commitments should never be made except after a full hearing by a judge of a court of record or a jury, with full notice to the accused, and, if practicable, in his presence, and at said hearing the accused must be represented by counsel. The notice to the accused should put him in possession of all the facts and charges, including the grounds and reasons for attempting to have him committed, with the names of his accusers. It should be the rule of the court to appoint alienists of undoubted eminence to pass upon the question of the sanity of the accused, and it was urged "that the utmost publicity is conservative of the ends of justice, and is of more consequence than the wounding of sensitive feelings by the notoriety of the publication."

We have practically in this State the principal legal provisions and restraints on whose importance Mr. Bach so much insists; and where the requirements of our laws are faithfully carried out, the danger of improper commitments is really very slight. It is not true that in Massachusetts a person can be sent to an asylum solely on and because of the sworn statement of two physicians that he is insane. Much prominence is given to the part of the judge, in said commitment; the latter must be an officer of a judicial, probate or

police court, and on him devolves the responsibility of the issuance of the committal papers and of any hearing or investigation that may be deemed necessary; said judge is required by law to see and examine the person alleged to be insane or to give a satisfactory reason why he has not done so. The statute also provides that the judge, as far as he deems it practicable or desirable, shall give the accused a hearing. The summoning of a jury is to be left to the judge's discretion.

It is apparent that in the great majority of instances, all this cumbersome court and jury machinery is altogether unnecessary; much expense and delay would be thereby occasioned, and this especially when expert alienists are summoned; and it has been found that practically the interests of the community are better subserved by leaving it to the judge's discretion whether a jury shall be called and a public hearing given to the alleged lunatic and his attorney; and thus there is a minimum of the "red tape" methods complained of in legal transactions. Where the individual to be committed is a pronounced dement or a furious maniac any public hearing, with serving of papers, etc., would be little better than a farce. In difficult cases of paranoia with cleverly concealed delusion, the opinion of the ordinary jurymen would be of but little value as compared with that of the physician who has watched the case day after day. The simpler the legal machinery, the more satisfactory oftentimes the execution of the law, as is exemplified in the superiority of the present medical-examiner system in this State over that of the coroner and jury which it superseded. As there are occasionally cases which the medical examiner must refer to the courts, so in vexed question relating to the commitment of an insane person the judge may have to call in the help of experts, or order a full public hearing or trial. To make such cases the rule rather than the exception would be to accomplish by roundabout, cumbersome and expensive methods what can be better accomplished by direct, simple and much more expeditious means.

Concerning the mental condition of the majority of persons who are sent to asylums there can be little or no doubt, and "expert" opinion is not necessary. While the law on our statute-books leaves large discretionary power to the judge in any given case, he cannot issue a warrant for the arrest and committal of a supposed lunatic till such warrant shall be countersigned by other authorities, as the mayor, selectmen or clerk of the overseers of the poor; and the commitment papers must contain the affidavits of two registered physicians "of standing, character, and professional knowledge of insanity satisfactory to the judge," and they must within five days have examined the alleged lunatic and certified to his insanity. It has been heretofore regarded as sufficient that the physicians making affidavit shall state that in their judgment said person is a lunatic and a proper subject for treatment and custody of one of the State lunatic hospitals; they were not required to give the reasons

for this opinion. It has therefore been possible to commit as a lunatic a person not a "lunatic," but only an inebriate (registered as a "dipsomaniac") for purposes of reformation; this is probably a perversion of the objects for which insane asylums were created. It will, however, be less easy in the future to send "dipsomaniacs" to asylums of lunacy, as the new blanks issued by the State Board of Lunacy and Charity, now coming into general use, will not favor such committals, as any one familiar with these forms well knows. These blank forms, though not absolutely obligatory "to the exclusion of other suitable forms containing the required statement of facts" are destined to supersede the older forms, as the judges furnishing them are anxious to carry out the wishes of the Board of Lunacy and Charity. These forms require an explicit statement of the reasons why the doctors have adjudged the person to be insane, that is, by changed demeanor, and things said and things done, which are cited. It will be seen how much more difficult would be the certification by physicians of insanity in a doubtful case. "General impressions" will not do, nor will mere compliance "with the wishes of the family," or of a medical *confrère*; substantial reasons are demanded.

It has been objected that the new form is too prolix, imposing too much work on the doctors and making the commitment of a lunatic difficult, but the change is a step in the right direction, being another safeguard to the rights and liberties of the citizen. It is also to be noticed that the physician's fees have been raised to a standard commensurate with the extra work. This form first requires a statement of facts in answer to twenty-four questions, this statement embodying the entire previous history of the person for whom commitment is desired, the causes which led up to the insanity, the character of the insanity, the habits of the patient as to the use of liquor, tobacco, opium, etc. In this part there is not much variation from the form heretofore in use (Public Statutes, 1882). The two physicians are then required "to make oath and depose" as follows (we quote from the form provided by the State Board of Lunacy and Charity and ordered to go into effect May 19, 1895):

- (1) That I am legally qualified to act as examiner in lunacy.
- (2) That within five days prior to the date of this certificate, namely, on the — day of — 189—, I, the subscriber, personally examined with care and diligence A. B., a resident of — in the State of — and as a result of such examination, find and hereby certify to the fact that said A. B. is insane, and a proper person for care and treatment in some hospital, asylum or other institution for the insane, as an insane person under the provisions of the statute.
- (3) That I have formed the above opinion upon the subjoined facts, namely:
 - (a) Facts indicating insanity, personally observed by me, as follows:

The patient said [Here state what was said to the examiners].

The patient did [Here state what the patient did in the presence of the examiners].

The patient's appearance and manner was:
 - (b) Other facts indicating insanity, including those communicated to me by others, are as follows: [State if there has been any change in the patient's mental condition and bodily health, and if so, what?]

(4) That the answers contained in the statement are true, to the best of my knowledge, information and belief.

The above statement, sworn before the judge, is accompanied by the endorsement of that official, and the other documents prescribed by the Public Statutes, and a copy of each physician's certificate of insanity is mailed to the State Board of Lunacy and Charity by the superintendent of each lunatic hospital and asylum within forty-eight hours after the commitment of each person adjudged insane.

These provisions for the commitment of the insane seem to us to meet the desideratum fairly well, while, doubtless, still susceptible of improvement. As for the possibility of the "release from confinement of dangerous lunatics," we believe that the rules governing our asylums in the discharge of patients render this danger one of almost infinitesimal proportions.

ACNE AND THE SEBORRHEIC CONDITION.¹

INDIVIDUALS with an "acne skin," according to Schütz, are seldom affected by eczematous, vesicular and exudative cutaneous eruptions, while they are predisposed to a variety of affections of the sebaceous glands. This predisposition is often hereditary, so that the same form of acne, as well as of the secondary affections, is often found running through the members of the same family. In acne patients the skin is usually thick, with enlarged sebaceous glands, the hair of the head is strongly developed, and the brunette type is observed in 70 per cent. Acne in persons with red hair is extremely rare. He considers that acne is more common in those who dwell in cities. There is often a predisposition to nasal catarrh. In males the development of the beard is scanty in places, while in females there is a tendency to a growth of hair upon the lips or cheeks. The sweat secretion is often greatly increased, hyperidrosis of the hands and feet being frequently observed.

The question is asked, if the course of an acne affords any indication of the etiology. Acne vulgaris usually disappears spontaneously in time (in from ten to twenty years), or is converted into a new form. The development of acne pustules does not occur without order, but preserves on the average a definite type. A certain symmetry in their localization may often be observed. There is also a certain order observed in the general course of an acne, juvenile acne beginning upon the forehead and slowly progressing downward. The influence of the nerves upon glandular activity has been satisfactorily demonstrated. For these reasons Schütz considers acne vulgaris not an idiopathic process, but a reflex symptom of a mild, chronic disturbance of development, arising at the period of puberty. Just what this disturbance is we do not know, but the writer is inclined to believe that the development takes place too early, too slowly and incompletely. Comedones are regarded as not necessary for the production of acne, as they may occur in later

years without a sign of acne. General disturbances, such as anemia, chlorosis, digestive disturbances, etc., are regarded as factors that may influence the course of an acne, but not as of general etiological importance.

To the complications of acne that are ordinarily accepted, such as comedones, milia and seborrhea, the writer would add, seborrhea sicca capillitii, falling of the hair, and finally, especially when the acne has run its course, eczema seborrheicum and other acne forms, such as acne rosacea.

These complications are so frequent that they form a picture, together with simple acne, which may be called the seborrheic condition. The acne is not always the first disorder met with, a seborrhea capitis having often preceded. Women are to some extent an exception to this rule. By regarding these affections, therefore, together, an important indication in therapeutics is obtained. It is seldom that we have to treat the acne alone — comedones, affections of the hair and seborrhea also claim attention.

The indications for treatment are local measures for the acne and the seborrheic condition, as well as prophylactic treatment to check them; the amelioration of general conditions which affect the course unfavorably; and the regulation of the developmental disturbances of puberty, as far as possible.

With regard to local treatment the writer rehearses the advantages of hot-water applications and the use of soaps, warning especially against soaps that contain glycerine, as he considers glycerine always contraindicated upon a seborrheic skin. Sulphur in the form of powder or mixed with water, and sulphur, naphthol, camphor and resorcin ointments are well spoken of. Animal fats are to be avoided as ointment base — vaseline, lanoline, and a mixture of the two, perhaps diluted with liquid paraffine, being preferred. Pastes are effective, mineral constituents being preferred to starch and the vegetable powders. Salicylic-sulphur pastes, from two to ten per cent., are recommended for the mild forms; resorcin pastes, from five to fifty per cent., for the medium grades; and for the severer forms Lassar's naphthol paste.

For seborrhea sicca of the scalp, ointments of sulphur and salicylic acid are regarded as almost specific. It is seldom that stronger remedies, such as five to ten per cent. pyrogallic acid ointment, resorcin and chrysarobin ointments are needed. The writer regards eczema seborrheicum as auto-inoculable, and for this reason all parts of the skin must be taken into consideration and none forgotten. Daily changing of the underclothing is recommended and the avoidance of woollen garments next the skin. Considerable space is occupied in the consideration of the measures of general hygiene to be adopted, of the proper regulation of the diet and of the management of anemic and intestinal derangements.

Besides the juvenile acne that follows a descending course, and the acne rosacea of middle life that spreads centrifugally, the writer recognizes a third form that

¹ Schütz: Arch. f. Derm. u. Syph., 1895, 2 Heft.

has been described by some authors under the name of *acne menti* or *acne menstrualis*. This form is usually indurated or of a small pustular character, which begins upon the chin, spares the outer portions of the face and in the course of time extends upward. This form is met with only in women and appears either at puberty or at the menopause. It is seen also about the alæ of the nose, and finally about the eyelids. It is usually accompanied by disturbances of the generative organs and has an exceedingly obstinate course.

MEDICAL NOTES.

YELLOW FEVER.—News comes from Florida through a vessel recently arrived at Pensacola, that both yellow fever and small-pox are prevailing at Pernambuco. There had been one death from yellow fever during the voyage.

WISCONSIN'S CHOLERA FUND.—The Legislature of Wisconsin has appropriated \$50,000 as a contingent fund to be used by the Health Board, if necessary at any time during the next two years, to prevent the introduction of cholera.

BRUTAL ENFORCEMENT OF QUARANTINE REGULATIONS.—It is reported that a man suffering from small-pox was recently expelled from Arkansas and refused admittance into Mississippi. As he could not well remain in or on the Mississippi River until the disease ran its course, he attempted to evade the quarantine and land on the river bank in the latter State, but was shot and killed by one of the quarantine officers.

A SUPRA-RENAL EXTRACT.—It is reported in *Comptes Rendus* that M. Gourfein has succeeded in separating from the supra-renal capsules a toxic substance which seems to act as a potent depressant, inasmuch as the animals injected with it appear to lose strength and to fall down as if paralyzed, though they are not so, and death speedily follows.

THE COST OF A MEDICAL EDUCATION IN LONDON.—According to the *British Medical Journal*, the minimum cost of a medical education in London will vary between about \$3,700 and \$3,000 for the five years' course, according as one of the more expensive or less expensive schools is selected, vacation expenses not being included in the estimate. This would make the annual expense vary from about \$800 to \$600 a year without vacation expenses.

AN ARMY MEDICAL BOARD.—A medical board will be in session at Washington, D. C., during October of this year, for the purpose of examining candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before October 8th for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from

which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between twenty-two and twenty-nine years of age, and a graduate from a regular medical college, as evidence of which, his diploma must be submitted to the board. Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

THE SHAZADA'S PHYSICIAN.—The Shazada, during his recent visit to England, was personally attended by Miss Hamilton, M.D., who furnished weekly reports to his father, the Ameer of Afghanistan, of his condition during his stay. Miss Hamilton is a graduate of the London School of Medicine, who so endeared herself to the Ameer by her attendance upon him during an attack of gout, that he would entrust the care of his son during his visit to foreign lands and climes to no one but herself.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, September 25, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 77, scarlet fever 20, measles 4, typhoid fever 48.

KINGSTON WATER-SUPPLY.—It is reported that the water-supply of Kingston, Mass., is infected by lead. About twenty-five cases of poisoning have been observed, and there is general agreement on the part of physicians as to the source of the poison. The matter is now in the hands of the State Board of Health.

THE NEW MCLEAN HOSPITAL.—An invitation is extended by the trustees of the Massachusetts General Hospital and the physicians of the McLean Hospital to the officers of kindred institutions, the physicians of Boston, Belmont and elsewhere, and the town officers of Belmont to inspect the new McLean Hospital, Waverly, on Tuesday, October 1st, from eleven o'clock till three. Ladies are invited, and there will be a luncheon at half-past twelve o'clock. On Wednesday and Thursday, October 2d and 3d, from one to four P. M., the general public are invited to inspect the buildings.

NEW YORK.

A NEW ANTITOXIN PLANT.—The Pasteur Institute has just purchased thirty-five acres of land near Tuxedo Park on which will be established an experiment station. It will be stocked with cows, horses, sheep and goats and these will be used for the purpose of producing antitoxin for the prevention and treatment of diphtheria and cancer. The situation is very salubrious, and on the grounds there will be a house in which some of the patients of the Institute will be treated. A new station is to be established on

the Erie Railroad here by, which will be known as Pastoria.

A DEATH FROM ELECTRICITY.—James T. Davis, an electrician, twenty-seven years of age, was accidentally killed on September 17th, by coming in contact with a live wire while engaged in stringing a wire for the new trolley road of the Union Railway in the western district of the city. The current which passed through his body is said to have been of the strength of 550 volts, a considerably smaller voltage than in the case of the two workmen who sustained a similar shock during the past few months at Boston. A physician, Dr. Buchanan, who was passing at the time, located the main principle, but all efforts at resuscitation proved fruitless.

PRECAUTIONS AGAINST CHOLERA.—The quarantine authorities are taking every precaution against the introduction of cholera into the port of New York. The British steamer *Mermaid*, which arrived from China and Japan on September 23rd, owing to the prevalence of the disease in those countries, was detained at quarantine although there had been no sickness of any kind on board during the voyage, and the crew temporarily removed to Hoffman Island while the vessel was thoroughly cleaned and disinfected.

OPENING OF THE NEW UNIVERSITY BUILDINGS.—The Council of the University of the City of New York has fixed upon Saturday, October 13th, as the date for the formal opening of the new buildings on University Heights, overlooking the Harlem River. A married steamer will convey the faculty and students of the Medical Department from the dock in East 15th Street to the landing at University Heights, and a special train on the Manhattan railroad from New York and Northern Railroad will carry the students from the new Law Department, which has been erected on the site of the former University buildings on Washington Square. Governor Morgan, Mayor Strong, the Chancellor of the Board of Regents of the State University at Albany, and the representatives of the Medical Society and New England Association of Universities and Colleges and of colleges in the West and South have been invited to be present on the occasion. At the last meeting of the Council the Chancellor of the University announced that gifts amounting to between \$50,000 and \$60,000 had been received during the summer.

ENLARGEMENT OF THE NAVAL HOSPITAL.—The old United States Naval Hospital in Brooklyn, which was built in 1822, is now being enlarged and greatly improved. Congress, during its last session, at the urgent request of Surgeon-General Dyren, backed by the Secretary of the Navy, appropriated the sum of \$50,000 for this purpose. The changes consist mainly in enlarging the interior of the old building and incorporating most of the yards in accordance with modern requirements, and, finally, the construction of two new buildings. The principal of these will be a brick, three stories high. On the first floor will be

the mess-hall of the convalescents and a private dining-room for the officers, on the second, the dispensary, and on the third, a completely equipped operating room and its adjuncts. This will have tiled floors, enamel-wal-papered furniture and fittings, operating tables of enamel-wal-paper and glass, glass cases for instruments and glass sinks and lavatories. In connection with the operating room there will be a "recovery" room, a storeroom and a surgeon's chamber and laboratory for use before and after operations.

DEATH OF DR. NELSON LEAH.—Dr. Nelson Leah, said to have been the oldest living graduate of the Yale Medical School, died at his home at Little Falls, New York, on September 18th, at the age of ninety. He received his degree of M.D. in the year 1823. During the Civil War he was surgeon of the 11th Regiment, New York Volunteers.

Disciplinary.

MEDICAL MEN AND MEDICAL LEGISLATION.

THE *Practitioner*, in a recent editorial, calls attention to the decided amount of influence upon legislation with respect to the public health which can be brought to bear by the representatives of the medical profession in Parliament at present. The editor somewhat roughly remarks that, apart from politics, commercial influences are predominant in the House, and questions relating to public health are looked at through the distorting medium of trade interests, and calls attention to the fact that a much larger influence of the medical element is required. The actual number of medical members of the present Parliament is only ten, and of these seven are Irish and two Scotch, leaving only one for the English nation, except a fact, which is, from the *Practitioner's* point of view, not creditable to the public spirit of the British profession, nor indicative of a proper interest on their part in medical legislation.

"Strictly speaking," says the *Practitioner*, "the medical profession has only two representatives—Sir Walter Foster and Dr. Robert Farquharson—both of them tried and wise men, but what are they among so many? It is a pity that the profession owes to the State not less than to itself to make a more active part in public affairs. It is evident that it will never take the place which rightly belongs to it in the national life until it can make its influence felt as a factor in the national movement."

A general lack of interest on the part of the medical profession is to be feared, and more than is present on this side of the water is in France, Germany. It is undoubtedly to be accounted for by several natural causes, among which may be mentioned the crushing nature of the profession, and the fact that the enormous demands of his professional work leave to the busy practitioner no time to be spent in investigating and working for the public health. Active participation in the legislative work would be impossible for most active practitioners, on account of the time required in attending the long legislative sessions, which would mean suspension of practice during the whole period. Then there are the training of officers and the subordi-

ing-cough 34, scarlet fever 11, cerebro-spinal meningitis 8, erysipelas, malarial fever and measles 7 each.

From whooping-cough New York 19, Brooklyn 7, Philadelphia 6, Boston and Pittsburgh 1 each. From scarlet fever Philadelphia and Brooklyn 2 each, New York, Boston, Worcester, Cambridge, Lynn, New Bedford and Pittsfield 1 each. From cerebro-spinal meningitis New York 4, Lynn 2, Worcester and Fall River 1 each. From erysipelas New York 3, Philadelphia, Boston, New Bedford and Haverhill 1 each. From malarial fever New York and Washington 3 each, Charleston 1. From measles New York 4, Brooklyn 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending September 7th, the death-rate was 19.9. Deaths reported 4,050; acute diseases of the respiratory organs (London) 134, diarrhea 775, measles 75, whooping-cough 66, diphtheria 62, fever 49, scarlet fever 37, small-pox (London 5, Manchester and Oldham 1 each) 7.

The death-rates ranged from 11.1 in Plymouth to 40.5 in Sunderland; Birmingham 16.6, Bradford 25.8, Brighton 16.6, Croydon 13.2, Hull 35.6, Leicester 17.5, Liverpool 24.7, London 16.1, Manchester 27.2, Newcastle-on-Tyne 22.9, Nottingham 20.0, Portsmouth 22.1, Sheffield 26.3, Swansea 12.4.

METEOROLOGICAL RECORD,

For the week ending September 14th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro. meter		Thermom-eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...8	30.12	66	74	57	86	87	86	N.W.	E.	4	2	O.	C.	
M...6	30.18	70	82	57	61	84	72	S.W.	S.W.	3	8	C.	C.	
T...10	30.20	66	71	61	79	85	82	N.W.	S.	3	6	O.	C.	.42
W...11	29.93	74	82	66	82	87	84	W.	W.	10	12	O.	C.	.14
T...12	29.74	76	82	69	80	74	77	N.W.	W.	5	12	O.	C.	.21
F...13	29.90	61	66	56	53	48	50	N.	N.W.	14	14	O.	C.	
S...14	30.14	52	57	47	50	62	56	N.W.	N.W.	14	11	C.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 14, 1895, TO SEPTEMBER 20, 1895.

MAJOR CLARENCE EWEN, surgeon, now on sick leave of absence is relieved from further duty at Fort Walla Walla, Washington, and ordered to Fort Bliss, Texas, for duty, relieving MAJOR BLAIR D. TAYLOR, surgeon.

MAJOR TAYLOR, on being thus relieved, is ordered to Fort McPherson, Georgia, for duty at that post.

The following named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the American Public Health Association, to be held at Denver, Col., October 1 to 4, 1895: LIEUT.-COL. ALFRED A. WOODHULL, deputy surgeon-general; MAJOR CALVIN DEWITT, surgeon; MAJOR HENRY S. TURRILL, surgeon.

Leave of absence for one month, to take effect on or about October 6, 1895, is granted FIRST-LIEUT. PAUL F. STRAUB, assistant surgeon, San Carlos, Arizona.

MAJOR HENRY M. CRONKHITE, surgeon, will report in person to the president of the Army Retiring Board, to convene at Chicago, Ill., on October 8, 1895, at such time as he may designate, for examination for retirement.

Leave of absence for one month, from the date of his relief from duty at Fort Logan, Colorado, is granted CAPTAIN LOUIS A. LAGARDE, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 21, 1895.

M. S. GUEST, assistant surgeon, detached from the "Minnesota" and ordered to the "Vermont."

R. C. PERSONS, surgeon, detached from the "Minnesota," ordered home and placed on waiting orders.

C. M. DEVALIN, assistant surgeon, detached from the "Vermont," ordered home and granted six months' sick leave.

C. P. BAGG, assistant surgeon, ordered to the "Vermont."

D. N. BERTOLETTE, surgeon, ordered home and placed on waiting orders when the "Atlanta" goes out of commission.

P. H. BRYANT, passed assistant surgeon, detached from the "Baltimore" and ordered to duty on the "Petrel."

W. F. ARNOLD, passed assistant surgeon, detached from the "Petrel" and ordered to special duty in investigating the plague in China and cholera in Japan.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING SEPTEMBER 15, 1895.

BANKS, C. E., passed assistant surgeon. To proceed from Washington, D. C., to Vineyard Haven, Mass., for temporary duty. September 11, 1895.

GLENNAN, A. H., passed assistant surgeon. Granted leave of absence for five days. September 3, 1895.

WERTENBAKER, C. P., passed assistant surgeon. Granted leave of absence for three days. September 3, 1895.

HOUGHTON, E. R., passed assistant surgeon. Granted leave of absence for twenty-three days. September 12, 1895.

COFER, L. E., assistant surgeon. Granted leave of absence for seven days. September 3, 1895.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY. — The autumn meeting of the Society will be held at 19 Boylston Place, Boston, at 1 P. M., October 2, 1895.

The "Trial of Angus Gilbert for Murder" will be the subject for discussion, and papers relating to the affair will be presented by Drs. Draper, Whitney and Jelly.

F. W. DRAFER, M.D., *Recording Secretary.*

JOHN COLLINS WARREN, LL.D.

At a recent meeting of the Trustees of Jefferson Medical College, Philadelphia, the honorary degree of LL.D. was conferred on Dr. John Collins Warren, Professor of Surgery in Harvard University.

RECENT DEATH.

JOSHUA GREEN WILBUR, of Brooklyn, N. Y., died June 25, 1895. He was born in Saugus, Mass., September 25, 1825, was engaged in the drug business in Boston for many years, studied medicine in the Harvard Medical School and took his degree in 1862. He was appointed acting assistant surgeon, U. S. A., in June, 1862, and served for some time at the Patterson Park Hospital in Baltimore; commissioned assistant surgeon 18th Massachusetts Volunteers in January, 1863, serving in the Army of the Potomac at Chancellorsville, Gettysburg, etc. He resigned on account of disability October 31st, and later, did good service as acting assistant surgeon at Baltimore and Readville. Dr. Wilbur removed to Brooklyn, N. Y., where he engaged in practice; he was principally occupied however as examiner for the large life insurance companies in New York. He was a member of the Historical Society of Brooklyn, the New England Society and the Loyal Legion.

BOOKS AND PAMPHLETS RECEIVED.

Report on the Stamford Typhoid Fever Epidemic. By Prof. Herbert E. Smith.

The Theory and Practice of Counter-Irritation. By H. Cameron Gillies, M.D. London: Macmillan & Co. 1895.

Physiological Factors in the Neuroses of Childhood. By B. K. Rachford, M.D., Professor of Physiology and Clinician to Children's Clinic, Medical College of Ohio. Cincinnati: Robert Clark & Co. 1895.

Chicago's Need of Special Hospitals for Consumptives. Malignant Endocarditis with Vegetations in the Right Auricle and a Perforation of the Inter-Auricular Septum; Mitral and Aortic Regurgitation. By John A. Robison, A.M., M.D. Reprints. 1895.

Disorders of the Male Sexual Organs. By Eugene Fuller, M.D., New York, Member of the New York County Medical Society, Academy of Medicine, American Association of Genito-Urinary Surgeons; Instructor in Genito-Urinary and Venereal Diseases in New York Post-Graduate Medical School, etc. Philadelphia: Lea Brothers & Co. 1895.

Clinical Lectures on Diseases of the Nervous System delivered at the National Hospital for the Paralyzed and Epileptic, London. By W. R. Gowers, M.D., F.R.S., Physician to the Hospital; Consulting Physician to the University College Hospital; formerly Professor of Clinical Medicine in University College. Philadelphia: P. Blakiston, Son & Co. 1895.

Original Articles.

TEACHINGS OF THE OLD SURGEONS.

BY J. G. MUMFORD, M.D., BOSTON, MASS.

On the Continent and in England many men read the old masters, and in our own country their writings are well known to not a few.

Quite recently a new impulse has been given to such studies by the publication in Paris of Nicaine's editions of the works of Guy de Chauliac and Henri de Mondeville.

The latter, born in the thirteenth century, composed his surgery about 1310. He was surgeon to Philip the Fair and Louis X. He was exposed to the obliquy so commonly poured out on reformers in those days. His great heresy consisted in his adherence to the familiar teaching *vis medicatrix nature*. His work for 600 years was disregarded.

De Chauliac died an old man in 1365. His work, composed in his later years, remained for two centuries the great text-book of surgery.

Perhaps, to us now, the most interesting thing about these two teachers, is that, more than a hundred years before Paré, they spoke familiarly of the ligature of arteries.

The thought of the rational studies of those two men, working on lines centuries in advance of their contemporaries, furnished me with a text for this article.

One seldom goes to a large general medical meeting, attends a medical dinner or listens to a formal professional speech, without being told, by the orator, of the wonderful recent advances in surgical science, of the ignorance of our fathers, of the brilliancy of ourselves; so that one would almost think, as many do think, that surgery is a modern science.

Mr. W. Watson Cheyne, in his chapter on "The History of Antiseptic Surgery," says that all the old surgeons were governed by one thought—the desire to *make* the wound heal, as they said; and that the feeling was universal that wounds left to themselves went to the bad. That is not true, as I read the old writers. It is the very error which the best of them were constantly preaching against. To be sure, their voices may have been lifted in the wilderness, and doubtless the practice of the times was often bad among the rank and file; but this is true of all ages. "Give nature a chance," "Leave more to nature" was frequently said. Paul d'Egineta, even in the seventh century, taught it, and Rogerius in the thirteenth. So did Bouve about the same time, and later De Vigo and Paracelsus. That most entertaining writer, Le Drau, in the second quarter of the last century, taught his Parisian students to assist nature and not to thwart her; and Napoleon's great surgeon, Baron Larrey, taught to close a simple wound and leave it to nature for a first intention, as even the savages knew that.

We do better now, to be sure, than that. We guard nature without interfering with her, at least, that is our effort; but one is sometimes inclined to think that our asepsis accomplished, we care for little else. Surgical rest, comfort and support are almost equally important; discomfort and pain are still serious complications. They used to be danger signals. They must be thought so still.

Not only did Larrey teach local but general support, the sustaining of the general strength, a stimulating and nourishing diet. We are apt to think that those surgeons confined themselves to bleeding and purging. So far was Larrey from this that he was fertile in devices for forced feeding. The stomach-tube was in common use; and when that would not serve, he advised a soft-rubber catheter passed through the nose and well down into the esophagus. He remarks that this method is especially valuable with hysterical patients and those whose fauces are paralyzed. His contemporary, Benjamin Bell, in 1804, said that with patients exhausted by suppuration a full diet, supplemented by an abundance of alcohol, was absolutely needful. The danger of superficiality was keenly appreciated by such men; and Bell says: "Accordingly, in different hospitals we daily meet with good operators, but we do not often find surgeons possessed of that knowledge in the prognosis of chiral diseases which might be expected, that attention being seldom bestowed which is necessary to attain it." Indeed, Bell thought that his success was more largely due to his prescribing wine, food and Peruvian bark than to his operative skill. This use of wine and spirits with alcoholic subjects was especially urged by Sir Astley Cooper, who may almost be considered a modern. He said: "When a drunkard is injured, don't cut off his rum too soon; it keeps up his strength and acts as an antidote to the infective poison of the wound." Indeed, Sir Astley, in making his prognosis as regards sepsis, laid more stress on the patient's general condition than do we ordinarily. He most emphatically recognized that, whatever the immediate cause might be, a patient in wretched general condition offered a better field for a rapid septic infection, whether from traumatism or any other cause, than did a person in robust health. It is interesting that his exception to this general rule is in the case of an "acute peritonitis, so severe and commonly fatal in vigorous young men." This parallels our own experience with rapidly fatal appendicitis.

The grand principle in the cure of disease, says he, is that all the secretions must be restored. "If the bowels, the kidneys and the sweat-glands are working, the poison will be eliminated and the patient recover." Though we seek our object by other methods and for better understood cause, this maxim is the same with us to-day.

Emotional causes of disease were greatly considered one hundred years ago. Keen's recent suggestive article on the "Operation, *per se*" recalls many of the experiences of Sir Astley, who had no doubt that general conditions and mental impressions entered more largely into surgical therapeutics than was or is believed.

Even for those in health he preached a carefully regulated life, and says that in his own case he always employed temperance, early rising and cold morning baths, for the cold bath is especially valuable in an increased irritability of the nervous system; and Benjamin Bell says that in persons afflicted with chilblains or tuberculous tumors "the only good is from cold bathing and tonics."

"There are few satisfactions greater than being satisfied with one's personal appearance," says Sir Astley, and tells of "a drawing-master with bow shins; a deformity which he considered so grievous

as to seriously interfere with his vocation. He applied to many surgeons to relieve him, but without success. Finally, a heartless quack consented to operate. He laid open the calf and scraped away the outer side of the tibia until there was little left but the inner shell. The operation was done successfully on either shin, and the leg then straightened by an outside splint. The patient was rendered a wretched cripple for life, and the operator was nearly hounded out of town; but," says Sir Astley, "extraordinary as it may seem, the drawing-master was perfectly satisfied with his new appearance and returned complacently to his occupation."

Hygiene and proper surroundings for surgery were early recognized as important; and the comparison between hospital surgery and surgery done in the country was as commonly made in the old days as it is with us. We are all familiar with the assertion of our country brother that he never sees puerperal fever and that his operation wounds usually heal by first intention. These statements doubtless are in a large measure perfectly true, and the reason for this state of affairs is sufficiently obvious. We in the city hospitals are constantly at war with the bacillus. Our predecessors very often abandoned the field and carried their operations into the country.

The explanation of septic fever given by old writers is interesting; and some of them came exasperatingly near the truth. Writing at the end of the last century, one says: "Septic fevers are due to the sympathetic action of the nervous system. When a part is injured, nature contends for a cure by stopping the functions of all the uninjured organs and thus, turning aside their blood-supply to the injured part, setting up inflammation and so attempting cure. Sometimes, alas, she is too hasty."

Sir Astley Cooper constantly invoked the action of the sympathetic nervous system to explain various phenomena, stating, for instance, that slight blows on the stomach causing death were due to irritation of the semilunar ganglion, and that urethral and bladder operations were dangerous from the same cause. He says elsewhere, "Do not do lithotomy on a child under two years of age, if avoidable, or you will see convulsions and death."

In our own day, perhaps, we are not altogether free from some needless fears of that same nervous system, or of bogies cloaked in other names and called *dialtheses*; but whether those seniors of ours attributed acute general infections to the electric action of the nerves or not, they were prompt to recognize the danger and to use fairly rational means in combating it.

Their recognition of the causes of nerve storms and neuralgias were frequently inaccurate, of course; but it is interesting to see them using as nerve tonics our modern favorites, arsenic, iron and quinine.

The study of the development of wound dressings is a very fascinating one, and the astonishing guesses at both antiseptics and asepsis fill surgical literature. The fact that they were guesses and not rational deductions alone, lost them their proper place, though certain varieties of deodorizers and mild antiseptic oils and balsams have been favorites from time immemorial. The old Hebrew writers and the mediæval monks speak of sweet-smelling spices, and we are told that the Good Samaritan dressed the wounds of the stranger by pouring in oil and wine. Doubtless, Rebecca so brought the wounded Ivaunhoe back to health, to judge

from Sir Walter's somewhat florid description of that episode.

The routine practice of closing and dressing wounds, with the object of attaining a primary union, is much more modern, however; and the development of that practice came slowly. Attempts were made, indeed, as early as the end of the fifteenth century, when De Vigo taught to close fresh incised wounds and drain with lint.

Another of our old friends, Philippe Auréole Théophraste Paracelse Bombast, who was born in 1493, a date easily remembered in connection with a certain affair at Chicago, two years ago, used silver sutures and lead washes. In our own day we find Sampson Gamgee a strong advocate of these same silver sutures and for the same reason, that they are unirritating and less likely to cause suppuration.

Paracelsus aimed only at aiding nature, and sought a medicament that would prevent corruption. After him many surgeons, Ambroise Paré, Delacroix, Fallopius and others used antiseptic washes, mostly alcohols.

Magatus and Paré, in the sixteenth century, insisted upon infrequent dressings, anticipating the common practice of to-day. Here, Watson Cheyne, in 1882, makes the somewhat surprising assertion, that "these infrequent dressings, owing to the fear of bad effects from the contact of air with the wound, were, as we now know, the outcome of a wrong theory," and the error of such teaching eventually did great harm to Magatus's many good points.

Richard Wiseman and Sir John Coldbatch were most judicious among the English surgeons. The latter appears to have had some remarkable results from the use of a process of his own, which is not given, but which seems to have closely resembled Listerian methods. He put a powder into water, and with the mixture syringed out the wounds, covering them with pads wrung out of the same preparation. The method was evidently empirical, for he remarks casually that if water was not convenient he would take urine. Unfortunately, Coldbatch's method seems to have been completely lost; it is suggested that his powder was probably boric or salicylic acid.

After all, the balsams always retained their favor. In 1730 Le Dran, in seeking primary union, covered the wound with a linen rag dipped in some glutinous balsam, Canadian or Peruvian, to prevent putrefaction. He adds the elegant and cosmetic suggestion, that in dressing the perineum one should use oil of roses and that the deeper parts should be steeped in brandy. Later, the wound should be dressed simply with dry lint.

Baron Larrey used balsams, wine and brandy; and washed the wounds with a warm salt solution. When there were extensive suppuration and sloughing, applications of chlorinated soda, known as *Eau de Labarraque*. His favorite application was the well-known storax, which under its modified form of styrone is now so popular with many surgeons. Such preparations were always called antiseptic substances, and Benjamin Bell especially urges their use in gangrenes and ulcers.

The possibility of a second intention, a union between clean granulating surfaces after a thorough antiseptic bath was often taught by the same writer, who says: "It is a mistake to suppose that wounds will not adhere when in a state of bland purulency.

I have repeatedly treated with sutures sores of from one to four weeks' standing, and for such intentions a dry lint dressing is all-sufficient." Moreover, for suppurating inflammations we must use hot poultices, but for granulating wounds a bland ointment is all-sufficient; and when the pain, inflammation and primary fever are over in open wounds, poultices should no longer be used. Then employ lint, backed with a tow bolster to keep up firm and even compression. If poultices are needed still, warm immersions in salt water or fresh milk are most useful to supplement them. Dress simple wounds seldom and with mild aperients.

Sir Astley Cooper had an interesting faculty for seizing upon drugs destined to become famous. Among others he mentions bichloride of mercury, which he commonly used as a wash for ulcers and sinuses — an excellent application, on account of its cleansing and stimulating properties.

The practice of getting wounds clean was an early one in surgical science: innumerable devices were tried — washes, ointments, stimulants and caustics. The more modern idea of irrigation did not become well established until the present century. Copious libations of cool water were taught first by Percy and Lombard in 1785, and had long been the common practice among English surgeons at the beginning of the Listerian era. How far the idea that wounds must be abundantly flushed has affected our own practice we know but too well. For many surgeons even now feel that their operation is incomplete until the clean, fresh wound is drowned in floods of corrosive sublimate or carbolic acid.

In the treatment of deep suppurations by drainage we have improved but little on the best practice of one hundred years ago. Benjamin Bell always used hollow drainage-tubes in deep wounds and sinuses when pus was to be evacuated; "not tents," he adds, "which do not absorb and serve to block the discharge." He would doubtless have objected, on the same ground, to the plugging of suppurating sinuses with iodoform gauze, a common misuse of a valuable agent to-day. Le Dran says: "The only cure for empyema is to operate and drain with a catheter. If the amount is great, don't drain it all off at once on account of faintness and suspended dilatation of the lungs."

The agency of the air in causing suppuration was an endless subject of discussion even down to our own time, and many experiments were undertaken to prove or disprove its harmfulness. Sir Astley Cooper convinced himself that air did no harm from the experience of an ingenious and heroic butcher. This person was drawn to serve in the militia. Hearing that a hernia disqualified a man for service, the butcher inserted a long tin tube beneath the skin of his scrotum, and having blown it up, presented himself to the examining surgeon with the statement that he had always been ruptured. After a cursory examination he was discharged. The false hernia disappeared after a few days, and the man was never the worse for his trick.

Though Sir Astley came largely to disregard the entrance of air into wounds, most of his contemporaries still feared it. For many years, even back to the time of Paré, some surgeons had taught that it was the miasmas in the air and not the air itself which did harm; yet one hundred years ago the fear of air as air was rife among men, and they went about seeking

how they might exclude it. The use of the spray in our own days shows that this fear died hard. Benjamin Bell, John Bell, Hugh Munro, Alexander Munro, James Latta, Abernethy, Percival Pott, John Hunter and many other worthies hated and dreaded this same air for one cause or another. Some of them, as Guyot, put the wounded members in hot-air boxes and kept them there. Here was a sort of mild asepsis, not fifty years ago. Others, like Dupuytren, operated subcutaneously as much as possible and so got some unexpectedly good results. The vast majority, therefore, were convinced that there was something deleterious in air, and even after operating still attempted its exclusion. They painted wounds with tincture of iodine in 1830, covered them with collodion in 1848 — this first used in America. They would always pour in their oil or wine or water. It is a wonder to me they did not operate *in vacuo*; indeed, a vacuum-box dressing was tried in Paris, but availed nothing.

All this sounds something like a blind groping in the dark, but there were other cases in which sound rules were laid down and followed. When an evil was accepted, when inflammation and pus did appear, the treatment was often most logical.

When wounds were sewed up and strapped, drainage was provided; for Le Dran used strapping, constantly leaving loose spaces where drainage was easy. But, he insisted: "If you do want a first intention, which is most common, an assistant must absolutely approximate the edges; don't pucker or invert, else you will have sloughing and non-adhesion. If you sew up, tie your knots at the least dependent part, so they will not imbibe blood and harden; if you choose, oil them." Not a bad thought for delicate cosmetic work on the face and neck.

So the methods of threading needles, passing and tying sutures, and the thousand and one minutiae which are now left for the assistant, were then thought not unworthy of the surgeon, and essentials in his success. The use of double-headed sutures was popular two hundred years ago, for use in all deep wounds as well as in the abdomen. The flaps were most beautifully and accurately approximated and in the very fastenings of the swathe the pins were so arranged as not to incommode or press upon the line of the scar. In sewing up these deep wounds Le Dran tells his pupils that the lower angle should always be left open so that the wholesome but superabundant juices of the wound may exude and pressure and pain be avoided even should there be no formation of pus. Their drainage is to be secured by passing in a number of strands of ligature silk.

Similar use of capillary drainage — I think I am not mistaken in having heard it claimed as a modern invention — such use of capillary drainage is strongly urged also by Benjamin Bell, who drained even liver abscesses, after operation, by long, loose strands of lint wicking. And three hundred years earlier De Vigo had closed wounds and drained with wicks.

Most of all did the older surgeons pay attention to open wounds, ulcers and burns, which were granulating. For the immediate ease of the pain from a burn they would commonly plunge the part into salt water or a soda solution. We, to-day, know the immense comfort of a warm soda bath for the badly burned.

We find our modern successful use of strapping for leg ulcers advocated by Sir Astley Cooper, to flatten the granulations and support the sore. He was

went to use, also, sheet lead and tin dressings in such cases. When the offending veins were especially full he would tap them once or twice weekly and apply a corrosive-sublimate wash, a hundred years ago. Then the whole leg was to be carefully put up in a supporting flannel bandage, changed daily.

I cannot see that we have much to teach Sir Astley here, and I dare say he might have taught us a good deal.

Very favorite preparations in the last century were those of Goulard. They contained lead, and were used, in the form of ointments, cerates and lotions, as applications to sluggishly granulating wounds.

Another careful suggestion, showing thought for the preservation of function, was this: that in a deep wound, say on the front of the thigh, in which the muscles were divided obliquely, the deep stitches should be passed so as to run parallel with the muscle fibres and not obliquely, as would be natural in sewing up an incised wound. Le Dran claims that by so doing the power of the limb will be unimpaired. Stitches so taken, when there was the slightest strain, were always to be supported by plaster, which should reach to the neighboring joints on either side. Another device for securing absolute approximation — a device so commonly neglected to-day — was the passing of sutures with a curved needle entirely beneath the depth of the wound. In many such cases, especially when incised wounds were received on the battle-field, one reads that first intentions were the rule, and that the stitches could be removed on the sixth day. To attain this it was thought most essential to have a perfectly dry wound before sewing up; so after securing the vessels by torsion or tying with fine silk, a pledget of dry lint was pressed for some minutes upon the oozing surface. It was well understood that a dry, absorbent material was the best hemostatic. This was one hundred and fifty years ago. We have within five years rediscovered the advantages of what it pleases us to call operating by the dry method.

Though sutures were extensively used, their employment was always attended by a very wholesome fear of stitch abscesses; and one finds the advice constantly given, "Never use sutures when a bandage will do." The pressure of the stitches was thought to be the cause of danger. Plaster and strapping were also very extensively employed where we should never think of their use. Even when stitches were used, however, the impending inflammation was averted frequently by the use of massage, which, sometimes supplemented by opiates and leaching, would quiet the wound without the necessity of removing the stitches.

The idea of the presence of a stitch not being in itself an irritant was confirmed in the minds of men by the safe use of fine buried silk ligatures for vessels, in many cases. Sometimes they sought an absorbable material; and one of them in Napoleon's time tells of the use of buried catgut, which was not specially successful. It became absorbed, but gave rise to an obstinate suppuration. Sir Astley Cooper tried it also in 1820. Many years later, when American surgeons, in our Civil War, made use of animal ligatures, the English journals called it that barbarous practice of burying dead animal matter in live human wounds.

Sampson Gamgee, the best modern exponent of non-intervention in wound treatment, and of absolute rest by posture and immobilization, admits that he learned

his lesson from the ancients. Le Dran kept his culture media sterile by always placing the limb so as to relax the muscles and then immobilizing. "Otherwise," said he, "the nutrient juices, not being at rest, will be converted into pus." The patient was never to help himself, but could be moved freely about if no pain were so caused, and even after abdominal section this was allowed if the abdomen were restrained by a firm swathe.

For similar reasons wounds were to be left undisturbed as long as possible. I think Baron Larrey teaches this as forcefully and convincingly as any writer of any age. His text is constantly: "Absolute rest is essential to encourage nature; therefore, leave the first dressing on as long as possible. There must also be an uniform and careful pressure over wounds." And of all bandages for almost all conditions, the best were said to be elastic flannel rollers, as they not only compressed the wound but firmly controlled the muscles.

Not only for wounds of the soft parts were these principles to hold good; but in cases of fractures, amputations, inflammations and ulcers, rest, elevation and elastic compression were to be the first essentials, "for nature herself enjoins rest; the muscles won't act over an inflamed part." And in the face of the prevalent dread of joint complications Sir Astley Cooper says, "Wounded joints often heal readily if they are immediately sealed up, dressed with alcohol and absolutely immobilized." Long before that, of all writers to insist on the value of physiological rest, Ambroise Paré preached the most fervently and was the least regarded.

Beyond this the need of clean wounds was instinctively felt, if not logically reasoned out, by a host of thoughtful teachers. Le Dran says: "The region about must be thoroughly cleaned lest inflammation be set up and pus form; therefore, the entire field of operation should be thoroughly shaved and scrubbed, then clean up the wound, and wash with warm wine."

Every feeble ray of light in a dark past has its charm to the student. Old theories of the value of inflammation come near being illuminations at times. Sir Astley Cooper seems almost to have foreseen the advent of our phagocytes when he says:

"Local injuries are repaired by inflammation, and we know that repair has begun through inflammation by the increasing sensitiveness of the injured part."

"Especially is this so in bones, which when fractured unite by the action of an inflammatory process; the action must be rapid in order that no trouble ensue, and even in compound fractures, so soon as adhesions are formed, the danger is over and healing progresses as rapidly as in simple fractures. This is true, too, of Cæsarean section. If the operation be done boldly and rapidly and adhesions form in the wound at once, we are safe."

One might be led to suppose, from such a statement as the last, that Cæsarean section was then a common operation. I don't think the writer intended to mislead, but that he was grandly theorizing on general grounds, as was his style at times.

The idea of the systemic action of infectious agents strongly impressed the men of the last century, especially after the introduction from Constantinople of the custom of inoculating for small-pox. Some seem to have had the kind of faith which is said to move mountains; for we are told of one surgeon who inocu-

lated his own daughter from the pustule of a dead patient.

Mechanical causes for pathological phenomena were by no means overlooked; and one finds the old surgeons asking themselves such questions as, "Why in necrosis of the tibia, does the sinus open forward and not backwards?" "What advantage can there be in gum lancing if the tooth is not thereby made to protrude?" and then shrewdly giving the expected answer.

The delicacy of new-formed tissue of any kind was a constant dread after inflammation, on account of its liability to break down. We are constantly reading of old wounds breaking out and old fractures giving way, until we almost suppose that physiological processes were less vigorous in those days than they are now.

Granulations, too, were matters of considerable anxiety, and *proud flesh* was most diligently rooted out. Here is a definition of granulations, "A newly-formed substance, generally red in color and having the power of secreting pus." And Bell says that "pus is formed from the serous part of the blood by a process of fermentation."

One would suppose, too, that various forms of ulceration were more common then, for cause and effect are most astonishingly confused. Amenorrhea was feared, not because it might be indicative of some serious general disturbance, but because it gave rise to "menstrual ulcers."

We still see pus at times; the hygiene of our people is not yet so perfect but that felons and other abscesses still occur, and we have not yet learned to abort them. Of course, in those old unclean days pus abounded and was constantly sought. *Ubi pus, ibi evacua*, was ever in the surgeon's mind. What we call the shirt-stud felon was the especial delight of some of those old pundits, and seems to have figured in all their clinics. Free scoring was ever being taught, and very properly; but it was in a limb the source of tetanus that the knife ran riot, supplemented by the extensive application of the actual cautery. To drain off and extirpate the morbid humors was the constant effort, at whatever expense. Counter-openings in the scalp were almost the rule, in order to prevent a dissecting abscess, and hot poultices were hourly applied. Constant attempts were being made to find some means of changing the discharges to a laudable character. Abscesses were thoroughly flushed and filled with antiseptic balsams; boils were curetted; and bubos were dissected out and left open, the cavity being filled with powdered calomel, which was in great vogue with some surgeons. Again, after an antiseptic washing, abscesses were sometimes closed up, and were said to adhere under a tightly compressing bandage.

On the other hand, cold abscesses and chronic local suppurations were less hastily meddled with; and it was commonly taught that suppurating glands in the neck should be left to ripen, and should then be opened by a small transverse cut, as thus an imperceptible scar resulted. For the frequently resulting sinus, wine, spirits, and lime-water were recommended as injections. Some of the applications in extreme degrees of inflammation sound heroic; among others mustard and cinnamon are urged; and an essential for all non-evaporating dressings was oiled silk.

In erysipelas, Sir Astley Cooper prescribed immense amounts of quinine, alcohol and a generous

diet, with local applications of camphor and spirits of wine.

Much of this is good surgery and classical surgery. It is not the teaching of thirty years ago, but of one hundred and three hundred years ago. These things were done before ether had been dreamed of, or the theory of fermentation had germinated; yet broad lines were steadily being laid down on which we are now building our modern practice.

As we know, too, inflammations, when once under way, were sorely dreaded, and various forms of gangrene were far from unusual. One reads of the common occurrence of hiccough as the characteristic sign of gangrene, and of the frequency of moist gangrene from excessive inflammation.

I doubt if one man in five hundred, among the younger generation of surgeons to-day, has ever seen a case of that fearful scourge — hospital gangrene — which used to rage through whole cities.

(To be continued.)

THE GONOCOCCUS.

BY HENRY DEXTER CHADWICK, M.D.,
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PREVIOUS to the discovery of the gonococcus by Neisser in 1879, various theories were entertained regarding the identity and cause of gonorrhea, many believing it to be simply a catarrhal process and not a specific disease possessing contagious properties which were capable of transmission. They brought forward as evidence cases of urethritis which they believed were contracted from contact with menstrual or leucorrheal discharges, and that the inflammation produced was due to irritative properties and not to any contagious element which they contained.

Opponents to this theory held that true gonorrhea was a distinct disease of itself, and could only be reproduced by infection from a gonorrheal discharge; and they showed by experiment that pus from an abscess or leucorrheal discharge did not always cause an urethritis, and when it was successful in producing a purulent discharge, there was no definite period of inoculation, the duration was short and it was easily cured. The similarity of gonorrhea and syphilis in their method of communication led to the belief that they were identical and produced by the same unknown virus.

A comparatively few observers would not accept this conclusion; and among their number was John Hunter, who, in 1767 in his endeavor to prove the non-identity of the two diseases, inoculated himself with pus from an acute urethritis, but unfortunately the patient from whom it was secured was also suffering from an unrecognized syphilis, and the initial lesion and manifestations of syphilis which followed only served to confirm the belief that the two were identical. After many years, a reaction followed, and Bell (1793), Hernandez (1811), Ricord (1836) published their very careful observations on several hundred cases, which clearly demonstrated that syphilis and gonorrhea were distinct diseases. From this time on the belief that a specific contagious element was contained in gonorrheal discharges became general, and many different micro-organisms were found and put forward by their discoverers as the cause of the disease. Not until 1879, however, was anything of value accomplished. In

that year Neisser described a diplococcus which he found constantly present in the purulent discharge from severe cases of urethritis and ophthalmia purulenta, to which he gave the name of gonococcus. This organism can easily be seen in stained specimens of gonorrheal pus, each single coccus being biscuit or kidney shaped, usually lying in pairs with their flat surfaces facing each other, a single diplococcus measuring 0.8μ in length and 0.6 to 0.8μ in width. The relatively large size of the organism makes its presence easily recognizable. Multiplication takes place alternately in two planes, thus giving the appearance of tetrads or sarcinae. In acute cases of gonorrhea the groups of gonococci will be found in large numbers contained within the leucocytes almost exclusively, many of the cells being completely filled. Later in the attack, they become fewer in number, and many are found in groups outside the cell free in the secretion, giving the appearance of having escaped from a degenerated leucocyte.

Many observers confirmed Neisser's discovery, but evidence as to the exact etiological significance of this bacterium was lacking until 1885. This was due to the inability to cultivate and isolate this organism from several other bacteria, which resembled it morphologically, and to the fact that the human urethra had to be used for inoculation experiments, as all animals so far as known, are immune to the disease. Lestikow and Löffler were able to cultivate a diplococcus on a medium composed of serum and gelatin. Then Bumm (1885) published his investigation, which is now considered a classic in bacteriology. He employed blood-serum obtained from a human placenta as a culture medium, but even on this material cultures were not easy to obtain, as other more rapidly growing bacteria would overrun the surface before the gonococcus reached a visible growth. The most favorable temperature is from 30° to 34° C. Development does not occur below 25° or above 38° . Sternberg has found that when exposed to a temperature of 60° for two minutes, gonorrheal pus loses its virulence. Even under the most favorable conditions, development is slow and uncertain; frequently pus containing gonococci in large numbers will fail to show any development, or after a slight development, degeneration occurs and the growth disappears. Cultures on serum show a very thin, scarcely visible layer with a slightly moist, shiny surface, which appears a grayish-yellow color by reflected light. Sternberg says the growth may extend out a distance of one millimetre beyond the needle track; but at the end of two or three days no further development occurs and degenerative changes take place.

The gonococcus is aerobic, but whether facultative anaerobic or not is difficult to determine, although when stick cultures are made, no growth occurs along the line of puncture. Bumm also, was the first to furnish the final evidence proving the pathogenesis of Neisser's gonococcus by inoculating a healthy female urethra with a second and finally a twentieth generation of the pure culture, and each time producing a characteristic urethritis. He also pointed out that it was essential to transplant the cultures every few days, as the organism was very short-lived. Haberdad recently found that no urethritis developed in cases of paralytics which had been inoculated with gonorrheal pus which had been dried one hour or more.

Observations by Bumm and others since then show

that the inflammation takes place in the following manner: When gonococci are deposited on the mucous membrane of the urethra, they penetrate through and between the superficial cells, and eventually reach the deeper layers of epithelium and lymph spaces between them. The irritation which their presence excites causes an active hyperemia with exudation of serum and leucocytes. There is also increased glandular activity and exfoliation of epithelium. The leucocytes become very abundant, and during their passage out absorb and carry with them large numbers of gonococci. When the leucocytes have succeeded in removing the infecting organisms and the cells containing them have been removed, the process subsides. The process is slower in the glands, and the gonococci remain in them much longer than in the other parts of the mucous membrane.

The importance of the gonococcus is very great, particularly in diseases of women. Hatzfeld recently published an analysis of 2,124 gynecological patients, of which 376 had gonorrheal disease of the tubes and ovaries, and a very large number of these were proved by bacteriological examination. Nöggerath goes so far as to say that nine-tenths of all pelvic diseases of the female are of gonorrheal origin. A reliable method of culture would be of great advantage in arthritis following gonorrhea, also of immeasurable value frequently in medico-legal cases. Many since Bumm have tried to find culture media on which the gonococcus would develop readily.

Von Schrötter and Winkler (1890) cultivated a diplococcus on plover-egg albumin. No inoculation experiments were made. They were not able to grow it on albumin of the hen's egg. Anfuso (1891) obtained cultures of the gonococcus on a medium composed of fluid taken from the knee-joint in a case of chronic synovitis. A characteristic attack of gonorrhea followed, when a healthy urethra was inoculated with the twelfth generation of this culture. No growth could be obtained on solidified ascitic fluid.

Wertheim recently found that the gonococcus would grow more readily on plates containing a mixture of one part human serum and one to two parts of peptone, agar-agar, or gelatin, than it would on serum alone. On this medium he reports that the gonococcus develops rapidly, and at the end of twenty-four hours, fine transparent colonies could be seen. His work is more valuable as inoculations were made on five paralytic patients with positive results. These investigations were confirmed later by Gehhard.

Steinschneider modified Wertheim's serum-agar medium by adding urine, on the supposition that some of the urinary salts were needed for gonococcus growth. On this gonococci developed, as was proved on a human urethra.

Recently Wright (1894), following in general the method of Steinschneider, succeeded in growing from several cases of urethritis, ophthalmia purulenta, pyo-salpinx and vaginitis, a diplococcus apparently identical with the gonococcus, and in cultural characteristics corresponding with the description given by Wertheim. Only in very fresh cases could a culture be obtained, and even those could not be depended on to develop. He did not confirm his results by inoculation.

Weifser (1894) reports a case of arthritis of the hip following gonorrhea. Fluid was aspirated, and cultures made on serum-agar, which showed the gonococcus.

This could be transplanted on the same medium. A culture was also made on glycerine-agar, which showed a very slight growth; this, however, could not be transplanted. He believed the growth obtained on the agar in this case was due to the small amount of synovial fluid left on the surface when the agar was inoculated, and in this the gonococcus developed.

Kral (1894) obtained good results by using a medium composed of two per cent. agar-agar in bouillon which contained no NaCl, one or two per cent. saccharose added and mixed with serum, and the whole boiled, filtered and the filtrate used for cultures. He also modified this mixture by adding five per cent. glycerine, which seemed to be an improvement.

Keifer (1895) concluded from the fact that the gonococcus develops best within the leucocytes, and as they were the peptone carriers, that that was the substance needed in culture media. Consequently he tried a mixture of equal parts ascitic fluid (by preference from persons affected with abdominal tumors) and glycerine-agar, peptone three per cent. to five per cent. On the medium he says the gonococcus will always develop with or without other bacteria. By reviewing this different culture media upon which the gonococcus has been successfully cultivated, it will be seen that in nearly every instance blood-serum has been an important constituent. A few have added urine to the serum mixture in order to get a medium which corresponded as nearly as possible with the conditions present in the urethra. From the published results, however, it does not seem to be of any distinct advantage over the serum or serum-agar mixture. The fact that the gonococcus develops rapidly in ophthalmia and on other mucous membranes with which the urine does not come in contact, seems to show that the urine or its salts are not essential for growth or virulence. Turro, of Barcelona,¹ published an article in which he claimed that what was needed for the cultivation of the gonococcus was an acid medium, and points out that although freshly-voided urine in gonorrhea is alkaline, this reaction is due to the pus contained in it, and when this has settled the supernatant liquid is acid. In this acid urine the gonococcus develops rapidly; and from observing this phenomenon the idea was suggested that it might be due to the acidity of the urine. Accordingly, he prepared culture media of various degrees of acidity to test its accuracy. It was found that on ordinary nutrient gelatine which had not been neutralized, the gonococcus developed readily. Even the addition of a drop of hydrochloric acid to each one hundred cubic centimetres did not prevent its growth, only retarded it.

Equally important was his success in reproducing the disease by inoculating dogs with the gonococcus grown on acid media. An intense purulent inflammation would follow the introduction of a little of the culture under the prepuce, without necessarily injuring the mucous membrane or introduction into the mouth of the urethra. In some cases the process thus set up would extend to the bladder and kidneys, or a septicemia or pyemia might follow. The process in bitches was less severe. Gonococci obtained from these lesions were a little smaller, but in other respects identical with those in man. It was found that these organisms when transplanted onto alkaline media, lost their pathogenic power, while on acid media their virulence was retained for a month or more. The importance

of these results, if they could be confirmed, would hardly be overestimated.

A simple medium on which the gonococcus would readily grow, and at the same time being acid preventing the development of most of the other bacteria, would be an ideal one. To test the accuracy of Turro's results I prepared some unneutralized agar-agar, ten per cent. gelatine and mixtures of these two, also beef-blood serum and human hydrocele fluid; the two latter were made acid with hydrochloric acid. Gelatine was used considerably, but agar was preferable as the cultures could then be kept at the body temperature.

Most of these cases were patients of Dr. Lund in the Out-Patient Department of the Boston City Hospital. No attempt in selection was made, and cultures were taken regardless of the duration of the attack.

URETHRITES.

CASE I. Duration, one week. Cover-glasses showed many gonococci, both within and out of the leucocytes. Cultures showed numerous white colonies of a small diplococcus.

CASE II. Four days' duration. Considerable purulent discharge, containing many typical gonococci. Cultures showed numerous white colonies of diplococci.

CASE III. Two months since infection. Now only a slight purulent discharge in which few gonococci were found. A few colonies of diplococci developed on culture, also several yellow colonies of cocci.

CASE IV. Patient had a severe balanitis and a foul discharge from underneath foreskin; also a slight discharge from urethra, the remains of an acute gonorrhea three months previous. Cover-glasses were literally filled with bacteria of many kinds: cocci, streptococci, both in and out of the cells. No typical gonococci were found. In culture few colonies of diplococci, but many yellow colonies of cocci developed.

CASE V. Duration four weeks. Discharge stopped once under use of injections, but soon returned and an acute epididymitis developed, for which he first came for treatment. There was only a slight muco-purulent discharge, in which very few gonococci were found. Colonies of diplococci and cocci developed on the culture medium.

CASE VI. Seven months since infection. Discharge has been intermittent since, after stopping for a time; any indiscretion in diet or drink would start it up afresh. A slight muco-purulent discharge was present in which a few diplococci were found outside the cells. No gonococci were found in the leucocytes. Few white colonies of diplococci and yellow cocci showed in cultures.

CASE VII. Two months' duration. A small muco-purulent discharge was present. No cover-glass preparations were made. Many colonies of diplococci developed on culture media.

CASE VIII. A slight muco-purulent discharge remained from an acute attack seven months before. Many colonies of diplococci developed. Also a few yellow colonies of cocci.

CASE IX. A chronic gleet, duration unknown. Few white colonies of diplococci appeared in pure culture.

CASE X. Three months since infection. Very slight muco-purulent discharge. Many yellow colonies of cocci, also a few colonies of diplococci, developed.

CASE XI. Patient of Dr. H. E. Marion, who con-

¹ Centrabl. f. Bact., July, 1894.

sulted him for some obscure bladder trouble. A slight muco-purulent discharge was noticed, from which a culture was taken which showed many colonies of diplococci in pure cultures. No history of a previous gonorrhea was obtained.

CASE XII. Duration over three months. Discharge practically stopped, and only noticed in the morning. Came into hospital for treatment of a mild conjunctivitis. A culture was obtained from the urethra, which showed many colonies of diplococci and a few of yellow cocci.

CASE XIII. Was being treated for stricture caused from an attack of gonorrhea three years previous. Culture from the slight discharge showed a few white diplococci and also a yellow coccus.

CASE XIV. Last attack of gonorrhea two and a half years ago. The only trouble remaining was a slight stricture and a very little discharge. No gonococci were found in cover-glasses. On culture the same typical diplococcus appeared, with few yellow colonies of cocci.

CASE XV. Three months' duration. Only slight discharge. No cover-glasses were made. Very few diplococci developed on culture media. Also a yellow coccus was present.

CASE XVI. Three months since gonorrheal attack. A gleet discharge remains. Culture showed pure colonies of a yellow coccus. No diplococci.

CASE XVII. Eight months since the disease was contracted. A very slight discharge remained, and a slight stricture was found to exist. Cultures showed but one or two colonies of diplococci, but very many colonies of a bacillus were present. This organism, in morphology, gas production, indol reaction, and acid formation as seen in milk and on litmus agar, was identical with the bacillus coli communis.

CASE XVIII. Two weeks' duration. Discharge quite abundant. Gonococci present in leucocytes. Cultures showed a few typical white colonies of diplococci. Also many colonies of a distinct yellowish tinge of a larger average diameter than the white colonies. These also proved to be diplococci, but about twice the size of the small white diplococcus.

CASE XIX. Two weeks' duration. Considerable discharge. Many gonococci found in the pus. Cultures showed the white diplococcus.

CASE XX. Ten days since exposure. For last few days a slight discharge was noticed, which when seen at the hospital, looked like clear mucus. From this a very few slightly yellowish colonies of a large diplococcus were obtained in pure culture.

ARTHRITIS FOLLOWING GONORRHEA.

CASE I. Patient came under the care of Dr. J. B. Blake in the Surgical Out-Patient Department of the City Hospital for synovitis of the left knee-joint. A history of gonorrhea two months previous was obtained, which lasted about three weeks. Nothing was noticed since, except a little whitish discharge sometimes seen at the beginning of micturition. Ten days ago a little tingling and soreness was noticed in the left knee, which was considered of no consequence until the last three days, when the knee became so swollen that he came in for treatment. On examination the knee was found much swollen, especially both sides of the patella, which floated, and fluctuation could easily be made out. There was but slight tenderness, and only on pressure. Besides the knee, there were no constitutional dis-

turbances. No discharge could be obtained from the urethra, but a needle was inserted into the meatus and cultures made. At the same time cultures were also made from blood obtained from the ear. The ear was first washed off with alcohol and pricked with a sterilized needle. Three culture tubes were inoculated from the blood; and in all numerous white colonies of diplococci developed in pure culture, which were identical in appearance, both microscopically and macroscopically with those from the urethra, although in the latter cultures besides several colonies of diplococci, cocci and a short oval bacillus developed. Three days later the patient appeared with a very painful synovitis of the other knee. The left ankle was also slightly painful, and he felt so ill that admission to the hospital was recommended. Soon afterwards while in the ward the right hip became similarly affected.

CASE II. Patient of Dr. Rotch, Boston City Hospital. When he entered the hospital he had been suffering from an arthritis of the hip for four weeks, following a gonorrhea contracted two weeks previous. There was some urethral discharge to be seen. Two years before he had had similar trouble with the same hip joint following gonorrhea. Cultures from the blood were made. The ear, however, was not washed off, as having no alcohol at hand this procedure was neglected. Two kinds of diplococci developed on the media: one, a small organism having white colonies; the other, a much larger diplococcus having colonies of a slightly yellowish tinge. It is to be regretted that no cultures from the urethra were made at this time, as he had been discharged when I went to see him again.

OPHTHALMIA NEONATORUM.

CASE I. I am indebted to R. D. Dean, externe at the Boston Lying-in Hospital, for the history and cultures from this case. A purulent ophthalmia began to develop three days after birth and continued for several days, but readily yielded to treatment with silver nitrate. When cultures were taken on the eighth day, there was but little purulent discharge. The only bacteria found in the pus were a very few large cocci outside the cells. Cultures showed many cocci and a very few colonies of a small diplococcus.

PYO-SALPINX.

These cases were kindly furnished me from the St. Elizabeth's Hospital by the house-officer, Dr. F. P. Williams.

CASE I. No history of gonorrhea could be obtained. The tube was distended, and there was a small cyst of the ovary. Cultures taken from inside the tube and ovary proved sterile.

CASE II. This was said to be of gonorrheal origin, but the infection dated back six years. Cultures from these tubes showed several varieties of bacilli. No diplococci appeared.

VAGINITIS OF CHILDREN, FROM CHILDREN'S HOSPITAL.

The first two cases occurred in the service of Dr. Buckingham; the third in Dr. Burrell's.

CASE I. Severe vaginitis, with much inflammation and purulent discharge of many days' duration. Gonococci found in the pus. Cultures showed only yellow colonies of cocci.

CASE II. Supposed to have been infected from the

former child. Severe attack of vaginitis, with much purulent discharge in which gonococci were found. Cultures showed cocci and few colonies of diplococci. Two weeks later gonococci were still found in the pus. A culture at this time showed only colonies of diplococci.

CASE III. The following history was taken from the records by kind permission of Dr. Burrell: Child, one year and eight months old. Had been to Wellesley convalescing from an empyema, and returned to Out-Patient Department April 6th. Redness and slight ulceration was noted on labia minora and majora. Some discharge from vagina. April 8th, ulceration had spread rapidly. Labia majora red and slightly swollen. On retracting the labia a superficial ulcerative process of considerable extent was seen. The upper third of both labia minora had been destroyed, and the ulcerative process extended up on the left labium majus. The surface of the ulcer was grayish and the edges not indurated. April 10th, ulceration seemed to be extending but little, and the opposing surfaces of the labia minora were ulcerated. April 15th, ulceration slowly getting into better condition. General condition improving and child cried less. April 25th, ulcerations much diminished, and continued to improve till May 8th, when they were entirely healed.

At one time there was a fine papular eruption on the buttocks, which was of a very few days' duration only, and considered to be due to irritation. At entrance there was a temperature of 101.5°, which gradually fell to normal by the end of the first week. During the whole attack there was considerable purulent discharge, and this continued in a small amount after the ulceration had healed. The process, whatever its nature, yielded with great difficulty to antiseptic treatment. No gonococci could be found in the discharge, but a bacillus of varying length was found both within and outside the leucocytes. No other organism was present. Cultures were made and many bluish-white colonies of a short, thick bacillus with rounded ends developed in pure culture. This was transferred to other media; and its growth, gas production, acid formation (as seen on litmus agar and in milk), indol reaction and failure to stain by Gram's method, showed it to be identical with the bacillus coli communis.

Apropos of this last case is a urethritis in a male reported by Van-der Pluym and Laag.² In this case a purulent discharge similar to gonorrhea developed seven days after coitus. There was also considerable febrile disturbance. No gonococci could be found in the pus, but instead a bacillus of varying length was found within the leucocytes, from two to six or seven in a cell. Rarely was one found free in the secretion.

Cultures were made, and the bacillus proved to be identical with the bacillus coli communis in all respects. The authors claim that this organism was the cause of the attack, because it was an acute infectious disease with febrile reaction. The bacillus was found within the cells, and all other bacteria were absent. The prostitute from whom the disease was contracted could not be found to be examined. In this connection it will be remembered that Case XVII of my series of urethritides also showed the bacillus coli communis.

(To be continued.)

RECURRENT OCULO-MOTOR PALSY WITH A CASE.¹

BY G. E. DE SCHWEINITZ, M.D., PHILADELPHIA.

RECURRENT oculo-motor palsy is of sufficient rarity and interest to justify the record of each additional case, and therefore I report the following example of this affection:

Kate Y., unmarried, aged thirty, American born, a cigar-maker by trade, applied to the Ophthalmic Department of the Jefferson Medical College in the latter part of December, 1894, for relief from violent attacks of neuralgia and complete oculo-motor palsy of the right side.

Family History.—Her mother suffered from right hemiplegia at the age of forty-one, never fully recovered, and died suddenly three years later. Two brothers and one sister are living and in good health. One brother died in infancy from an accident. The history on the paternal side of the family was not obtainable.

Personal History.—When one and one-half years of age, the patient became violently ill with the following symptoms: vomiting, convulsions, right divergent strabismus and ptosis. At the end of six weeks the ptosis disappeared, and the eye returned to its proper position. Since this date she has suffered from frequent attacks of neuralgia, almost always associated with divergence of the right eye and closure of the corresponding lid; occasionally, although the pain was severe, the ocular symptoms were absent.

During childhood the explosions of pain were frequent, occurring as often as three times a week; lately the maximum number of attacks has been five or six a year, and sometimes she has been free from them for six months at a time.

With the exception of whooping-cough, measles, scarlatina and epidemic influenza (three years ago), each disease being accompanied by a violent attack of migraine and recurrence of the ocular palsy, she has enjoyed good health. Menstruation was established at thirteen years of age, is regular in appearance, and unaccompanied by pain. A history of syphilis was not obtained.

When she was about four years of age (although she is somewhat uncertain as to the date), the divergence, which had before that time disappeared *pari passu* with the subsidence of the ptosis, became more or less permanent, although she thinks that in her best condition, even though the eye turned outward, power still remained to bring it to the median line. In September, 1898, an unusually severe attack of neuralgia occurred, accompanied, as usual, by ptosis; but when the pain disappeared, the ptosis remained. Since the date of permanent ptosis she has suffered about half-a-dozen mild attacks of neuralgia, unaccompanied by notable ocular changes.

The Neuralgic Attack.—Preceded by dizziness, a full feeling of the head, swelling of the peri-orbital tissues and distention of the veins; the pain begins in the right eye and travels around the right side of the head to the occiput, where it finally settles and remains until the subsidence of the nerve-storm. Immediately following the onset of the pain, there is vomiting, which lasts from twelve to twenty-four hours, and leaves the patient utterly dejected and exhausted.

When examined (December, 1894), the following conditions were present. Complete paralysis of the oculo-motor nerve, the divergence being extreme and the eyeball slightly prominent. It can be rotated outward one centimetre, and there is slight rotary movement noticed when an attempt is made to turn the eye downward and outward. From the position of extreme divergence, the right eye can be rotated inward about two millimetres. The pupil is absolutely fixed, horizontally oval, its long diameter six millimetres, and its short four and one-half millimetres. The central color perception is good, and the form field normal.

Vision is $\frac{6}{60}$, or somewhat better, if the test card is held

¹ Read before the American Ophthalmological Society, July, 1895.

² Centralbl. f. Bact., May, 1895.

downward and to the right. The optic disc is gray-red in color, nearly round, and contains a small physiological cup. The scleral ring is sharply cut to the temporal side, and there is a slight remnant of the choroid ring on the nasal edge of the nerve-head. The general retinal circulation is normal.

The left eye presents no abnormality, vision and accommodation being natural and the ophthalmoscopic changes unimportant, possibly slight grayness in the deeper layers of the disc, with superficial capillarity. The iris movements are normal.

Briefly recapitulated, the points of this case are the following: Right oculo-motor palsy at the age of one and one-half years; recovery in six weeks; frequent recurrence of the ocular palsy, associated with severe neuralgia and followed by complete recovery of the paralyzed muscles during the intervals, until the patient's fourth year, when the divergence remains, but the ptosis successively recurs and disappears as heretofore; finally, permanent ptosis at the twenty-eighth year, after the most violent attack of pain of the whole series, and the present appearance of complete permanent right oculo-motor palsy. Other nerves are not involved in this case, for example, the abducens, facial, or trifacial.

It is unnecessary to review the literature of this affection, which has recently been done in a masterly manner by Dr. Philip Coombs Knapp.² From Dr. Knapp's researches we learn that about forty cases of this affection have been reported; that it affects the two sexes nearly equally (twenty-one women, eighteen men); that in the majority of cases the disease begins in early life and usually, as in my case, with vomiting and severe pain, and that soon after the pain oculo-motor palsy has occurred.

According to Knapp, after a varying interval, from a week to four years, the attack recurs, rarely at a definite period, for example, the menstrual epoch. If the clinical history of my patient may be trusted, in her early life the attacks recurred with greater frequency than the shorter intervals just mentioned, namely, bi-weekly.

In a certain number of the cases, although there was complete recovery from the ocular palsy, in the intervals between the earlier attacks, a gradually increasing paralysis was observed, which finally became permanent (Roosa's case and my own).

In three autopsies thus far reported (Knapp, *loc. cit.*) the following lesions were found: inflammatory thickening of the nerve (Gubler); tubercular mass pressing on the nerve (Weiss); fibrochondroma separating, without destroying the nerve fibres (Thomson and Richter). Knapp concludes "that recurrent oculo-motor palsy is due to some vascular change, inflammatory or edematous, in a focal lesion involving the root of the third nerve. As the edema or exudation subsides, the conducting power of the nerve is wholly or partially restored, and the paralysis disappears. In some cases the lesion may involve several nerves, and the exudation may affect only a part of the lesion, involving different nerves at different times. As the lesion progresses, it may finally affect the nerve so far as wholly to destroy its conducting power, leading, as in Roosa's case, to permanent and total paralysis." The last sentence describes accurately the course of events in the case reported to-day.

Treatment — mercury, iodides, strychnia — was

faithfully tried without avail; and Dr. Bochoch, Chief of the Clinic for Diseases of the Nervous System, carefully and skilfully used electricity for several months without favorably affecting the paralyzed levator.

THE CONDITION OF THE NOSE IN PHTHISICAL PATIENTS.

BY J. PAYSON CLARK, M.D.,

Physician for Diseases of the Throat, Massachusetts General Hospital.

It seems not out of place as a preface to the following observations to review briefly our present knowledge of the functions of the nose as a respiratory organ, and of the structures most necessary to the proper carrying on of these functions. Bosworth, writing on this subject, says: "The nasal passages contain an exceedingly important, perhaps the most important, and certainly the most intricate apparatus, connected with the function of respiration, of the whole respiratory tract, and one on whose normal functional activity depends the integrity of the whole of the mucous membrane of the respiratory tract below."

Before speaking of this "intricate apparatus" let us see what are the functions which it should normally perform. The two most important functions of the nasal chambers are to thoroughly warm and moisten the inspired air. Another function apparently less thoroughly performed is the arresting of mechanical dust, while a possible fourth, not as yet sufficiently established to rank with the others, is the destruction or diminution of the vitality of pathogenic germs. It is only comparatively recently that the existence of any of these functions has been recognized and demonstrated. In 1885 Bosworth, largely from clinical observation, advanced the theory that the five thousand grains of water, estimated by physiologists to be taken up in twenty-four hours by the inspiratory current of air from the whole respiratory apparatus, is derived solely from the nasal chambers. He further stated that "it is absolutely necessary and essential for the integrity of the lower air-passages that the air which reaches them should be so far charged with moisture that they should not be robbed of any of their secretion."

The organs for serous transudation are the large plexuses of blood-vessels covered by mucous membrane and lying on the inferior and middle turbinated bones, the so-called erectile tissue of the turbinated bodies. The special method of this transudation we do not yet know, unless it may be through the minute canals, running at right angles to the mucous membrane, penetrating to the lymph channels, as described by Chatellier. These large reservoirs of blood must also be, to a great extent, the source of the heat which the inspired air acquires in passing through the nose. Aschenbrandt proved in a series of experiments published in 1886 that the temperature of the air in passing through the nose is raised to 86° F. As the temperature of the expiratory current in ordinary respiration is 86° F., the warming of the air in respiration must be done exclusively by the nose. He also found that air in its passage through the nose is saturated with moisture, and that mechanical dust is completely arrested in the nose. Kayser's observations in the same direction confirmed those of Aschen-

² Boston Medical and Surgical Journal, vol. cxxxi, pp. 308-312, 1894.

brandt, except that he did not find the nose as perfect a filter for mechanical dust. Block reaches practically the same conclusions except that he "finds the expired air reaches only to two-thirds of the saturation point, and that the heating capacity of the oral cavity is inconsiderable."

The only function remaining for me to speak of is one not fully established, and certainly not generally recognized, namely, that of destroying the vitality of pathogenic germs. "According to Wurz and Lermoyez nasal mucus not only serves to mechanically arrest the irritating particles contained in the atmosphere, but it plays a much more active rôle by destroying the vitality of a large number of pathogenic bacteria. . . . This bactericidal action of nasal mucus showed itself in almost all varieties of microbes, the intensity of the effect produced alone presenting a certain degree of variation."

Such being the important position of the nose in the respiratory tract, and such being the duties assigned to it, the importance of its healthy condition to the rest of the respiratory tract and so to the whole economy is readily perceived. If the individual possesses a strong vitality, if the lung tissues are unweakened by any hereditary predisposition or unaffected by any actual disease, a considerable amount of impairment or suspension of the nasal function can be borne without any apparent injury to the respiratory tract, or with perhaps only an occasional attack of pharyngitis, laryngitis or bronchitis. But when the individual inherits any tendency to phthisis pulmonalis, or when the lungs have already become diseased, it appears to the writer difficult to overestimate the possible evil result of impairment of the respiratory functions of the nose.

With some such thoughts as the above in mind I began to make notes of the condition of the nasal chambers in the patients affected with phthisis whom I saw in the Throat Department of the Boston Dispensary and Massachusetts General Hospital. Finding that in this way I should be a long time collecting sufficient data for my purpose, I was enabled, through the kindness of the physicians on service at the time, to make a rhinoscopic examination of the phthisical patients at the Good Samaritan, the Free Home for Consumptives (in Dorchester) and at the Carney Hospital.¹ In these various institutions I examined in all one hundred phthisical patients. I also, in the Out-Patient Department of the Massachusetts General Hospital, examined the noses of one hundred patients who came for affections not connected with the nose, throat and lungs. These latter I took as examples of the condition of the nose in the average individual. I divided the cases into those which showed marked atrophy of the turbinates, those in which the atrophy was only moderate, and those in which the atrophy was slight or none. I also noted the existence of a ridge or deviation, obstructive or only moderately so. As markedly atrophic I considered those cases in which there was only a trace of the turbinated bones or in which the tissue was so shrunken over them that the outline of the bony framework could be distinctly seen, there being practically nothing left of the turbinated bodies. I considered moderately atrophic those cases where the

turbinates still retained some of their normal curved outline but were evidently much smaller than normal. I have grouped the cases which I marked slightly atrophic with those in which there was no atrophy, recognizing the obvious difficulty of distinguishing slight degrees of atrophy. I am also aware that there might be a difference of opinion in a given case as to whether there was moderate, slight or no atrophy. However, as I examined all the cases myself I think the personal equation may be safely eliminated. I also believe that in the phthisical cases I erred on the side of calling a case one of moderate atrophy where it might have been considered marked, or slight where it might have been considered moderate. These headings are, of course, purely arbitrary, and merely for the sake of having some basis for comparison.

Of the 100 non-phthisical individuals, in 56 the turbinates were practically normal; in one case they were hypertrophied; in 25 cases they were slightly atrophied, in 17 moderately atrophied, and in one case markedly atrophied. In none of these cases was there a ridge or deviation which could be considered more than slightly, if at all, obstructive.

The pharynx was noted as being atrophic, or as showing a chronic inflammatory condition, in 14 of these cases. A slight amount of atrophy in the pharynx was quite common.

Of the phthisical individuals examined, 21 presented marked atrophy of the turbinates, 32 moderate, 20 slight and 27 none. This is rather a remarkable showing, namely, over 50 per cent. of the cases with sufficient atrophy of the turbinates to be distinctly noticeable. Of course, it is more than probable that in a number of the cases noted as moderately atrophic, the atrophic appearance was secondary to the constitutional affection, the ex-sanguinated condition of the nasal mucous membrane in advanced pulmonary disease giving the turbinates a shrunken appearance amounting to moderate atrophy. Nevertheless, I shall endeavor to show later that in most cases the atrophic condition preceded the pulmonary affection. This precedence was unquestionable in the case of septal ridges and deviations. Of these there were sixteen cases in which the nasal obstruction was noted as considerable, and 32 in which the obstruction was only slight or inappreciable.

A chronic pharyngitis was observed in 33 cases, but in many of these the condition was so slight that the pharynx cannot be said to have been affected much if any oftener than in the other series of cases.

The larynx showed tubercular infiltrations or ulcerations in 13 cases, in three of which there was marked atrophic rhinitis, in four moderate, and in six slight or none.

There was a positive phthisical family history in 37 cases, and a doubtful one in 14, while the family history was negative in 39 cases, and not obtained in 10.

There were nine patients under twenty years of age, and 25 over forty, the rest being between these two periods; while as regards sex, 69 were males and 31 females.

Did the nasal atrophy, as a rule, precede the pulmonary disease, or was it more often a secondary condition? We can safely say, I think, that in the large majority of cases it existed before the pulmonary affection. In the following table I have taken

¹ I desire here to express my thanks to Dr. Algernon Coolidge, Jr., Dr. Edward O. Otis, Dr. James J. Minot, Dr. William N. Bullard and also to Dr. A. W. Fairbanks, who, as House-Officer at the Carney Hospital, rendered me valuable assistance.

the probable duration of the disease from the patients' histories.

Atrophy of Turbinates.		Probable Duration of the Pulmonary Disease in Years.						
		0-1	1-2	2-3	3-4	4-5	5-5+	No data
Marked	No nasal obstruction	5	1	..	2	..	1	1
	Slight do.	..	..	3	1	1	1	..
	Considerable do.	4	..	..	..	..	1	..
Moderate	No nasal obstruction	8	4	..	..	1	2	3
	Slight do.	3	4	3	..	1	1	1
	Considerable do.	..	1	..	..	..	..	..
Slight or None	No nasal obstruction	10	5	4	1	1	2	1
	Slight do.	5	3	2	..	..	2	1
	Considerable do.	3	1	3	1	..	1	1

From this table it will be seen that of the 21 cases with marked nasal atrophy, in 10 the pulmonary affection had existed less than two years; and that of the 30 with moderate atrophy, in 20 it had existed less than two years. Now I believe it will be generally conceded, that whatever may be its etiology, atrophy of the turbinated bodies is usually a slow process, and consequently in the cases of marked atrophy above mentioned had probably been fully developed before the pulmonary disease was acquired. In some of the moderately atrophic cases, the atrophic appearance of the turbinates may have been dependent on the general anemia and malnutrition accompanying phthisis; but since in 20 of these cases the pulmonary affection had existed less than two years, I think it is fair to assume that in a large proportion of the moderately atrophic cases this condition had existed prior to the pulmonary disease, and was independent of it. Another significant fact is that while of the 100 "control" cases in none was there a ridge or deviation which could be considered more than slightly, if at all, obstructive; of the phthisical cases 16 had ridges or deviations causing considerable obstruction.

While the number of cases is perhaps too small to draw any definite conclusions from as regards the possible etiological relation of these nasal affections to pulmonary phthisis, the results of these observations are certainly significant, and tend to show that the subject might repay further investigation. They also show the importance of a routine examination of the nose in individuals in whom the existence of phthisis is suspected as well as in those in whom the disease is already established, and the importance of the application of suitable remedies to any existing pathological condition in the nasal chambers.

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DIPHTHERIA IN ST. LOUIS.—Health Commissioner Starkloff of St. Louis has made a report to the Board of Health to the effect that diphtheria is practically epidemic in that city, 170 cases having been reported since September 1st.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND E. W. CUSHING, M.D.

ERYSIPELAS-SERUM FOR THE TREATMENT OF CANCER.

PROFESSOR BRUNS, of Tübingen,¹ reports the results of the treatment of six patients treated with the Emmerich erysipelas-serum—four cases of carcinoma, one of sarcoma, one of malignant lymphoma. Diagnosis was made by a histological examination of a section of the tumor. In no case did the growth seem to be influenced by the treatment in any way. Three patients at once, after the injection, had short attacks in which the respiration and cardiac action were disturbed to a marked, almost dangerous, degree. In all there was a rise of temperature and disturbance of the general condition. In one case the fever lasted eight days. The cause of these disturbances was probably a non-sterile condition of the serum.

CAUSE OF DEATH FOLLOWING BURNS.

This subject has been studied by Reiss² exhaustively, for the purpose of learning the true explanation of the cause of fatal results in severe burns not due to shock, sepsis, or similar explainable complications. The article is an interesting one, and describes at length a careful laboratory investigation, the conclusion of which is that from the urine of fatally burned patients a substance was obtained thought to be pyridine, which when injected into animals produced somnolence, anuria and vomiting. At autopsy, without appreciable pathological changes it was found that the expressed juice of the liver, kidney and spleen had a peculiar empyreumatic odor. Reiss believes that the symptoms in the fatal cases are probably produced by the action of the pyridine or animal oil, or analogous substance. This is found increased in the urine when patients show improvement. In fatal cases the quantity in the urine remains small.

In regard to the treatment there is no antagonizing or neutralizing substance to pyridine that is known; hence those methods which free the system as rapidly as possible are indicated. For this purpose Reiss recommends venesection followed by saline infusion, and ablation of necrotic areas to prevent absorption. When vomiting and somnolence occur the result is usually fatal. The other theories as to the cause of death, as well as a good translation of Reiss's article, are to be found in a recent editorial by G. D. Holsten in the *Annals of Surgery*.³

LOCAL TRAUMATIC EMPHYSEMA OF THE SKIN AFTER LAPAROTOMY.

Dr. Max Madlener⁴ has observed this condition in four cases. The origin, he considers, is probably due to the vomiting following the operation, which forces the air shut up in the abdomen at the operation into the subcutaneous areolar tissue. It is favored by the patient lying with the pelvis raised and by the non-accurate suture of the abdominal wound; also in cases of "ventro-fixation" to the lower angle of the wound.

¹ Deutsche med. Woch., 1895, xxi, 20.

² Arch. f. Dermat. und Syph., 1893, Ergänzungsheft 1.

³ Vol. xxii, 1895, 275.

⁴ Münch. med. Woch., 1894, xli, 24.

EXPERIMENTS ON THE GALL-DUCTS AND THE LIVER.

Nasse, of Berlin,⁵ has studied the effect of extirpation of the gall-bladder. Guinea-pigs and rabbits were unaffected. He was unable to corroborate Oddi's results, namely, that dogs after removal of the gall-bladder suffered great hunger, diarrhea and emaciation; that later there also developed a dilatation of the gall-ducts. None of Nasse's dogs showed these symptoms or condition. He also ligated single branches of the hepatic duct. This caused an hypertrophy of those hepatic areas where the biliary currents were unobstructed. In the ligated portions small areas of necrosis were found, also proliferation of the gall ducts and an increase of connective tissue. Rapid atrophy of hepatic cells and shrinking of the affected lobe occurred. This change was complete in four months. The lobe then consisted of fibrous connective tissue and gall-ducts. In cases where the obstruction of the ducts was temporary, the development of ducts and connective tissue was checked, when the ducts became again patent. Even liver cells regenerated after extreme degeneration.

THE RADICAL CURE FOR HERNIA.

Professor Ferguson, of Chicago,⁶ has made another contribution to the operative methods for the cure of hernia. The paper is an interesting one, comprising a consideration of the methods now most in use, the advantages and disadvantages of each, and an illustrated description of his own operation as applied to inguinal and femoral hernæ. The latter are what are of interest in this connection; and for a detailed account the reader is referred to the text of the article. The essential features of the operation are as follows: The sac is exposed in the usual way. It is sutured into position *à la* Macewen. Ferguson thinks that the pad formed by the invaginated sac is valuable and should be preserved; the sac should not be ligated and cut off. The transversalis fascia is sutured from the pubic bone to the root of the cord by an especially applied suture. The transversalis internal and external oblique muscles are all sutured under the cord, making the cord subcutaneous, following the idea of Halsted and Bassini. The method with the exception of the suture used is a combination of previous ideas. Its results are satisfactory.

VENTRO-FIXATION FOR COMPLETE RECTAL PROLAPSE.

Arnold Caddy, F.R.C.S. (Eng.), of Calcutta,⁷ has successfully treated a patient, age thirty-two, affected with a complete prolapse of the rectum, by the above method. The protrusion of the rectum measured six inches in length and eleven in circumference. There was complete atony of the sphincter. The abdomen was opened by an incision parallel and two inches above Poupart's ligament, on the left side. The large intestine was followed to the rectum, which was elevated till the prolapse was reduced. The gut was then fixed in this position by silk sutures, which trans-fixed the meso-rectum and then passed through the abdominal muscles. These sutures were fastened subcutaneously, by retracting the skin while they were tied. The appendices epiploicæ were also included in

the fine silk suture which closed the peritoneal wound of the abdominal wall. During recovery from the operation defecation occurred daily without detriment to the patient. Patient practically well after one month.

DIAGNOSTIC URETEROTOMY.

H. A. Kelly⁸ advises exploration of the ureter through a short longitudinal incision (one-half centimetre) as it passes the pelvic brim, to ascertain its patency or intactness when the surgeon, while operating in the pelvis, is in grave doubt as to whether it has been cut or included in a ligature. The method consists of making a longitudinal cut in the wall of the ureter and passing a small ureteral sound into the bladder through the incision. This demonstrates at once the patency of the ureter and the point of injury or constriction. The cut is closed by fine mattress sutures lightly passed through the outer coat of the ureter. In this way Kelly demonstrated at once constriction of the ureter by a ligature and saved much valuable time. The ureteral wound has healed satisfactorily in all cases (three patients).

SALINE INFUSION FOR SUPPRESSION OF URINE.

Dr. McBurney⁹ reports a case in which a quart of salt solution injected into a vein in the arm, apparently saved the life of a patient in whom there was marked diminution in the excretion of urine (four ounces by catheter in twenty-four hours) following the removal of a large calculus from the right kidney. The suppression occurred the day following the operation and was accompanied by nausea, vomiting, headache and symptoms of uremic poisoning. Improvement was immediate after the injection. The case is reported for the purpose of further testing this method.

THE TECHNIQUE OF AMPUTATING LIMBS.

Credé (Dresden) described his method of amputating at the Twenty-third German Surgical Congress,¹⁰ and claims that since it makes no difference whether the operation is aseptic or antiseptic; whether an Esmarch bandage is used or not; and since it is much more rapid than the usual operation, it is especially valuable in military surgery. His method differs from the usual one in that no sutures or drainage are used. [Drainage is usually omitted in the United States.] The wound is approximated and kept dry by the compression bandage, applied as described by the writer. This also controls hemorrhage. Credé contrasts his results with the usual statistics. He claims that not more than one-third of amputations heal by first intention after the usual operation. He has collected twenty-two operations in two years—less than half from injuries, the remainder pathological. Two-thirds healed by first intention; the others with small local infections within three weeks, except one (four and one-half weeks).

HOFFA OPERATION FOR CONGENITAL DISLOCATION OF THE HIP.

Hoffa¹¹ has demonstrated a specimen obtained from a three-year-old child which died of diphtheria after complete recovery from the Hoffa operation. The affection was double. The post-mortem specimen of the pelvis showed that a good joint had been formed.

⁵ Verhand. der deutsche Gesellschaft. f. Chir., xxiii Kongress, 1894.

⁶ Annals of Surgery, 1895, vol. xxi, 547.

⁷ Loc. cit., 163.

⁸ Johns Hopkins Bulletin, 1894.

⁹ Annals of Surgery, 1895, vol. xxii, 266.

¹⁰ Verhand. der deutsche Gesellschaft. f. Chir., xxiii Kongress, 1894.

¹¹ Loc. cit.

The new acetabulum, which at the operation was soft and spongy bone was found to be covered with a complete layer of hyaline cartilage.

OPERATIVE TREATMENT FOR FRACTURE OF THE PATELLA.

Fowler (Brooklyn)¹² has recently called attention again to this method of treatment. He attributes the non- or ligamentous-union of the patella so commonly seen to failure of apposition of fragments, interposition of soft parts or supervention of osseous disease. One danger in operating on these cases is septic infection, with resulting loss of life or impairment of joint function. This Fowler proposes to avoid by postponing operation on these cases till the lacerations of the joint capsule have healed (generally two weeks), and until time has been given to thoroughly disinfect the skin. Then the operation can be performed without exposing the knee-joint. The technique of the operation is fully described by the writer. The essential features are to avoid septic infection; to avoid exposing the cavity of the joint and its structures as little as possible; to operate through the smallest incision possible; to remove all foreign bodies from the joint; to approximate fragments accurately, and fix from without; and to suture wound without drainage, and fix till union with plaster-of-Paris. For fixation he uses a modified Malgaigne hook, and removes with care all substances intervening between the fragments.

DISINFECTION OF KNIVES.

Otto Ihle (Dresden)¹³ has investigated the method of sterilizing knives by boiling in a soda solution, and concludes that if a knife is found dull after such treatment it is because the edge has been in contact with other instruments or hard substances, or that the solution was not strong enough. To protect the knife from the former danger it is boiled in a perforated lead box. He also found that the pulverized soda of commerce usually contained only 10 to 20 per cent. of pure soda. It was most often diluted with common salt. Crystallized soda had a more constant composition but is only 38 per cent. soda, the remainder being water of crystallization. By heating this, however, a mass of about 90 per cent. is obtained. Therefore, the crystalline form is the one to be used, and a three-per-cent. solution of this salt is equivalent to a one-per-cent. solution of pure soda. If dessicated crystals are used, a one-per-cent. solution is sufficient.

CARDIAC SUTURES.

Del Vecchio¹⁴ states, that, as the result of his experiment on dogs, treatment by suture of penetrating wounds of the heart in dogs is satisfactory and successful. If called upon to perform this operation on a human subject he would follow the following method which anatomical investigation has shown to be the most desirable: The heart is exposed through an H-shaped incision, made as follows: One cut along the left sternal border of the third rib to the upper border of the seventh. A second is made parallel to this, through the nipple. These two vertical incisions are united by a transverse cut along the fourth intercostal space. The fourth, fifth and sixth ribs are sawn through at the points where they are exposed by

the vertical incisions and the entire flaps (skin, muscle, bone) are turned up and down. The pleura is retracted to one side and the pericardium opened.

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Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-FIRST ANNUAL MEETING, BOSTON, JUNE 5, 6 AND 7, 1895.

(Continued from No. 13, p. 324.)

DR. F. X. DERCUM, Philadelphia, read a paper on TWO CASES OF "RAILWAY SPINE," WITH AUTOPSY.

CASE I. No element of litigation. G. T., forty-seven, single, upholsterer, in good health to October 22, 1890. On that day fell a distance of thirty feet upon a mound of earth, striking upon the back and head; became unconscious, and remained so until removal to hospital same day. At first very much confused; intense pain in back; entire body seemed to tremble. Seen by the writer October 27th. Walked without help. Steps shorter and slower than normal. Complained of pain in the lower dorsal and lumbar regions; and here deep pressure revealed great soreness. Marked pain in this region by flexion, torsion and transmitted shock. Marked spasm of the muscles in this region on movement. Marked tremor of arms and shoulders. Complained of headache and seemed much depressed. Placed in bed on rest cure. Massage attempted, but abandoned owing to painful condition of back. Back became more painful. Spasm of muscles soon almost constant. Rigidity very marked. Back soon became sensitive to superficial pressure. Excessive sweating set in. Tremor more pronounced. Four weeks after admission symptoms at their height. Patient excessively depressed; disturbed sleep; startling dreams; tinnitus aurium; difficulty in passing water. Loss of sensation in both feet. Weakness extreme; unable to stand. Sweating continued unabated. Bowels constipated. Knee-jerks exaggerated. Micturition frequent.

¹² *Annals of Surgery*, 1895, vol. xxi, 621.

¹³ *Arch. f. klin. Chir.*, 1894, Bd. xlviii, Hft. 4.

¹⁴ *Riforma med.*, 1895, Nos. 79, 80.

Remained in this condition with little change until February, 1891. Spasm of muscles now widespread. Speech spasmodic, resembling that of a person with chill. Plaster jacket worn a month to secure absolute rest. Massage again instituted; well borne, and appeared to be followed by more marked improvement. Patient walked out of hospital in June.

October 21, 1891, again admitted, having suffered some exacerbation of his symptoms. Remained in the hospital, with the exception of a few months each year, until the spring of 1894. During 1892 and 1893 his condition had undergone little or no change. He died suddenly in Camden in the spring of 1894, death being attributed to acute alcoholism.

At the autopsy no gross changes were found in the nerve centres or in any viscera, save slight fatty infiltration of the liver and a slightly granular condition of the kidneys and a few patches of beginning atheroma in the larger blood-vessels. The brain, spinal cord, medulla and pons, the median, ulnar and sciatic nerves examined microscopically, but no changes found of significance. Sclerosis of the smaller vessels not revealed, nor were changes noted in the fibres or nerve cells not attributable to post-mortem changes or to the methods of preparation.

CASE II. H. H. D., forty-six, contractor. Endeavoring to cross a railroad track in a sleigh, January 15, 1893, he was struck by the engine of an express train and tossed in the air, so that the engine and tender passed under his body which in its descent struck the roof of the second car and thence fell to the ground. Taken unconscious to the hospital. Seen in consultation February 13, 1893. Severe, traumatic, left brachial neuritis and left brachial monoplegia, with atrophy of the muscles about the left shoulder. Severe sprain of muscles of back. Right hemianalgesia extending from the foot up to the level of the nipple. Right hemi-thermo-anesthesia extending from the foot up to the level of the false ribs. Exceedingly weak physically, but mentally seemed clear. Mental depression not a marked feature. Seen again May 19th. Previous symptoms again noted. Left brachial monoplegia and muscular atrophy more pronounced. Man looked badly.

November 8th, almost complete loss of voice noted. Patient had had difficulty in swallowing solids, and of late had been compelled to resort almost exclusively to liquid diet. Muscles of right shoulder atrophied. Loss of power in left arm had increased, and atrophy evident in its muscles. Paresis of right half of face more marked, as was also the twitching of the muscles. Muscular twitchings on the left half of face. No reaction of degeneration. Tongue when protruded deflected toward left; left half apparently smaller than right. Taste apparently lost on anterior two-thirds of tongue on either side, and diminished in posterior third. Sensory symptoms previously noted not changed. Distinct diminution of tactile sense, corresponding more or less closely with area of hemianalgesia. Knee-jerks slightly diminished. No ankle-clonus. Never any affection of sphincters. Pupils small, and react feebly to light but readily to accommodation. Urine normal. November 13th, left hemipalsy of larynx diagnosed. It was thought probable that this was nuclear in origin; but thoracic aneurism was considered, though physical examination failed to reveal any symptoms.

January 28th, 1894, right facial atrophy more evi-

dent; twitching of facial muscles somewhat less marked. Marked atrophy of left sterno-mastoid and sterno-hyoid and thyroid group; supra- and infra-spinatus muscles markedly atrophied on both sides; the gluteal muscles of both sides atrophied; other muscles of both arms and legs exhibited signs of general wasting. Legs and feet livid, almost cyanotic; feet cold to touch. Excessive varicosity of both thighs, greater upon the left side. Knee-jerks *plus*, but readily exhausted. Tactile sense preserved, but slightly diminished in the right leg and right side of trunk. Decided analgesia of the right leg and right side of the trunk as far as median line and as high as fourth interspace. Thermal anesthesia of right leg and trunk as far as median line and to the level of false ribs.

March 9th, effusion into left pleural cavity, and fluid aspirated. Physical signs of aneurism sought, but not found. Two days later patient died suddenly.

At the autopsy microscopical examination of the brain and cord revealed no facts of moment. A large fusiform aneurism, involving mainly the descending portion of the arch of the aorta, had ruptured into the left pleura. In the latter cavity was found a mixture of serum and blood, the entire pleura being enormously distended. The walls of the aneurism not markedly thickened, nor were calcareous deposits and other evidences of great age present. The aneurism had evidently produced effusion into the left pleura by pressure upon the left pulmonary veins. Abdominal viscera revealed no changes worthy of note. The methods of Golgi and y Cajal not used in examining the brain, pons, medulla and cord.

DR. COLLINS, of New York, said these two cases should teach us quite as much by their negative as by their positive findings. In such cases it did not seem to him that we could expect to detect changes in the brain and cord by the crude methods of Weigert, etc., and that in making anatomical and pathological observations we did ourselves an injustice not to employ the recent methods of staining for the detection of cellular change of the nervous system. The fact that in the second case there was such a gross anatomical change in the vascular system, which in all probability was due to the trauma, was in line with the recent views that through this grand or petit trauma there was brought about in the entire system a vascular change, and that the changes in the nervous system were secondary.

DR. MILLS, of Philadelphia, said he thought the examination should have extended to the dorsal spinal ganglia and their cranial homologues and other intracranial ganglia related to sensory nerves. We now know that the original lesion or injury may be in these parts.

DR. PRINCE, of Boston, said he thought the result of these autopsies showed that the original exciting cause was the psychical and not the physical shock. He did not doubt that finer methods of staining would have revealed changes in various parts of the body, but he did not think one could infer that these changes were the original cause of the symptoms.

DR. FISHER, of New York, mentioned two cases now under observation. In the first the patient had already recovered damages from a railroad company, and there was nothing to be gained by simulation. On the slightest attempt to manipulate the muscles the patient had excessive spasm, and excessive per-

spiration broke out all over the body. The reflexes were uniformly and always exaggerated. No sensory disturbances. This condition lasted two or three years. He could not conceive such a functional condition continuing where the manifestations of the disease were uniformly the same without there being at the base of it some pathological change. In the second case, after injury there was complete hemianesthesia, involving the whole half of the face and the rest of the body. More or less complete recovery followed in two months. He agreed with the other speakers that there must be some definite lesion yet to be discovered in most of these cases.

DR. BAKER, of Utica, said we had to take into consideration the fact that at the time of the accident there was set in the organism a copy which might be psychical or traumatic, and that the impression then made became perpetuated in a series of mimeries, so to speak: and in studying this series of mimeries we brought out the fact that it was a matter of attention on the psychical side. There always resulted a fixation of attention which might bring about in the higher cortical centres changes anatomical in nature which at present we cannot determine.

DR. GRAY thought that with the advance of histological methods the term hysteria would be done away with, and that changes in the texture of the cells in the nervous system would be found which would demarcate even what we now called the functional forms into distinct and recognizable types under different names. He was unwilling to believe that these traumatic cases of railway-spine were pure cases of hysteria, even assuming that there was a certain class of phenomena which we could provisionally call hysterical.

DR. DERCUM, of Philadelphia, said that both autopsies were made under conditions that did not favor great refinement. He was fully convinced that other methods would probably have shown some changes. He believed that the aneurism was due directly to the trauma, bruising the vessel wall with the tremendous force of the blow, and that the left hemipalsy of the larynx was due to the aneurism. It was a curious fact that the hemianalgesia and the hemi-thermo-anesthesia never varied in their level or area of distribution. It was a question with him whether we were justified in attributing every case of hemi-anesthesia at once to hysteria.

FIRST DAY. — AFTERNOON SESSION.

DR. M. ALLEN STARR, of New York, gave a

LANTERN EXHIBITION OF PHOTO-MICROGRAPHS OF NERVOUS HISTOLOGY; GOLGI STAINS.

DR. EDWARD WYLLYS TAYLOR, of Boston, gave a

LANTERN EXHIBITION OF THE MEDULLA OBLONGATA OF A CHIMPANZEE, WITH OTHER SPECIMENS.

DR. THOMAS DWIGHT, of Boston, exhibited

THE BRAIN OF A CHIMPANZEE.

DR. WILLIAM TOWNSEND PORTER, of Boston, read a paper on

THE PART OF INHIBITION IN THE PHYSIOLOGY OF RESPIRATION.

In comparatively recent times the theory of inhibition had been used to explain certain phenomena connected with respiration. The point particularly in

question was that of spinal respiration, so-called. It was known that when the spinal cord was cut across between the bulb and the centres for the phrenic nerve, that the phrenic nerve apparently ceased to act. The respiration of the diaphragm was entirely suspended and without artificial respiration death followed in a few minutes. If artificial respiration was done several hours, it was found that on interrupting the respiration a few moments movements of the diaphragm took place resembling movements of respiration. From that it was claimed that the centre from which the impulse of respiration started was not in the spinal bulb, but in the spinal bulb and in the spinal cord, that is, that the respiratory muscle nuclei possessed the power of sending out automatic impulses, and that respiration was the result of the combined automatic action of these individual groups, and not the result of discharge of automatic impulses situated in a single bulb. Section of the spinal cord caused an inhibition of the action of the phrenic nuclei, and this inhibition lasted such a long time that no means of keeping the animal alive sufficed to bridge over this period; consequently, the upholders of the doctrine assumed, first, that the phrenic nuclei were automatic centres. They supported this assumption by a second assumption, that section of the spinal cord caused inhibition of these centres. And if this inhibition theory did not hold good then the original assumption did not hold good, because they could not then explain the uniformly fatal result of the operation.

It was possible, however, to show that inhibition played no part in the physiology of respiration, at least in the part mentioned here. If section was made across one-half of the spinal cord, you got in the majority of cases a standstill of the diaphragm on the same side. If you cut the phrenic nerve during that standstill the diaphragm on this side supposed to be inhibited began to contract, showing that the cells were not inhibited, but merely resting. The explanation of this phenomenon was found in the fact that the respiratory impulse descended the lateral columns, and was ordinarily discharged in greater amount upon the same side. When, however, the respiratory path on that side was interrupted, the greater amount which was discharged on that side passed over to the other side, and these resting cells which previously had received but a small portion of the respiratory impulse now received a greater respiratory impulse, and got enough to begin to contract. It must follow that two hemisections while separating the cord from the bulb could not inhibit the respiration of the phrenic nuclei. If one hemisection did not inhibit, hemisection on the other side would not inhibit its side. It was certain that inhibition of respiration was not caused by a section passing between the phrenic nuclei and the bulb; consequently, the cause of the fatal arrest of respiration following section across the spinal cord between the phrenic nuclei and the bulb could not be inhibition, hence the only explanation left is that the phrenic nuclei no longer received the impulses from the bulb and could not originate respiratory impulses. It followed then that the respiratory centre was not situated in the spinal cord, but in the bulb.

The general application was this: The present doctrine found in the text-books was that the spinal cord contains centres for such functions as micturition, defecation, etc., in the lower part of the cord, and that these centres were, according to Goltz, inhibited by a

section of the cord above them. If now the inhibition was proven not to exist for respiration, then it followed with some degree of probability that Goltz's assumption was not well grounded, and on this pure assumption rested the present teaching.

DR. THEODORE H. KELLOGG, of Willard, read a paper on

THE PULSE IN INSANITY — ORIGINAL STUDY OF CASES.

Dr. Kellogg's conclusions, based upon a study of 2,172 cases, were that there was considerable increase in the frequency of the pulse in both sexes in confirmed cases of insanity. Intermittence and irregularity of the heart, cardiac symptoms and valvular lesions were found in about 10 per cent. of all established cases of mental disorder. Abnormal sphygmographic tracings were to be found at some stage of the disease in the vast majority of cases of insanity. They were due to affections of the cortical and spinal motor and vaso-motor centres, to various lesions of the sympathetic, to disorders of the pneumogastric, to peripheral and central vascular changes, to degenerations of central organs, to toxic agents in the blood, to auto-intoxications, to cachectic and diathetic conditions, to cardiac lesions and to a great variety of intercurrent causes. These abnormal pulse-tracings varied much in different kinds of insanity and in different individuals suffering from the same form of disorder, and they were best classified according to the actual physical status of the patient and the etiology and stage of the mental disorder. No one sphygmogram was pathognomonic of any particular form of insanity, but there were certain general types of tracings which were found in one form of mental disease and not in another. Sphygmographic studies to be of special value should be continued in the same patients throughout an attack of mental disorder, and tracings finally obtained in convalescence should be preserved for comparison. Unfortunately, studies with the sphygmograph were laborious and time-consuming, but they were of such diagnostic and prognostic value in mental disorders that they had already become an indispensable part of the alienistic science.

DR. C. K. MILLS, of Philadelphia, read a paper on

THE LOCALIZATION OF LESIONS IN THE PONS.

He first presented the record of a case, with autopsy and drawings of microscopical sections. This patient was a man fifty-three years old with a syphilitic history. His intracranial symptoms came on about eight months before his death, the first being paralysis of the left abducens nerve. He had attacks of weakness and dizziness. He showed on examination paresis of the left leg and arm, paralysis of the left external rectus, paresis of the right external rectus with some restriction of ocular movements to the left. The patient was extremely emotional. No areas of anesthesia discovered. Knee-jerks exaggerated on left side. Examination of the pons and pre-oblongata revealed a lesion by a cut fifteen millimetres carried to the junction of the pons and crus. It was close to the median line, almost entirely in the dorsal half of the pons. Its width in the first state was five millimetres; dorso-ventrally its dimension was about eight millimetres. Sections through the lesion showed an area of degeneration much larger than that revealed when the specimen was fresh. Softened and degenerated tissue was found on both sides of the

median line, much more marked on the left. As shown by the microscopical examination, the parts involved in the lesion were the right mesial fillet and pyramidal tracts to a slight degree, and the root fibres of the abducens. In connection with this case remarks were made on the method of localizing small gross lesions in the pons. This method was founded upon a number of cases most of which had been published. He divided each half of the pons and pre-oblongata into nine segments, three ventral, three dorsal and three intermediate between the ventral and dorsal. Drawings were shown which were based upon actual sections of specimens. The parts played by the cranial nerves, by the superficial and deep transverse fibres, by the pyramidal tract, the fillet, the various systems of root fibres and the nuclei of the cranial nerves and the special frontal nuclei in this method of local diagnosis were shown.

To be continued.)

Recent Literature.

Lectures on Surgery. By DAVID W. CHEEVER, A.B., M.D. (Harv.), Professor of Surgery, Emeritus, in the Medical School of Harvard University; Senior Surgeon of the Boston City Hospital; Fellow of the American Surgical Association, etc.; 600 pages. Boston: Damrell & Upham. 1894.

To those whose privilege it has been during the past thirty years to receive instruction from its distinguished author this volume will be read with great interest and satisfaction. It will also be found in the medical libraries of many others. It is compiled from the stenographic reports of lectures given to form a part of a course of instruction in surgery at the Harvard Medical School, which includes many other instructors and special departments. It gives the lectures as delivered, unaltered except verbal corrections in revision. They are well known to the medical public since they have recently been separately published in the *Boston Medical and Surgical Journal*. It is with much satisfaction that its readers find them at their disposal in book-form.

Concerning the character of the work and the correctness of the statements which appear on its pages, one has only to know the name of the author to be satisfied. One recognizes at once the concise, accurate, vivid picture—an effect produced by words alone, a characteristic rarely found developed to such a degree even among noted teachers. It is a book especially adapted to the student, since its author is one of the few surgeons who were pre-eminent in the best part of the preaseptic era, and who still keep pace with the development of modern surgery and its methods. The results of his enormous experience during this long period are epitomized in these lectures.

Aside from its value to the general medical public, this book has an additional intrinsic value to many of its readers. It is a memento to the members of those numerous classes who have during the past thirty years been so fortunate as to have heard these lectures from the teacher himself—to have personally met and known him. To them these pages will be alive with the character and rare personal qualities of the man.

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PROFESSOR LOUIS PASTEUR.

In the death of Louis Pasteur the world must recognize the loss of one of the most distinguished scientific men of the century. His death, following so closely upon that of Tyndale and Helmholtz and Huxley, leaves the end of our century comparatively poor in the exponents of notable original research. Virchow is approaching his seventy-fifth year, and it is hardly to be expected that he will add materially to the monumental work he has already achieved, though it is earnestly to be hoped that he may lend the weight of his mature judgment to the pressing scientific questions of the time for many years to come. The opening of another century must look to a younger band of workers to carry on the investigations originated by these master minds. No doubt such will be found, but that makes us feel none the less the loss of another of the distinguished company which has made this century the most notable in the history of scientific advance.

Like many men who have later in life attained positions of distinction, Pasteur was of extremely humble parentage, and gained his early education under the stress of poverty. He was born at Dole, in the Department of the Jura, December 27, 1822. He became at eighteen a member of the university, in the difficult situation — corresponding to that of a sizar in England — of a supernumerary master of studies at the College of Besançon. At twenty-one he was admitted as a pupil to the normal school. He was a graduate in the physical sciences in September, 1846, but he remained at the school two years longer as an assistant instructor in chemistry, obtained a doctor's degree and received the appointment of professor of physics at the Lycée of Dijon. Then his long years of comparative poverty came to an end.

At an early age it was evident wherein his genius lay, and shortly after his graduation at the École Normale, and his attainment of the doctor's degree, he was appointed professor of physics at Strassburg.

This was in 1848, in his twenty-sixth year. Later, in 1854, he became dean of the newly-created Faculty of Sciences at Lille, and in 1857 returned to Paris to undertake the scientific direction of the Normal School.

From this time on honors crowded upon him. He became a member of the Legion of Honor in the year 1853, received the Rumford medal of the Royal Society of London in 1856, a reward of 10,000 florins from the Austrian Ministry of Agriculture and the rank of Commander of the Legion of Honor from the French Emperor in 1868, a degree appointing him a senator in 1870, a premium of 12,000 francs from the French Société d'Encouragement in 1873, the Copley medal from England, and an annuity of 12,000 francs from the Assemblée Nationale in 1874, the rank of Grand Officer of the Legion of Honor in 1878, election as a member of the Académie Française, to succeed Littré, and the Albert medal of the Society of Arts in 1882, and the magnificent laboratories of the Pasteur Institute in Paris, built by popular subscription and a liberal contribution from the Czar of Russia. Roty, the excellent medallist, produced in 1892 a commemorative medal of him.

In 1863 he published his work whose consequences have been so far reaching, entitled "A New Example of Fermentation, showing that the Animalcula Infusoria is able to exist without Free Oxygen." It is hard for us now to realize how revolutionary were the ideas advanced regarding the fermentative processes and how bitterly they were attacked. The array of data, however, which Pasteur had to offer made their acceptance merely a matter of time and his position in the scientific world was once for all established.

His subsequent work, of which his researches on fermentation were the key-note, are so familiar as to require only a passing mention. His investigations into the disease which in the later seventies threatened to destroy the wine-growing industry of his country, his discovery of the cause of the silk-worm disease, and his patient researches into the cause and cure of hydrophobia, might each have been a life-work for a man of less breadth and industry. Vastly important as each of these has been in the industrial and medical history of the century, we must attach even more significance to his clear insight into the genesis of the various infectious diseases and to the rational and largely successful methods taken, in consequence, to check their inroads. We do not generally realize that to Pasteur we owe our modern aseptic and anti-septic surgery. The so-called "triumphs of modern surgery" are almost wholly dependent upon the painstaking researches of this truly-profound scientific student. An application of the facts, which he had so laboriously gleaned, was Lister's minor work.

In many respects Pasteur may be aptly compared with Darwin. Both had to an eminent degree the two prerequisites of a scientific mind: first, the industry necessary to collect facts; and, secondly, the much rarer power of just generalization from the facts obtained. The union of these two attributes both pos-

sessed. When Darwin's revolutionary hypothesis of the "Survival of the Fittest" was given to the world, the inevitable antagonism which it aroused was met by an incontrovertible appeal to the facts which he had spent his life in collecting. When Pasteur's theory of fermentation was first enunciated it was likewise vigorously attacked, but also received its verification in the vast amount of experimental data which its author had to offer.

Apart from all other qualities, it was peculiarly this that made both of these men eminent in their quite different fields — that their industry was of that patient sort which published no result, until that result was fortified by a wreath of carefully observed facts. Premature generalization is hardly less fatal than none at all.

Remarkable especially about Pasteur's work was its eminently utilitarian character. It is one of those rare instances in which research pursued for its own sake, in the quiet of a scientific workshop, has led to untold practical benefit to the world at large. To those who are inclined to scoff at the utility of scientific investigation we have but to point to this work as an example of what may be, and in fact, must be accomplished by the student, and by him alone, in the development of civilization in all its phases.

THE DANGERS OF MURPHY'S BUTTON.

A COMPILATION recently published¹ of several cases where the intestine was united by the Murphy button gives interesting data as to the practical effect of this appliance. In one case where death occurred with symptoms of obstruction, the opening of the button was plugged with hardened feces. In another, the button was removed by a second operation from the *proximal* side of the anastomosis. Again, death occurred from intestinal gangrene at the site of the button, possibly from the manner in which it was applied (too close approximation of the edges) or its extreme size and weight. In another case the button was found on the proximal side of the end-to-end resection at the autopsy. In two cases of gastro-enterostomy the button was found after death in the stomach — one patient living ten days, the other two to three months. It is evident from the above that the danger of retention of the button is a real one, notwithstanding the successful cases reported. Its principal claim is that it can be applied rapidly, which is true. This will restrict its use to those cases where the most rapid operation possible is indicated, where speed is required at all hazard, and other risks must be ignored on account of the limited time at the disposal of the operator on account of the condition of the patient. The button itself is an appliance which should be properly made, and the technique of its application thoroughly understood.

There can be little question that the use of the larger Murphy button is, in the hands of most

operators, safer than anastomosis by suture in cases where the condition of the patient renders haste necessary. But, on the other hand, it is for just this class of cases that the anastomosis by absorbable plates — the bone plates of Senn, or the vegetable plates advocated by Dawbarn — have been devised. Anastomosis by these plates takes very little more time than by the Murphy button, and has the advantages of providing a free opening, and of being free from the danger of remaining on the proximal side of the anastomosis as a foreign body in the stomach or intestine. Again, the danger of producing pressure gangrene of the apposed edges is greater in a mechanical appliance of the size and weight of the button, and its unyielding metallic catch will allow no relaxation of its grip if once too firmly made.

Over the lateral or end-to-end anastomosis by suture alone, the plates have the advantage of greater ease and rapidity of application, a fact which renders their use the method chosen in the majority of cases which fall into the hands of the average surgeon.

To recapitulate, then, although we must admit that when the patient is capable of sustaining a long operation and the surgeon possesses exceptional skill in dealing with these cases, anastomosis by suture is the ideal method, for the majority of cases, in the hands of the average surgeon, Senn's plates are to be preferred.

The use of the Murphy button has been shown to possess inherent disadvantages which should restrict its use to those cases in which it is necessary to hasten in order that the patient may survive the shock of the operation.

MEDICAL NOTES.

THE CHOLERA IN RUSSIA. — In the province of Volhynia, Russia, during the week ending August 24th, 5,849 cases of cholera were reported, and 2,134 deaths therefrom. In the province of Podolin, for the ten days ending August 31st, 101 cases of cholera and 45 deaths were reported.

DR. LAUDER BRUNTON. — This distinguished physician has been recently promoted to be full Physician at the St. Bartholomew's Hospital.

INEBRIETY AND INSANITY. — The large part played by alcohol as a cause contributing to insanity receives fresh confirmation in the fortieth report of the British Commissioners in Lunacy. For the five years ending 1893, alcoholism was the predisposing or exciting cause in 20.8 per cent. of male and 8.1 per cent. of female lunacy. Intemperance is credited with 25.6 per cent. of male and 19.9 per cent. of female general paralytics.

THE TUBERCULIN TEST FOR BOVINE TUBERCULOSIS. — The United States Veterinarian Association, at its recent convention in Des Moines, Ia., has adopted a resolution sanctioning the tuberculin test as the only reliable means now known for the detection of tuberculosis in obscure cases, and declaring that a physical

¹ Dawbarn: *Annals of Surgery*, 1895, vol. xxi, 166.

examination of animals to determine the existence of tuberculosis is unwise, deceitful and unwarrantable. This action is in marked contrast with that of the Massachusetts Legislature in repealing the law which made the tuberculin test compulsory in cases of suspected bovine tuberculosis, and thus destroying the only known safeguard against the invasion of our milk and food supply by tuberculosis. In Minnesota and other Western States the dairymen are obliged to show a clean bill of health for their cattle, signed by an inspector who employs the tuberculin test. It is to be hoped that further legislation in Massachusetts with regard to this vital question will not be prevented by the political influence of farmers who are unwilling to sell the State, at half the value of healthy animals, cattle whose products they have no moral right to sell at all, and that at the next session of the legislature the backward step taken last spring may be retrieved.

SUBSCRIPTIONS TO THE "INDEX MEDICUS." — The following additional subscriptions to the *Index Medicus* were received by Dr. J. S. Billings, from September 7th to the 24th, making the whole number of subscriptions to the latter date 105 :

Albany, N. Y.: Dr. Henry Hun.
 Alhambra, Cal.: Dr. Milbank Johnson.
 Ann Arbor, Mich.: Medical Department, University of Michigan.
 Baltimore, Md.: Dr. Thomas S. Cullen.
 Boston, Mass.: Dr. J. W. Elliot, Dr. R. H. Fitz, Dr. M. H. Richardson.
 Cleveland, O.: Dr. Wm. H. Humiston.
 Colorado Springs, Col.: El Paso County Medical Society.
 London, Eng.: British Medical Association.
 Louisville, Ky.: Index Medicus Club.
 Nashville, Tenn.: Dr. J. H. Mills.
 New York City: Dr. Robert Abbe, Dr. S. T. Armstrong, Dr. L. Duncan Bulkley, Dr. D. Bryson Delavan, Dr. Alexander Lambert, Dr. Robert F. Morris, Dr. Frederick Peterson, Dr. R. W. Taylor, Dr. W. Gilman Thompson, Dr. T. H. Wiggin.
 Philadelphia, Pa.: Dr. John W. Crowskey, Dr. Howard F. Hansell, Dr. John H. Packard.
 Syracuse, N. Y.: Dr. Henry L. Elsner, Syracuse Academy of Medicine.

DURATION OF LIFE AFTER THE DEVELOPMENT OF ALBUMINURIC RETINITIS. — Possauer, in a thesis, presented at Zürich, in 1894, has shown by an analysis of seventy-two cases occurring both in hospital and private practice, that the prognosis is not quite so unfavorable as previous statistics would indicate. Among the private cases, somewhat more than one-half died within the two years ordinarily given as the limit; in the hospital cases the proportion was greater. Good care and hygienic surroundings seemed to make a noticeable difference, and duration of life was greater in women than men. In only one case (a woman) was the duration more than six years, and here nothing is said as to the albuminuria being a possible complication of pregnancy. When this is the case it is well known that the prognosis is much more favorable. — *Brooklyn Medical Journal*.

RETIREMENT OF DR. GIHON. — Dr. Albert Leary Gihon, Medical Director of the United States Navy, having reached the age of sixty-two years, was retired

from the service on September 28, 1895, after a service of more than forty years, eleven of which were spent at sea and more than twenty-seven on shore. He retires with the rank of commodore (brigadier-general). Dr. Gihon was graduated from the Philadelphia College of Medicine and Surgery in 1852, and was professor of chemistry and toxicology in that institution in 1853-54. He entered the navy in 1855 as assistant surgeon, becoming successively passed assistant surgeon in May, 1860; surgeon in August, 1861; medical inspector in November, 1872; and medical director in August, 1879. He has represented the medical department of the navy in many important scientific bodies, in a considerable number of which he has been honored with some official position. He has made numerous contributions to medical literature, the latest of which is a series of articles in the *Twentieth-Century Practice of Medicine*.

ENTHUSIASM CARRIED TOO FAR. — An example of carrying the courage of one's opinions too far is afforded by Mr. Hanbury Hanlan, who, as reported in the *Medical Press and Circular*, has been doing good work in the cholera-stricken districts of India. "From published accounts we learn that he placed a quantity of permanganate of potassium in an infected well not far from his residence in Agra. Then, in order to prove to the natives that his 'red medicine' had made the water harmless he drank a glassful, and two days later he was down with the cholera. This kind of temerity defeats its own object. The untoward result of this experiment would only confirm the natives in their preconceived notions of fatalism. We learn, however, that Mr. Hanlan was the only person in the village who recovered."

EXTRAORDINARY CONTENTS OF A HERNIAL SAC. — At the Middlesex Hospital Mr. Leopold Hudson recently operated upon a case of right inguinal hernia in a female infant, nine months old, in which the hernial sac was found to contain the uterus, both Fallopian tubes and ovaries and a knuckle of intestine. The following account of the case is taken from the *Medical Press and Circular*: "No flatus or motion had been passed for three days prior to the operation, and there had been vomiting during that time. Immediately after admission, however, the child passed a motion, but as the swelling in the right inguinal region was still very large, and remained very tense, it was decided to cut down upon it. Mr. Hudson opened the sac, and immediately a small piece of gut slipped back, but there remained in the sac both Fallopian tubes, both ovaries, together with the uterus. The tubes were much congested from being constricted at the neck of the sac; a director was passed in, the constriction divided, and the contents returned, first the left ovary and tube, then the uterus, and lastly the right appendages. The attachment of the right broad ligament to the pelvic brim had been so drawn forwards and upwards that it formed part of the outer wall of the sac at its neck. The sac was transfixed just above this point, and a probe being passed along

the urethra to define the position of the bladder (which was discovered to be in its normal position), the fundus of the sac was excised, the stump being fixed between the pillars of the ring, which were then sutured together." This condition of things must be admitted to be one of extreme rarity, if not unique.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, October 2, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 99, scarlet fever 28, measles 8, typhoid fever 63.

A NEW PATHOLOGICAL BUILDING.—The Massachusetts General Hospital is to have a new pathological building. It will be three stories in height, and will be 99 feet long and 25 feet wide. On the first floor will be the animal rooms and the carpenter shop, and the second will contain the chemical and biological laboratories and examination rooms. More examination rooms and the histological and pathological laboratories are to occupy the third floor. The cost will be about \$22,000.

THE NEW McLEAN BUILDINGS AT WAVERLEY.—A very large number of physicians and others interested in charitable institutions availed themselves of the invitation on the part of the trustees of the Massachusetts Hospital and McLean Hospital to visit the new buildings of the latter at Waverley. Those who accepted the invitation were fortunate in the opportunity to inspect the buildings, which situated on the commanding summit of the Waverley hills combine in the highest degree advantages of situation, architectural beauty, and fitness for the purpose for which they are intended. The spacious colonial houses give the place more of the appearance of a colony of homes than of an institution, and the centrally situated administration building is provided with all modern facilities for communication with and control of the others, and there is a well-appointed gymnasium for the physical culture of the patients. Mention should also be made of the laboratory, equipped with every facility for carrying on the researches in psychology and pathology for which the institution affords such exceptional advantages; but to this, as to the whole subject, we are unable in the space at our command to do justice. The institution must be visited in order that its perfection in conception and detail may be appreciated, and such a visit will more than reward those who are wise enough to take the trouble to make it.

NEW YORK.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.—The first meeting of the Medical Society of the County of New York after the summer vacation was held on September 23d. The following officers were nominated, to be voted for at the October meeting: President, Drs. Edward D. Fisher and Richard Van Santvoord; First Vice-President, Drs. Wendel

C. Philips and Frederick G. Peterson; Second Vice-President, Dr. G. Henry Fruitnight. The present Secretary, Assistant Secretary and Treasurer were re-nominated. Dr. Frank Van Fleet, who has taken a prominent part in the efforts being made to prevent opticians from prescribing glasses to those applying to them without an oculist's orders, appealed from a decision of the Comitia Minora (Executive Committee of the Society), refusing to defend him in a suit for \$40,000 damages brought against him by an optician who advertised in the Medical Directory published under the auspices of the Society. The matter elicited a lively discussion by the members, but no definite action was taken. Dr. Van Fleet had contended that the insertion of the advertisement was contrary to the ethics of the profession, and as his strictures were made at a meeting of the Society, he claimed that the latter should uphold him in his suit.

QUARANTINE OF THE NEW YORK JUVENILE ASYLUM.—The New York Juvenile Asylum, a very large institution in the vicinity of High Bridge, has been quarantined for the past few weeks on account of an outbreak of diphtheria. In two months about fifty cases have occurred, and no new inmates have been admitted or any discharges made. During the epidemic twenty-five patients were transferred to the Willard Parker Hospital for Contagious Diseases of Children. The number of cases having been reduced to three, the General Superintendent and Asylum Physician Alfred M. Spalding applied to Dr. Benedict, Chief of the Bureau of Contagious Diseases, to have the quarantine of the institution raised, but this has been refused by Dr. Benedict, who claims that it should continue until the disease has been entirely stamped out.

GLANDERS IN A LIVERY STABLE.—On September 23d President Wilson ordered the shooting of five horses found to be suffering from glanders in a livery stable in West 75th Street. The owner was allowed \$50 compensation for each animal.

THE LAW ENFORCED.—During the past week two milk dealers have been sentenced to the penitentiary for a month each, in addition to paying fines of \$300 for watering milk and treating it with boric acid to prevent it from souring.

THE TETANUS ANTITOXIN.—A case of recovery from tetanus under the use of tetanus antitoxin is reported from Plainfield, New Jersey. The disease resulted from an injury to the head by a fall from a hammock, and at the time the antitoxin was resorted to the case was thought to be hopeless. The patient is now said to be entirely well.

AN ONE HUNDRED AND THIRD BIRTHDAY CELEBRATED.—Joseph Field, familiarly known in the neighborhood as "old Uncle Josey," celebrated his one hundred and third birthday on September 26th, at Middleton, Monmouth County, New Jersey. He is of English parentage, and records are extant which prove that he was born at Monmouth, N. J., on Sep-

tember 26th, 1792. The old man states that he drank Jersey apple-jack for eighty-two years, but about a year ago he changed off to brandy.

DEATH OF DR. EDWARD W. BURNETTE.—Dr. Edward W. Burnette, a well-known practitioner, died of cancer of the face on September 22d. The disease appeared about eighteen months ago, and last spring an operation was performed upon him by Dr. Charles McBurney, who removed a portion of the superior maxillary bone. The case of Dr. Burnette has given rise to considerable discussion as to the possible inoculability of cancer, as the disease appeared on the site of a cut on the cheek made while shaving after examining and locally treating a case of cancer of the tongue in a female patient. His attending physician, Dr. Roland E. Jones, is convinced that Dr. Burnette contracted the disease by inoculation by means of his fingers. He made a careful autopsy, assisted by Dr. B. Farquhar Curtis, and is preparing a detailed history of the case for publication in the medical journals. Dr. Burnette was about fifty years of age, and unmarried. He was graduated from Bellevue Hospital Medical College, and afterwards served as interne at Bellevue Hospital. He then spent some time on the staff of the New York City Asylum for the Insane on Blackwell's Island, and since then has been in active private practice. In discussing the death of Dr. Burnette editorially, the *New York Medical Record* remarks: "The melancholy case in point was undoubtedly one of predisposition to malignant disease, that developed in due time, the supposed inoculation from a cancerous patient having no more causative relation to it than any other purely coincidental circumstance."

Miscellany.

THE INSPECTION OF MILCH COWS IN ROME.

THE Correspondent of the *British Medical Journal*, in a letter published in the number of July 20th, gives a brief statement of the excellent regulations which have been for some time in force in Rome in relation to the health of milch cows and other animals which supply milk to the residents. The "Eternal City" furnishes an example in this report which is worthy of imitation by younger and, according to common belief, more progressive cities. These regulations are in effect as follows:

"All milch cows and other animals which supply milk in the suburbs and Agro Romano will be subjected to a rigorous examination by the municipal veterinary surgeons. To this purpose notice of every animal introduced into the Commune must be given to the health authorities before the milk can be sold, and it is then placed under the inspection of the veterinary surgeon. When the animal is healthy and capable of furnishing good milk, it will be marked in the horn, and a special license will be given to the owner. These animals will be inspected every year, in the months of April, May and June, and also on any other occasion that the authorities may deem necessary. The cows suspected of tuberculosis will be treated with

tuberculin at the expense of the owners, and those diseased will be slaughtered. The extension of these regulations to the whole Commune is a great boon to the inhabitants, as now all the cows which supply milk to the city will be under inspection, and this will prevent the owners in Rome proper sending tuberculous cows into the Campagna, where they might continue to supply milk. The milk coming from the Campagna will be preferable, as it will be obtained from cows kept in the fields."

A SUBSTANTIATION OF THE WATER-BORNE THEORY OF CHOLERA.

DURING 1894 it will be remembered that there was a serious outbreak of cholera in the East Lancashire Regiment of the British Army, stationed at Lucknow. The manner of its origin was a mystery, which for a long time could not be cleared up. In Mr. Hankin's report to the British Government for the year 1894, is an interesting account of the outbreak and the manner in which its origin was detected; which we abstract from the *British Medical Journal* of August 31, 1895.

"Out of a total of 646 officers and men there were 145 attacks, of which 93 terminated fatally. As Mr. Hankin says, 'A few years ago this outbreak would without doubt have been quoted as a conspicuous proof of the view that cholera is a disease of locality, or that it is caused by a "miasma." It would further have been cited as a conspicuous illustration of the incapacity of the "water-borne theory" of cholera to explain the facts connected with the distribution of the disease in India. Although all the companies were living under exactly the same conditions of life, and their supplies of water and food were identical, so far as could be seen, the disease showed the strangest preference to particular bodies of men, while certain barracks nearly or completely escaped the disease. Some companies furnished cases daily throughout the epidemic; others had but single cases, both while in barracks and while in the preparatory camp, but on their arrival in the Kokrail Cholera Camp the disease broke out among them as severely as in the rest of the companies. The disease appeared suddenly in the station hospital at the same time that the rest of the regiment was suffering so severely, although, so far as I know, there was nothing in common as regards water-supply or diet between the patients in hospital and the men on duty in the regiment. The disease showed a preference for certain wards of the hospital, while others remained perfectly unaffected. In short, the outbreak showed every character that has on other occasions been quoted as proof of the inexplicability of cholera, and it is so referred to in the Government Blue Books.'

"Now what is the explanation which was the result of a most careful inquiry on the part of Mr. Hankin and his colleagues? The East Lancashire Regiment consisted of companies A, C, E, F, G, H. When the cholera broke out in the cantonments the regiment was transferred to the Kokrail Cholera Camp. Throughout the epidemic the E company remained immune from attack, though the conditions of life were identical with those of other companies and their barracks were almost surrounded by those of companies who suffered severely from cholera. To again quote the dramatic statement of Mr. Hankin: 'On cross examining the

color-sergeant of this company the mystery at first seemed to deepen, for he roundly asserted that the men of his company had exactly the same supplies of food and water as the men of other companies. But on his being pressed as to how he knew that the water-supply was the same as that of other companies he replied that he "ought to know, if anybody, as *he boiled it himself!*" It is needless to say that on making inquiries we found that this sanitary precaution had not been taken by the color-sergeants of other companies.'

"By this simple sanitary expedient of boiling the drinking-water, the E company was completely protected from cholera. This is not, however, a solitary instance. Mr. Hankin gives another equally striking. When cholera was raging at Lucknow, and had attacked the cantonments, the 16th Lancers remained immune, and on inquiry into the cause it was found that nine months previously Mr. Hankin had sent a report to the regimental authorities strongly condemning their filter-tank well, in consequence of which report the drinking-water used by the men had since always been boiled. These striking cases explained the assumed 'vagaries' of cholera, and gave the clue to further inquiries."

A NEW APPLICATION OF HOMEOPATHY.¹

THE taste for literature in homeopathic doses seems to be growing. If this thing keeps on, the time may come when knowledge will be put up like pills or wafers or tablets. And a great convenience it would be to the busy sons of American toil. If one wished to prepare an article on some historical subject, for instance, he could buy a box of Motley's American Pills or Gibbon's Roman Tablets, and take one after another until the requisite amount of historical information were absorbed. It would also be pleasant, if a gentle titillation of the literary senses were desired, to buy a few Richard Harding Davis wafers and lie down to delightful dreams. Or in case one's conscience became unusually obstreperous, he could take Biblical Tabules till his system was soaked with sanctity. If one's pessimism were temporarily upmost, he could find plenty of Nordau's Pillules to help him enjoy his misery while the fit lasted. It's a great scheme. Methinks the dim, distant future holds a publisher's announcement similar to this:

JUST ISSUED.

Some Impressions and a Fit. By Mark Nye Bunner. In twelve pills and two boxes. In plain pasteboard boxes, \$1.00 per box. In gilt-edge boxes, uncut, \$2.00 per box. By all means the strongest work of this popular condenser. It is not too much to say that there is more giggle in each pill than can be found in any similar work. And the fit at the end — well, it is wholly indescribable. Long, Greens & Co., Literary Dispensatory, Chicago and London. Sent, prepaid, by telepath, on receipt of price.

A FEW CRITICISMS.

Washington Roast. — "Not a dull pill in the box."

New York Rostrum. — "Very clever. After taking one pill the reader cannot put down the box until he has taken all its contents."

Chicago Between-Seas. — "Cannot contain our disgust. Tried to digest the contents of these boxes, but threw up the job after taking one pill."

New Orleans Pickatune. — "The pills lead gently and pleasantly up to the final mystery when the Fit clears everything up in a very sensational manner. More such pills would have a highly beneficial effect upon modern literature."

¹ The Philistine.

Correspondence.

THE RUSH MONUMENT FUND.

BALTIMORE, September 23, 1895.

MR. EDITOR: — The sum total of the Rush Monument Fund to date amounts to \$3,357.39. Among the recent contributions are the following:

Prof. Nicholas Senn, Chicago.	\$100.00
Dr. Geo. M. Gould, Philadelphia.	5.00
Dr. Franklin B. Ferguson, Deer Island, Me.	2.00
Dr. Andrew Annan, Emmitsburg, Md.	50.00
Dr. Jacob L. Williams, Boston.	1.00
Med. Soc., Wayne Co., N. Y. (through Dr. D. S. Colvin).	10.00
Dr. J. R. Buist, Nashville, Tenn.	5.00
Dr. Jno. B. Hamilton, Chicago.	1.00
Dr. Geo. N. Acker, Washington, D. C.	1.00
Surg.-Gen'l. Geo. M. Sternberg, U. S. A.	10.00
Eastern Ohio Med. Assn. (through Dr. J. C. M. Floyd)	10.00
Dr. W. H. Marsh, Solomons, Md.	1.00

Further subscriptions will be acknowledged in these columns.

Very truly yours,

GEORGE H. ROHÉ,

Secretary and Treasurer, Rush Monument Committee.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 21, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,704,506	763	367	23.79	12.74	15.99	2.21	2.08
Chicago	1,227,382	517	258	30.80	8.80	26.00	5.80	6.00
Philadelphia	1,163,864	306	151	17.65	10.80	7.23	2.97	5.13
Brooklyn	1,100,000	416	191	25.18	10.98	16.36	1.20	6.00
St. Louis	580,000	—	—	—	—	—	—	—
Boston	494,805	226	89	30.36	11.88	11.44	3.96	5.28
Baltimore	496,315	165	80	27.45	9.76	18.80	2.44	4.27
Cincinnati	383,970	101	40	16.00	9.09	14.00	1.00	1.00
Cleveland	325,000	122	59	29.52	10.66	21.32	7.38	—
Washington	285,000	113	38	22.00	13.20	10.36	11.44	—
Pittsburg	272,000	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—
Nashville	87,754	34	9	23.52	23.52	17.64	5.88	—
Charleston	65,165	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	98,687	37	14	21.60	2.70	16.20	2.70	—
Fall River	88,020	38	22	42.08	7.89	30.46	—	—
Lowell	84,359	34	19	38.22	8.82	32.04	2.94	2.94
Cambridge	81,519	29	18	41.40	13.20	31.50	—	10.85
Lynn	62,355	23	8	21.75	8.70	18.66	—	8.70
New Bedford	55,254	20	8	20.00	5.00	15.00	5.00	—
Springfield	51,594	10	4	40.00	10.00	10.00	—	10.00
Lawrence	52,153	—	—	—	—	—	—	—
Holyoke	40,149	—	—	—	—	—	—	—
Salem	34,437	9	2	—	—	—	—	—
Brookton	33,157	7	2	28.56	—	14.28	—	14.28
Haverhill	30,185	8	5	—	—	—	—	—
Malden	29,706	11	7	18.18	9.09	—	—	—
Chelsea	31,295	16	6	6.25	12.50	—	—	6.25
Fitchburg	26,394	13	8	30.77	7.69	15.38	7.69	7.69
Newton	27,222	7	5	42.84	—	42.84	—	—
Gloucester	27,663	—	—	—	—	—	—	—
Taunton	27,093	9	2	—	—	—	—	—
Waltham	20,877	4	0	25.00	—	25.00	—	—
Quincy	20,712	8	4	12.50	25.00	12.50	—	—
Pittsfield	20,447	3	2	—	66.66	—	—	—
Everett	18,578	—	—	—	—	—	—	—
Northampton	16,738	5	2	—	—	—	—	—
Newburyport	14,584	9	4	11.11	22.22	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 3,217; under five years of age 1,437; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 770, consumption 355, acute lung diseases 192, diarrheal diseases 473, diphtheria and croup 124, typhoid fever 106, whooping-cough 34, malarial fever 9, scarlet fever 8, cerebro-spinal meningitis 7, measles 6.

From whooping-cough New York 13, Philadelphia 6, Chicago 4, Providence 3, Brooklyn and Baltimore 2 each, Cincinnati, Cleveland, Worcester and Malden 1 each. From malarial fever Brooklyn 6, New York 2, Baltimore 1. From scarlet fever Chicago 2, New York, Philadelphia, Baltimore, Boston, Springfield and Newburyport 1 each. From cerebro-spinal meningitis

Original Articles.

THE EMPLOYMENT OF MECHANICAL FORCE IN TREATMENT OF LATERAL CURVATURE.¹

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D.

THE treatment of lateral curvature is simple in theory. Briefly stated, it is to overcome as much as possible, the distortion of the spine and to maintain the corrected position until the spinal column can remain straight without artificial aid; but, in practice, difficulties are met from the osseous and ligamentous resistance in the distorted spine. The amount of flexibility in these cases of curved spines will be found to vary; and it is advisable for clinical purposes to

ing along the front of the vertebral column. The younger the spinal column the greater the flexibility.

An examination of the bones of a specimen of lateral curvature shows the fact that the vertebral bodies are altered in shape, the most noticeable being in the thickness of the sides of the vertebrae, and this condition is constant in all well-marked cases of lateral curvature with rotation. It exists in a less degree in a number of cases where no lateral curvature is noticed; and this in all probability explains the tendency in many instances to the development of the curve, and which is analogous to the tendency to aggravated knock-knee which follows the lengthened condition of the internal condyle. In addition to the osseous deformity it will be found that the shape and attachment of the ligaments are such as to hold the spine in its distorted posi-

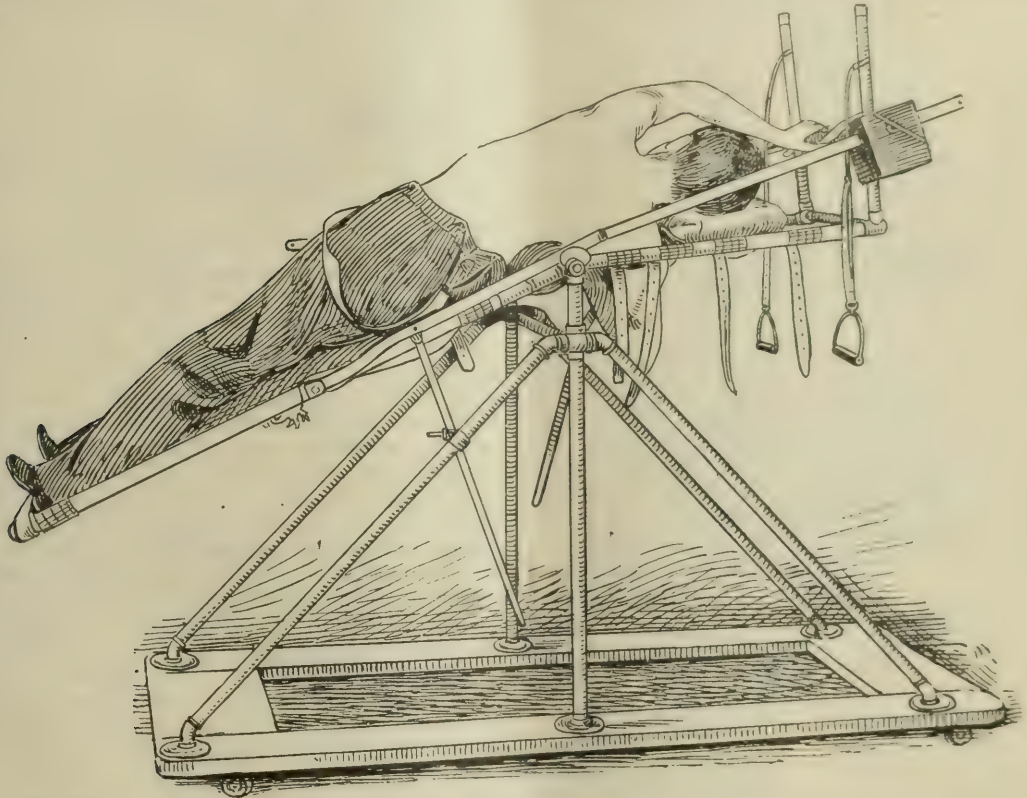


FIG. 1. Modified Zander appliance for stretching curves.

distinguish between cases of simple deviation of a flexible spine from whatever cause, curves which the patient can entirely correct by voluntary effort, and those cases of true scoliosis in which the curve is pronounced and in which it will usually be found that the back cannot easily be made entirely straight, a portion of the curve being found to remain uncorrected during either recumbency or suspension and the application of considerable manual force.

If a dissected spinal column is examined, it will be found that not only are spines different in the amount of resistance on bending or twisting them, but the different parts of the same spinal column vary in their resistance. This will be found largely due to the ligaments; for example, the check to backward flexibility is chiefly the strong anterior ligament pass-

tion, so that there exists both an osseous and a ligamentous resistance to the correction of the distortion.

It may, therefore, be assumed that in the treatment of pronounced scoliosis there are two problems that present themselves to the surgeon: first, that of increasing the flexibility of the spine in the portions which resist correction, in order that it may be placed in as straight a position as possible; and, second, of retention in this position for a sufficient time to overcome or diminish the unsymmetrical shape of the various vertebrae affected.

An increase in the flexibility of the spine is to a certain extent possible by practice. The practice that is necessary is not the ordinary gymnastic exercise devised for the purpose of strengthening muscles, but movements destined to act for stretching certain ligaments, and is similar to that which is carried out by those training themselves as contortionists or

¹ Read before the Orthopedic Section of the Academy of Medicine, Philadelphia.

dancers. Without attempting to describe the physiology of this practice, it can be roughly stated that it consists of daily practice in stretching, never carried on beyond the point of pain, yet persistently and continuously practised with a gradual increase of motion attempted, allowing where it is possible, gravity to act as a force to stretch the ligaments and resistant structures.

It is manifest that no exercise or set of exercises devoted to the strengthening of the muscles can directly affect the shape and size of the bones. In order to correct a faulty shape, treatment to be desired should be similar to the treatment that is successful in such cases of knock-knee as are amenable to conservative or non-operative treatment. This treatment consists



FIG. 2. Modified Zander's stretching apparatus.

of removing or diminishing the weight falling on the non-developed portion of bone that it may grow normally. That this can be done successfully in knock-knee has been abundantly proved by clinical facts; and there is no reason why if the same conditions were applied to the vertebrae during the growth period of the spinal column that a similar change could not be effected in the shape of the vertebral bodies.

The rational treatment, then, of lateral curvature would seem to consist in a preliminary attempt to increase the flexibility of the spinal column, especially the backward flexibility, followed by efforts to throw the weight of the trunk largely upon the articulating surfaces or crowded portion of the bodies. That this cannot be done absolutely may be admitted. That it can be done measurably is certainly true. That it must be done in such a way as will allow the patients exercise and activity is self-evident. The defects of

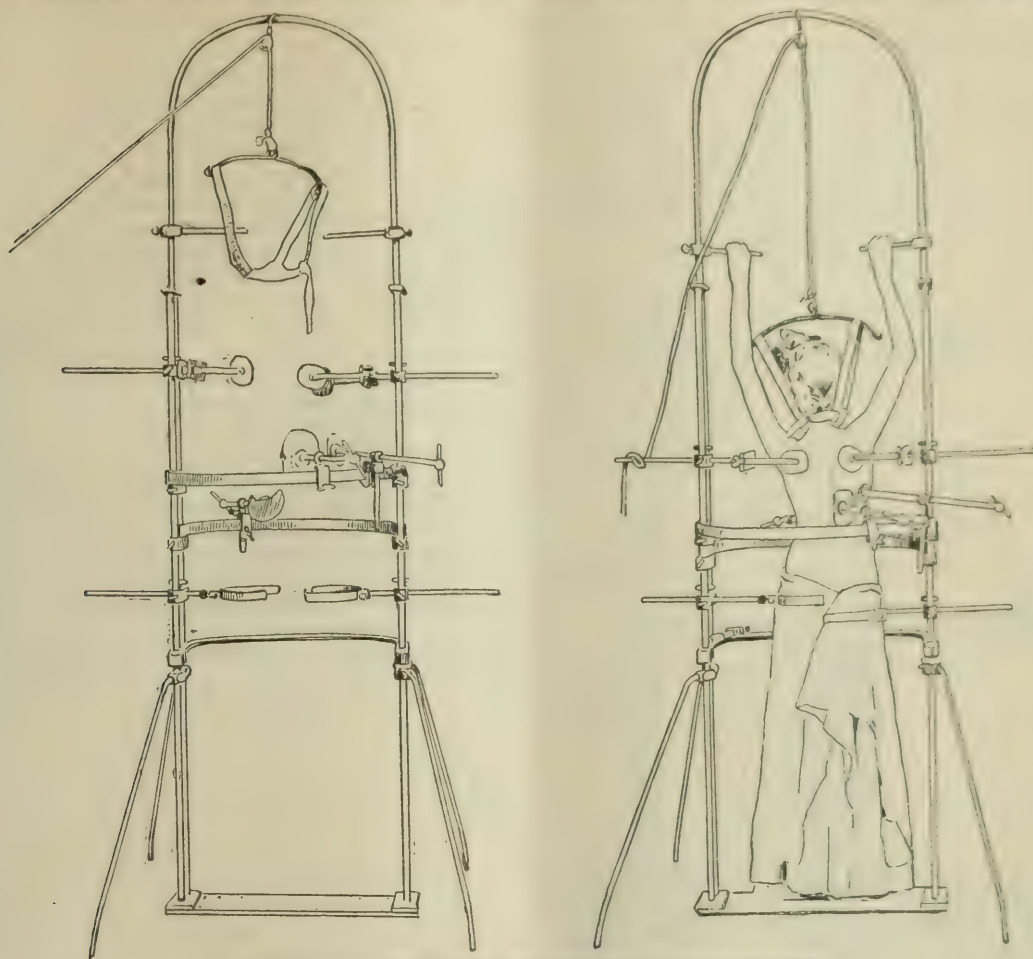
the old treatment by recumbency, otherwise rational and scientific, carried out for years were manifest. The treatment was to the majority of patients worse than the affection itself.

Lorenz was the first to show the advantage of using the weight of the body as a means for stretching the ligaments; the trunk being placed in such a position that the resisting muscles were relaxed or at a disadvantage. His measures have been variously modified and have been used extensively with advantage. The apparatus devised by Zander has elaborated the idea and carried it to greater perfection, giving more precision to Lorenz's method. The disadvantage of the appliances of Zander is their expense; and for that reason they are beyond the use of the average practitioner. The appliances shown in the accompanying illustrations will be found not to be expensive. They are designed for the purpose of increasing the backward and lateral flexibility of the spinal column, and by their means the flexibility of the spinal column at every part can be increased. The amount of force can be graduated in such a way that the patient is never subjected to violence, but a carefully-graduated amount of force can be used. The apparatus can be used as an appliance for passive exercise or for fixed position if desired.

Recumbent Exercise. — Two strong uprights of gas-pipe, three feet in height, and which are stayed by oblique bars, are placed two feet apart, and are connected by a rod of steel placed horizontally between the upper extremities. From this bar is hinged on either side a rectangular frame, so that the free extremity of each moves in a vertical plane. Across the point of union of the two frames is fastened a pad six inches in width, which is designed to make pressure at any point of the trunk that may be desired; and across the frames are stretched straps of broad webbing, on which the patient lies. On one side of each of the frames is attached a strong bar of steel, which projects beyond the joint of motion; and this carries a sliding weight which can be adjusted to counterbalance the weight of the patient, so that the apparatus may remain horizontal while the patient is in position. Each frame has hinged to its side, a vertical bar of iron which passes through a socket on one of the uprights of the frame and by a hand-screw is connected at any point, so that the frame may be held at any angle.

The object of the apparatus is to make pressure with bending of the trunk or spine at any point desired. The two portions of the frame are brought to the same level, so as to make a horizontal couch; and on this the patient lies either on the back or on the side, with the pad under the part on which it is desired to make pressure and increase the flexibility. If in the former position, both hands are made to grasp the upright at the head of the crutch of the couch or the straps attached to them; or in the latter position, the under arm is passed between the straps and allowed to hang down below the frame, and the upper grasps the strap attached to the uprights. The screw which fixes the lower frame is then loosened, and as the upper part of the body is held in position, the downward motion of the lower causes the bending with pressure at the point of the pad which is the centre of motion. The feet are lowered until the pressure is felt on the spine, when the frame is released and brought back by the weights to the horizontal position.

Sitting Exercise. — On either side of an ordinary chair is secured a firm upright of iron, placed at | secured to the upright is placed a flat pad, which is made to work on a screw attached to the upright, so



FIGS. 3 and 4. Modified Hoffa-Schede appliance for pressure correction.

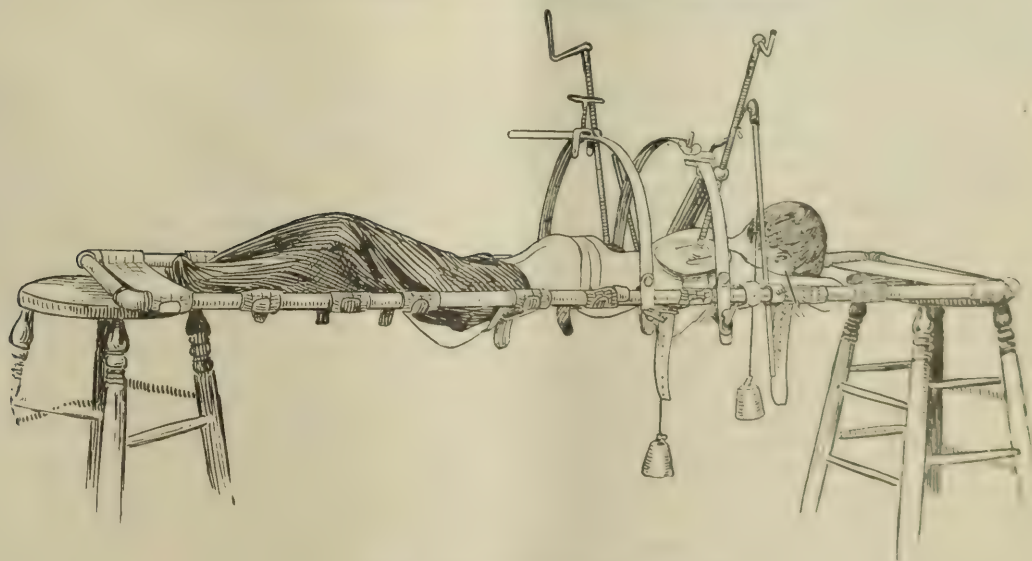


FIG. 5. Recumbent pressure correction.

twenty inches apart, and extending three feet above | that these pads may be approximated, and so make the seat of the chair. On either side of the chair and | pressure on the thighs of the patient as to prevent

twisting. On the uprights are fastened semicircular bands of iron, which are made to pass behind the patient, which may be adjusted at any height on the upright, and on this bar is secured a screw-plate, which is placed against the back of the patient. To the back of the chair is fastened a rod of iron bent at a right angle, and secured by a pivot joint by the angle at the centre of the back of the chair. The upright of this right-angle rod extends to four feet above the chair, and the horizontal portion three feet. The horizontal portion carries a weight which may be adjusted at any distance from the point of motion. Straps connect the head and shoulders to the upright cord.

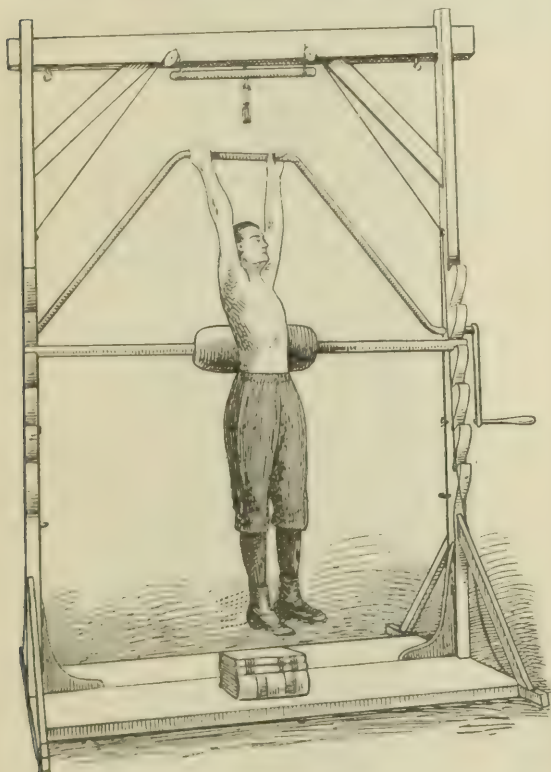


FIG. 6. Modified Beely appliance for stretching curves.

The patient is placed in position in the chair, and the plate adjusted to make resistance against the back at the point where it is desired to increase the flexibility. The straps are then placed over the shoulders and head, and by means of the sliding weight the force applied is regulated to the comfort and endurance of the patient.

Pressure Appliance.—Schede has said that the treatment of lateral curvature consists in the treatment of its most important feature, namely, rotation; and it is for this that a specially devised apparatus is employed, for ordinary gymnastic appliances are not devised to overcome the resistance of this distortion. The apparatuses of Hoffa and Schede are evidently efficient. Against the use of appliances of this sort, it is urged that pressure upon the ribs weakens the articulation between the ribs and the spinal column without twisting the spinal column itself; but that this statement is incorrect, has been shown by clinical experience and by experiments. No muscular exertion of the patient can directly untwist the distorted and

resistant rotated spinal column as efficiently as the mechanical pressure of a Hoffa, Schede, Lorenz or Zander appliance. That this can be used without pain is also true; and if they are applied daily with judgment, it will be found that less and less force will be needed to correct the rotation, until it becomes within the muscular control of the patient to assume by voluntary effort, a relatively undistorted position.

An objection to the appliances of Hoffa, Schede, Weigel, and the one previously used by the writer is that, in order to make use of it at its greatest mechanical advantage, it is necessary that the superincumbent weight be removed from the trunk. To do this thoroughly the patients are suspended, and this involves great discomfort on the part of the patient if carried out for any length of time. The superincumbent weight can be removed if the patient is placed in the recumbent position, and the accompanying illustration shows how the pressure correction of rotation can be carried out efficiently, and more comfortably to the patient, than by the appliances designed for pressure in the upright position. It will be found that Schede's suggestion of the application of a correction force by the means of adhesive plaster attached to a cord, passing over a pulley and connected with a weight, is a most excellent one, and will be found of great value. It will be noticed by those who use the rotation correction appliance that some of the correction force is not from the direct pressure alone used in the appliance, but this pressure is aided by the force em-

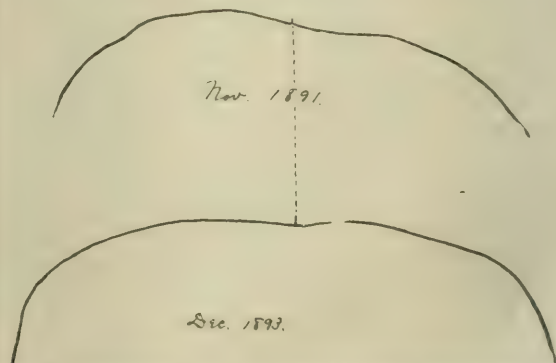


FIG. 7. Tracings of the back, before and after correction treatment.

ployed in breathing. In ordinary respiration the chest is expanded by the descent of the diaphragm and the action of the thoracic muscles. If pressure is used in such a direction that the expansion of one side is not possible, a greater force is applied to the expansion of the other side, or portion of the side.

Recumbent Frame for the Correction of Rotation.—The frame is made of three-quarters-inch galvanized gas-pipe, six feet in length and twenty-four inches in width.

Across this is stretched, with a space of four to six inches, broad webbing straps on which the patient lies, and which may be made tight or loose according as we may wish to make greater or less pressure over certain portions. The frame is fitted with heavy circular bands of iron, which are adjustable at any point in the length of the frame, and on these are carried the screws and pads by which the pressure is made on the projection portions of the thorax at any point in front and behind, and at any angle in the same manner as in the upright machine.

In addition to this, the plaster adhesive straps described by Schede are placed around the sides of the thorax, and are attached to weights by a cord which passes through a pulley at the sides of the frame, and in this way exerts a lateral pressure and at the same time a torsion pressure at the point desired. The advantages of the exercise in this position are that all the force from the superincumbent weight is removed, and the fatigue of the patient being less, the exercise can be carried on for a much longer time.

Of the treatment of scoliosis by the temporary use of fixation appliances nothing will be said in this paper. The subject has already been referred to in a paper in the *Boston Medical and Surgical Journal* of May 11, 1893, and will be again more fully treated in a subsequent paper. The same is true of gymnastic exercises.

The object of the present paper is to show that resistant cases of lateral curvature, up to the age of completest ossification, can be treated with precision, and that the stretching of ligaments and the increasing of the flexibility of the spine is possible, and can be done if proper means are used for the purpose.

The object of these appliances is clear — to stretch by means of pressure the shortened ligaments which maintain the distorted position and prevent correction. If flexibility is gained, the correct position can be assumed and maintained as the muscles gain their strength and are developed by gymnastic treatment, massage and electricity. For the subsequent treatment in the severe cases, fixation by means of appliances for a while, and developmental muscular exercises are needed. If the corrected attitude is maintained, the bones will be in a position to grow into a more normal shape. In the lighter cases only developmental muscular exercises are needed after the flexibility has been secured.

Illustrative cases of correction were published in the *JOURNAL*, May 11, 1893. Accompanying (Fig. 7) is the cross tracing of the back of a child seven years old with scoliosis with rotation before treatment, and two years after correction treatment.

MODERN THEORIES AND TREATMENT OF ECZEMA.¹

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A GREAT diversity of opinion has prevailed among different schools and different authors from the earliest days of dermatology as to the proper conception of the term eczema, an affection that is so varied in its clinical manifestations, and so greatly influenced by many factors of both external and internal nature that to-day it is improbable that a definition satisfactory to the larger number of students of this disease could be formulated. Many writers have indeed abandoned all attempt at a strict definition, and have contented themselves with a discussion of the various clinical appearances and pathological features that are met with. Of late years much interest has been aroused by the doctrine of a parasitic causation for some of its forms, and certain authors have gone so far as to declare that every case, that is properly speaking an eczema, is of parasitic origin. My object is not an attempt to cover

the whole field of the pathology of eczema, but to describe some of the later theories that have been advanced, and to point out their strength or weakness, as they appear to me.

The chief writers in their conception of eczema may be divided broadly into three classes: (1) those who consider the clinical and anatomical features as of chief importance, (2) those who lay most stress upon the course of the disease, (3) those who base their conception upon the etiology.

In the first class, those who make the *form* of the disease their criterion, belong notably Hebra and the Vienna School. Hebra's definition of eczema is, "An affection of the skin, of mostly chronic course, characterized by the formation of grouped papules and vesicles, or by more or less deeply red patches covered with scales, or weeping; or in which, in addition to these features, yellowish or green or brown crusts are formed. This affection is continually accompanied by severe itching and therefore by excoriations, and is not contagious." Hebra, therefore, regarding the anatomical features as of chief importance in the conception of eczema, cleared the air by proving that many conditions that had been regarded as independent diseases were in reality but different stages or forms of an inflammatory process that had hitherto been recognized in a much more restricted way.

To this view the Vienna School has held fast, and Neisser declares his loyalty to the old definition of Hebra, which he would enlarge only by laying greater stress on the changes in the epithelium, changes which he regards as specific, and as essential to the formation of the clinical picture of eczema.

These epithelial changes have been especially studied by Leloir, and consist in (a) the immigration of pus corpuscles into the spaces between the prickle cells; (b) an edema of the epidermis, and particularly an edema of the basal horny layer; (c) a tendency to dekeratinization, shown by the disappearance or lessening of the eleidine, and of the granular layer; (d) the persistence of the nuclei of the horny layer, which in consequence of the dekeratinizing process are no longer coherent, having lost their normal adhesive attribute, and tend to exfoliate in the form of scales. At a later stage, begins the process of vesiculation, of the formation of the elementary lesion of eczema, which has its place usually in the middle or upper layers of the rete Malpighii. This process of vesiculation consists essentially in the formation of a clear space or cavity between the nucleus and protoplasm of the cell, and is due to a sort of dropsy of the epithelial cell. This "altération cavitaire" goes on increasing until a reticulum is formed of various sized meshes containing the nuclei. This is the vesicle or primary lesion of eczema.

Before the appearance of these epithelial alterations, however, Leloir was able, in cases of erythematous eczema, to detect a dilatation of the vessels in the papillary layer of the corium. These vessels were all dilated and filled with blood, and there was also observed a migration of the white corpuscles into the papillæ, which are filled with round cells, and also into the epidermis, where they appear as migratory cells. Besides this the papillæ were seen to be filled with an abundant serous exudation, one of the chief characteristics of eczema. This serous exudation it is, according to Leloir, that determines the epithelial alterations. Neisser, on the contrary, thinks that this is very im-

¹ Read before the Warren Club, May 7, 1895.

probable in cases of eczema not produced by external agencies. In cases of so-called artificial eczema, where the affection is obviously due to the action of an irritant acting from without, he considers that the epithelium is directly and in the first instance affected, while the inflammation may be due partly to the epithelial alteration, partly to the direct action of the irritant on the vessels. If it could be proved histologically that an artificial eczema differs from the acute stage of the chronic process in the epithelial cells being affected before there are signs of exudation, an important argument in favor of separating artificial eczemas from the chronic process would be obtained. Unfortunately, we know very little of the way in which the irritant or agent that produces an eczema acts, and such questions may be regarded as offering a legitimate field for study, and their solution the certainty of a great advance in our knowledge. One thing, however, seems clear, that there is an epithelial alteration in eczema (that has only of late years received due recognition), a prominent feature of which is the "altération cavitaire" of the individual cells, together with a dekeratinization in the upper layers, edema of the epithelium, and the immigration of exuded cells.

That the nervous system plays an important rôle in eczema there can be little doubt. The intense itching, which causes the patient to rub and scratch the affected part, thus increasing the inflammation, is one of the most important factors in determining the course of the affection, but we are here also in the dark as to its etiology. It may be conjectured that the inflammatory infiltration in the upper layers of the corium, acts directly upon the nerve filaments, or it may be that there are definite structural alterations of the nerves themselves. Anatomical reasons for the latter view are advanced only by Colomiatti and Leloir, who have described changes in the nerve fibres in cases of chronic eczema. Leloir declares that there are certain varieties of eczema where there are undeniable lesions of the peripheral nerves, and to these he gives the name *eczematous dermato-neuroses*. Relying upon these anatomical changes in the nerves (which have not as yet received confirmation from other sources) Leloir and Colomiatti argue for the nervous origin of many forms of eczema, and in this they are more or less followed by Schwimmer and Bulkley. These authors looking upon eczema as (in great part) a constitutional affection, consider that it has its origin in tropho-neurotic influences proceeding from various nervous conditions, and cite in support of their view the frequency with which these nervous affections are followed by or associated with an eczema. Besides these writers few if any have been willing to ascribe to tropho-neurotic influences more than a very speculative value, the subject of tropho-neuroses generally being so little susceptible of proof. Following Hebra and of late Neisser, it seems most rational to look upon the undeniable relationship that often exists between nervous disorders and eczema as of a vaso-motor character.

An able and instructive paper on the pathology of eczema was read by Neisser before the German Dermatological Society in 1892. He holds fast in the essence to the doctrines of Hebra, and as his paper is in accord, to a certain extent with my own views, I quote the *résumé* that he offers of the present state of our knowledge of the etiology of this disease. Neisser distinguishes (1) the primary, actual cause of eczema,

(2) the predisposing agencies that pave the way for that cause, (3) the conditions which determine the chronicity of an eczema.

(1) As primary actual causes we now recognize the action of mechanical agencies; chemical substances that exert their effect from without; chemical toxic substances that exert their effect from within the economy; and micro-organisms — bacteria, fungi, and perhaps animal parasites.

(2) Predisposing agencies which increase the susceptibility of the skin for eczematous irritation. In this class are included (a) general conditions, as anemia, cachexias, the lymphatic diathesis, gout, diabetes, etc.; (b) local conditions of the skin, as seborrhea, prurigo, psoriasis, tinea trichophytina, various forms of dermatitis, etc., also abnormal conditions of the vessel's tone, as in the dentition of infants, or vaso-motor neuroses.

(3) The conditions which determine the chronicity of an eczema. This is the chief question upon which opinions and schools differ, What causes an eczema to become chronic?

In his answer to this question he separates the primary causes that directly determine the chronicity from the secondary causes that affect simply its *course*.

(1) A primary chemical or mechanical agency is not always of temporary or limited duration, but may be in continuous or frequently recurring activity.

(2) The effects of the action of chemical or mechanical agencies, perhaps of a short duration, may persist at the place of irritation in the form of tissue lesions, not perhaps apparent, but ready to show themselves if new favoring influences present themselves.

(3) There may be lesions of the cells and vessels over a greater territory than the outbreak of eczema which was confined to the part most intensely affected, would indicate.

(4) In case micro-organisms are the exciting cause both the recurrence and the dissemination are easily understood.

Secondarily, the *course* may be affected by various circumstances, such as the implantation of micro-organisms, contact with water, soap and irritating substances. The partial loss of the epithelial covering favors nervous phenomena such as itching, and the vessel walls may be badly damaged. Also irritation of contiguous parts, or from nasal and anal secretions, may affect the course. Causes that lie in the organism itself may favor the course of an eczema; not only those of external character, as defects of the circulation, varicose veins, etc., imperfections in the skin itself, as seborrhea, hyperidrosis, etc., but also internal conditions, as dentition, alimentary disturbances, uterine affections, which act in a reflex manner through the vaso-motor system, diabetes, arthritis, kidney affections and many others.

With regard to most of these views I record myself as in agreement. As to the question of separating the acute cutaneous inflammations of eczematous type caused by the direct action of external irritants from the eczemas, I am inclined to believe with Besnier, Leloir, Brocq, White, Crocker and most authors not directly connected with the Vienna School, that this separation should be made, at least for the present. It is true, as Neisser states, that many cases of dermatitis venenata are precisely similar in their clinical aspect to the acute stage of a chronic relapsing eczema, but it is equally true that there are certain points of distinc-

tion that often make it possible for the expert to determine the etiology of the affection (as has been pointed out by White), without the aid of a history, or of the significance of the locality affected.

The artificial dermatitis has usually an acute course and yet this too may be followed by recurrent attacks of eczema without exposure to the primary cause, either *in loco* or at a distance from the first eruption. In these cases the artificial dermatitis is to be regarded as the starting-point or essential cause of the eczema, to which are added, in determining the relapses, the predisposing causes mentioned and the conditions that favor chronicity. Among the latter conditions it seems to me that much stress should properly be laid on the assumption, mentioned above by Neisser, that the primary dermatitis, whether caused by external chemical and bacteriological irritants, or by influences at present not understood, leaves, after the skin has returned to its natural color and consistency, "damaged cells" or irritable "vessels," so that causes that would be innocuous to a healthy skin are sufficient to give rise to an attack of eczema. Otherwise, it is difficult to explain the predisposition that exists in apparently healthy subjects to recurrent attacks of eczema when once an acute dermatitis has been experienced.

The artificial dermatitises form a well-defined group, both from their etiology and from the clinical appearances in some instances, although no evidence of their histological divergence from the type of acute eczema has yet been presented. For the present at least they should be grouped by themselves, although considered as belonging to the class of eczematous affections. For I agree with Török and Brocq that in the present state of our knowledge we should look upon the eczemas as a group or class, although I am in no sense prepared to accept Brocq's subdivisions. But, in fact, is Neisser so far away from the views of those who would separate artificial dermatitis from eczema, when he divides the eczema class as follows: (1) *eczema acutum circumscriptum*, produced by various external causes, to which are to be added the acute eczemas that may be of parasitic origin; (2) *eczematosis*, in order to give a name to the eruptions that recur continually in an acute or subacute form; (3) the localized chronic eczema?

It is only, it seems to me, by viewing the process in a broad way that we are likely to obtain further truth as to the etiology. Attempts have therefore been made to separate from the group of eczemas, individual processes; and it is along these lines that we may look for the advances of the future. Naturally, much difference of opinion exists as to the right of various forms to be excluded from the eczema group. *Eczema marginatum*, the form found chiefly upon the thigh and scrotum, and distinguished by circinate patches with bright red advancing borders and scaling centres, is certainly to be distinguished from the eczemas.

I agree with Neisser and Besnier that what has been described by the name *eczema marginatum* comprises a variety of processes etiologically distinct, in some instances being caused by the *trichophyton tonsurans*, in others by the *microsporon minutissimum*, the affection called *erythrasma*, while in others it is in all probability due to a variety of micro-organisms. It may often be determined by the microscope which of these causes is active. As Neisser points out, it may be difficult to say in a given case whether the eczematous inflammation be primary or secondary, whether the parasites

are engrafted upon a pre-existing eczematous inflammation, or are themselves the cause of it; but in either event, as it has been proved that this class as formerly constituted comprises several entirely distinct cutaneous affections, the name of eczema should only be retained for the convenience of mutual understanding, until further study, for which there is a fruitful field, has succeeded in dividing the group into its individual elements.

A word as to the different forms, classed by the Vienna School under eczema, which the French consider as independent affections under the name of lichen. The lichen simplex chronique of Vidal is the only one of these affections that seems to possess any distinct claims to a separate position. The pathognomonic features of lichen simplex chronique as given by Brocq are the nervous state or temperament of the subjects affected, the fact that pruritus antedates the eruption, the circumscribed character of the eruption in plaques, its absolute dryness and its chronic rebellious course with tendency to recurrences. It is true that in many cases this form bears a closer resemblance to lichen planus in clinical features, course, and reaction to treatment than it does to eczema. I am not willing, however, to consider its claims to independence as satisfactory, but still it seems to me that this class of cases should be carefully grouped together for further study. The form described by Malcolm Morris under the name of *eczema follicularis*, which consists of sharply bounded plaques, made up of small red, firm papules situated exclusively about the follicles, often covered with a small scale penetrating the follicle, is regarded by Neisser and Jadassohn as entitled to a place apart from the eczemas, and this view is borne out by the microscopical studies of Jadassohn. Whether their interpretation will be confirmed and accepted, it is as yet too early to predict.

Under impetigo we now understand a vesicular, bullous and pustular eruption, in which the final stage of crusting is most apparent, caused by the action of micro-organisms of various kinds, chiefly those of pus, upon the skin, and often associated with an eczematous inflammation. The so-called impetiginous eczemas are complications of eczema with impetigo; it may be impossible in a given case to say whether the pus micro-organisms were implanted upon a previously inflamed territory, or whether the eczema was a secondary process. Impetigo is therefore contagious, and produced by local inoculation. Impetigo contagiosa is the name that was used before its etiology was known, and under which it is now placed by many writers.

ECZEMA SEBORRHOICUM (UNNA).

Unna has emancipated himself fully from the pre-existent theories, which regard eczema from an anatomical and clinical standpoint, and bases his conception of the disease upon purely etiological principles. He defines eczema as a chronic parasitic catarrh of the skin, accompanied by desquamation, itching, and a tendency to respond to irritation with exudation and pronounced inflammation. His position was first defined in 1887, and it may be of interest to examine briefly his theories and to note in how far they have been accepted by other dermatologists. His conception of seborrhea had been previously made known. He regards the oily seborrhea (seboleosa) as caused by a hypersecretion of fat poured

out from the sweat-glands. The dry seborrhea he would drop entirely from this class, regarding them as chronic inflammatory processes of the skin accompanied by an abnormal amount of fatty matter, which is produced by a hypersecretion of the sweat-glands, and not of the sebaceous glands. This fatty matter he declares is not situated in the scales alone but penetrates the epidermis and corium as in no other known disease. The dry seborrheas are, therefore, according to Unna, examples of seborrheal eczema. The starting-point of almost all seborrheal eczemas is the scalp, where it may exist for years without causing especial notice. The pityriasis capitis which leads to alopecia, and which is identical with seborrhea capitis, comes under this heading, and is Unna's first form of eczema seborrhoicum.

In his second class of cases the scaliness increases and fatty crusts are formed between the hairs, and a corona seborrhoica is formed at the margin of the forehead. Later it may extend to the temples and neck, to the region of the nose and cheeks, etc. This is the so-called *crusty* form.

The third form is classed as the *moist* variety, and in this weeping occurs and the rete may be laid bare. In the sternal region the crusty form is the one usually seen, rarely the scaly and moist. It takes on here a circinate and marginate appearance, with a red border and yellow, greasy centre. From the shoulders the affection spreads downward on the arms, usually in the crusty form, seldom in the moist, and has a marked predilection for the flexor surfaces and for surfaces in contact with one another.

The three forms are often found existing at the same time on different localities. In 1889 Unna, after studying the histology of this form, declared that the pathognomonic feature was an alteration of the epithelial layers, beginning in the lowest prickle cells and continued upward to the horny cells, of a purely edematous nature. In 1892 he made known his discovery of the morococcus, a form of diplococcus that is distinguished by its formation into clusters of a mulberry shape, which will produce characteristic lesions when inoculated in pure culture upon a healthy skin, and which he considers the cause of eczema seborrhoicum.

To what extent have Unna's views of eczema seborrhoicum been accepted?

Besnier considers that there is a complication of eczema with seborrhea, an affection which he had before noted but never properly formulated; that it is impossible to say as does Unna that the inflammation is primary and the seborrhea secondary. He does not further agree with him that the sebaceous glands take no part in the process, believing that both sebaceous and sweat glands are active. He thinks a parasite is probably the causative agent, and that the seborrhea is probably one of the essential causes in the production of the eczema.

Leloir and Vidal, while apparently accepting Unna's views in great part, declare that the individuals with whom seborrhea is constitutional, often even hereditary, are the ones who are most apt to be affected with seborrheic eczema. In these subjects, psoriasis, pityriasis rosea, etc., may take on a seborrheic appearance. Their microscopical studies confirm in the main the researches of Unna. They add, however, that further investigations both clinical, bacteriological and histological, are necessary to clear up the true na-

ture of the affection or affections, classed by him as seborrheic eczema.

Crocker thinks that it is proper to retain the old name and conception of seborrhea, inasmuch as this affection, though often accompanied by inflammation, may be entirely wanting in all inflammatory appearances. He thinks it probable that seborrhea is an affection caused by micro-organisms. To the cases where clinical signs of inflammation are present he would give the name seborrheic dermatitis; and this he divides into seborrhea eczemaformis, seborrhea psoriasiformis and seborrhea papulosa seu lichenoides, which latter is identical with seborrhea corporis, lichen circinatus, etc.

Elliot thinks that the process is so different clinically from what has hitherto been called eczema that the name should be discarded, and that Crocker's name of seborrheic dermatitis, given to one phase of the disease, is suitable for the whole affection, which he considers a parasitic dermatitis. His histological examinations varied from those of Unna in not showing fat present in the coils or ducts of the sweat-glands, nor a fatty infiltration in the corium and rete, nor does he think that the fatty hypersecretion is derived from the sweat-glands.

Török cannot admit a relationship of the scaling to the crusty and moist forms, nor to eczema generally. The crusty form he would separate entirely from the eczemas and class as a mycosis, while the third or moist form is in his eyes a mixed affection. He is unable to accept the morococcus as the cause of seborrheic eczema, as Unna's inoculation experiments do not prove that the morococcus is not simply a producer of an impetiginous complication.

Neisser's *résumé* of eczema seborrhoicum is that Unna's first or scaling form is not an eczema, but remains a primary affection of the fat secreting glands, with minimal secondary inflammatory manifestations. His second or crusting form is also not an eczema but an affection allied to psoriasis (from which it may often be almost impossible to differentiate it), almost always dry, with a slight inflammatory infiltration. It is probably of parasitic origin and is connected with seborrheal alteration of the skin. His third or moist form is eczematous and parasitic without doubt. It is usually connected with seborrheal alterations of the skin, so that it is impossible at present to decide which factor is most important and should determine the name. It is possible that the second and third forms are forms of the same mycosis.

Taking the opinions that have been cited, and including besides the views of those who have written or spoken at lesser length on the subject, it may be said that Unna's theory has by no means met with general acceptance among experts. Much confusion has, in my opinion, been introduced by the name seborrheic eczema, and much prejudice has in that way been excited against Unna's whole position. If we examine carefully the evidence that he has adduced in support of his theory that there is no such thing as a hypersecretion of the products of the sebaceous glands which causes an accumulation of fatty masses upon the skin, we find that he has by no means proved his case. The histological studies of Unna, Leloir and Elliot fail to confirm the view that the sweat-glands alone are concerned in the hypersecretion of fat, nor do they show any specific changes in the case of seborrheic eczema, as is pointed out by Neisser. I believe

that undue weight has been laid upon the pathological significance of the association of eczema and seborrhea. Unna's first or scaly form certainly belongs, with our present knowledge, among the seborrheas, even if it is possible to detect some evidences of inflammation histologically. As Besnier and Neisser say, it is impossible to assert, as does Unna, that the inflammation is primary and the hypersecretion secondary. Until further evidence can be brought we must believe that the sebaceous glands have a part in the hypersecretion of the fatty products.

The second or crusting form should also be separated from the eczemas, as it has been hitherto, under the name of lichen circinatus, seborrhea corporis, etc. Its association with seborrheic affections of the scalp, and the fatty hypersecretion that is unquestionably present, warrant its retention provisionally among the seborrheas, until its etiology has been explained. It may be associated or complicated with various degrees of eczematous inflammation. Its parasitic nature seems highly probable, but is as yet unproved. Its similarity to psoriasis has been pointed out, and the difficulty that often confronts one in differentiating the two affections. Whether in these cases there is a psoriasis modified by its implantation on seborrheal soil, or whether, as Brocq believes, there is a group of affections, intermediate between eczema and psoriasis, which are developed especially on seborrheal subjects and which deserve a separate name — these are questions that may fairly occupy the attention of future investigators.

Unna's third or moist form I would regard as a dermatitis combined usually with seborrheal alterations. It is very difficult to determine the relative importance of the inflammation and hypersecretion. Its parasitic nature seems probable, but as the *morococcus* has not yet been accepted as the causative agent, nothing definite is known. It deserves a separate place among the class of eczemas, on account of its serpiginous and circinate form, its association with seborrhea, its progress from above downward and its probable parasitic nature. Unna has rendered a service chiefly in calling attention to the combination of clinical appearances that characterizes the third form and its possible etiological relationship to the second form.

A tuberculous eczema, such as Unna calls the eczema localized about the eyes, nose, mouth and ears in children and attended with rhinitis, phlyctenular keratitis and otorrhea, is not accepted in this sense by any of the authorities, so far as I am aware. No proof exists that tubercle bacilli can cause an eczema simply, and if the characteristic new formation is present, we have a tuberculosis, and an eczema only as a complication.

TREATMENT.

Turning now to the treatment of eczema, it is my purpose to pass in review the chief methods that have been introduced or advocated during later years. At the outset it may be said that most of these methods depend for their efficacy upon the consistency of the preparations recommended, their power of adhesion to the skin or their mode of application. No specific has been discovered and few new drugs have been added to our store of internal remedies.

Arsenic is never used as a routine treatment, and never in the acute stages. It is reserved for the chronic, unyielding varieties, and even here its use has

been much curtailed. A variety of drugs are used internally, according to the general indications of the individual case, but no new remedies of much value have been introduced. Ergot, phosphorus and antimony have their advocates, but their specific influence on the disease is far from proved.

In the treatment of the acute forms our attention should be directed to the use of remedies to protect the inflamed surface from the outer air, to absorb the secretions and to limit their formation, and to lessen the itching which in many cases is intolerable.

One of the most useful principles that has been introduced during the last fifteen years is that of substituting, especially in the more or less acute forms, variously compounded pastes for the ointments that had previously been relied on. Hebra's method was to spread the ointment or liniment upon lint or cotton and have it worn continually. The good results of this procedure were due in the main to the absolute sealing up of the inflamed surface from the outer air and to the removal of the products of the inflammation. But as fats are an important constituent of all liniments and ointments, it is found that irritation is frequently caused by the splitting up of these fats into fat acids and glycerine, under the influence of the secretions with which they are brought in contact. This irritative property varies apparently much in different cases, owing both to the individual susceptibility and to the grade of the inflammation. It is to be ascribed both to the action of the fat acids and to the glycerine probably, as both of these substances are often of an irritating nature. These drawbacks are obviated by the use of preparations composed of indifferent or astringent powders mixed with vaseline in such proportions that a smooth, thick paste is formed, admirably suited for the absorption of the products of inflammation and for protection from the outer air. Chief among these is the well-known Lassar's paste, composed of equal parts of oxide of zinc and starch in double the quantity of vaseline. Its advantages as claimed have been substantiated by experience. Some of these are that it does not liquefy at the ordinary temperature of the skin, but dries on quickly and can be retained even in very hot weather by sprinkling on a little powder. It can be applied to very small patches, and adapts itself to all parts of the body. Hairy portions of the body are the only ones to which it is not suited, as the hairs become matted together from the solid constituents. It is found in practice that patients who are unable to endure the application of any ointment without violent reaction, bear this preparation with ease, and even where vaseline alone is not borne, the mixture with zinc and starch may suit well.

At the time this paste was first spoken of Lassar believed that salicylic acid was almost a specific for eczema, and he therefore combined it with his paste in the following formula:

Acid. salicyl.	.....	20
Vaselin.	.....	500
Zinc oxid. {	.....	gr. 20.0 M.
Amyl. }	.....

This paste should be spread over the inflamed and oozing region in a thick layer, and may afterward be covered with a thin layer of absorbent cotton. The dressing is changed once or twice daily if the secretion is considerable; if not, it may be left in position for several days oftentimes. By means of this paste

alone many cases may be completely healed without having recourse to more stimulating remedies in the later stages. The salicylic acid is of no practical use in acute forms, and although a small percentage is rarely irritating, it is best left out. The chief action of salicylic acid cutaneously is of a keratolytic character—that is, it has the property more than any drug known of softening and dissolving the horny layer, without at the same time causing a dermatitis. In the later stages of eczema, where there is infiltration in the corium and hypertrophy of the horny layer, the addition of the salicylic acid to the paste is indicated, even in much greater proportions than in the above formula.

Salicylic ointments in the treatment of infantile eczema have been much praised. Taking this paste as a base, various medicaments such as sulphur, ichthyol, boracic acid, etc., may be incorporated with it, and in some instances a more favorable effect obtained than when the drug is mixed with animal fats or with vaseline simply.

Many attempts have been made to produce preparations that when dried upon the skin will form firm but flexible thin coatings, exerting a certain amount of pressure, protecting equally from the irritation of the outer air and from the entrance of micro-organisms, to which various medicaments of known value in eczema may be added. Pick introduced gelatine dressings, which he at first used in combination with chrysarobin in the treatment of psoriasis, and to these Unna and Beiersdorf proposed to add a percentage of glycerine. Later Pick brought forward a sublimate gelatine dressing which he recommends both for the earlier erythematous and papular stages, and for the thickened, scaling varieties. Thirty grams of glycerine are mixed with sufficient water, macerated for several hours, then liquefied on the water bath and evaporated to 75 grams. To this are added 25 grams of glycerine and 0.05 grams of corrosive sublimate. This gelatine dressing is liquefied by heat when used, and a thin coating is painted over the affected part. In chronic eczemas of the lower leg especially, this preparation has often proved itself of value.

Acting upon the principles of the gelatine dressing, and in the endeavor to obtain a preparation that would offer all its advantages without its disadvantages, notably that of being obliged to heat the preparation each time before applying it, Pick introduced tragacanth, and Elliot proposed bassorin as a base for incorporating medicaments, preparations which, like gelatine, are useful in certain forms of eczema as well as in a variety of cutaneous affections. Unna, working upon the same lines, introduced ichthyol varnish, a mixture of ichthyol in various proportions with starch, solutions of albumin, etc. An almost endless variety of substances may be obtained in this way which form protective coatings upon the skin. Their use is limited, however, as it has not been shown that they are superior to other methods, and in many instances their inferiority is distinctly apparent. In certain cases, however, they are a useful addition to our resources.

Much greater practical value must be accorded to the salicylic soap-plaster recommended by Pick for the vesicular and moist as well as the thickened forms of eczema. Its advantages in my experience are far greater in the latter class of cases. Its composition is as follows:

Emplastr. saponat. liquefact.	80.0
Olei olivar.	20.0
Acid. salicyl.	2.5 M.

The plaster is spread, and cut into strips which are firmly adapted to the affected parts and left in position for several days. Its great advantage is that it is not necessary to change it frequently.

A real value must be admitted for ichthyol and resorcin, which belong, according to Unna, to the group of reducing agents, and owe their therapeutic action to this property. Ichthyol as used is really a sulphoichthyolate of ammonium which is obtained from a bituminous substance found in the Tyrol. Its efficacy is probably due (in part) to the large percentage of sulphur it contains, and in part to its consistency, as it readily forms a sort of protecting and adhesive varnish when applied to the skin. Unna considers it of special efficacy in the so-called nervous eczemas and in intertriginous affections. It may be used in solution with water in various proportions, in a thick varnish, mixed with albumin or starch or in ointment form. On moist patches an emulsion with water of the strength of one to ten, or one to twenty, is often of service, especially when followed by a soothing ointment or paste. It may also be incorporated with the various pastes, varnishes and gelatine preparations that have been described. The objections to its use are its color and disagreeable odor. Thiol has the advantage of being odorless, and has seemed to me in many cases an efficient substitute for ichthyol.

Resorcin, which is of much value in many cutaneous affections, has but a small place in the treatment of eczema. In certain scaling forms it may be used with advantage, but its irritating properties, especially in certain individuals, limit its range of usefulness in this affection.

Much prominence has also been given by Unna to his treatment by ointment and plaster muslins, a system that has no doubt its advantages, but which should not be looked upon as superseding other equally good, and in certain cases superior methods. The ointment muslins are made by impregnating muslins on one or both sides with the ointment wished for. The muslins thus prepared are cut into strips, applied to the skin and bound down by muslin bandages. It is often of advantage to spread the ointment or pastes that we wish to use on muslin, and ready-made applications of the sort are often convenient, but it is difficult to see how the method, so minutely elaborated, contains any new principle or offers any especial therapeutic advance.

The plaster muslins are made by spreading the drug to be used upon a thin layer of gutta-percha backed with muslin. The advantage claimed for this kind of plaster is that a larger percentage of the medicament is brought into contact with the skin, the amount of adhesive substance needed being so much smaller. In eczemas these plasters have been recommended for the treatment of the chronic infiltrated patches, and are often of much service when combined with white precipitate, salicylic acid, etc. Their usefulness is far greater in tuberculosis and in chronic processes with hypertrophy of the horny layer than in eczema.

Lassar's method of treating eczema, even in the acute stage, by means of baths may be mentioned, active remedies such as tar, chrysarobin, etc., being borne while in the bath without irritation. This

method was supplemented by the use of ointments, pastes, etc., in the intervals when the patients were not in the bath.

In conclusion, it may be repeated that the writer's intention was merely to touch upon some of the methods of treatment that have been suggested of late years. The older, and in many cases more reliable, methods have not been mentioned. It is to be remembered that there is as yet no specific for eczema. That the regulation of the diet, attention to hygiene, and the removal of any conditions unfavorable to the general health, are of very great importance. Internal remedies are often of great aid, especially in the so-called nervous forms; and success depends in this class of cases more upon the general management of the patient's life, and upon moral influence and support, than upon topical applications.

TEACHINGS OF THE OLD SURGEONS.

BY J. G. MUMFORD, M.D., BOSTON, MASS.

(Concluded from No. 14, page 337.)

THOUGH heroic efforts in the way of amputations used to be made to save life, the number of limbs which was rescued from that last resort is surprising, when one considers the means then at command. It is interesting to read of Sir Astley Cooper's aborting many an inflammation by the use of steel and that new form of bark called sulphate of quinine. His favorite local antiseptic was a strong, hot, port-wine poultice, and where the skin was still sound, ice or hot applications were both highly lauded.

I do not wish to dwell too much on old surgical errors; they were common enough, but some of the teaching given in the systemic treatment of acute traumatic fevers seems almost inexcusable. The last-named authority says: "In inflammatory processes after septic wounds, all stimulating food and drink (though I must omit whiskey), should be avoided. The giving of them is a measure so absurd that a caution against it seems unnecessary; but lately an anatomist killed himself by taking wine to oppose the putrefactive influence of the matter he supposed to be absorbed." Tetanus, too, was constantly dreaded as an almost hopeless condition; and the universal panacea, bleeding, was admitted by some to hasten death. Amputation was thought as useless as was the general character of the infection well recognized.

Although the abdominal cavity was generally shunned as a *terra incognita*, still surgeons were perforce frequently entering it, the continual wars of old days making it a common field for traumatic surgery.

Le Dran states that he has many times resected the bowel for gunshot wounds, and that the safe practice is to make an artificial anus. When those viscera were uninjured, however, most writers of the last century unite in saying that speedy cure is to be expected, and that even when there are violent inflammations of the bowels with great distention, but no vomiting or hiccough, we may effect an easement and permanent recovery by the frequent use of salts and other cathartics. When the progress of the general inflammation is arrested but a local collection of matter remains, it should be withdrawn by aspiration, for the incision with a knife is apt to disturb the healthy gut and is almost invariably followed by death. In

many cases in which the sound viscera are protruded through the wound they should be returned immediately to the abdominal cavity, then large and frequent applications of heat and moisture should be made to the belly. If the abdominal wound is to be enlarged, it should be opened downwards with the scissors, the fore-finger guarding the viscera; and when the bowels are to be handled by the surgeon, he must have his hands well annointed by some sweet-smelling oil in order that the viscera may not become excoriated and so subsequently adhere closely together. If the extended bowels are distended with gas so that they may not be returned without rupture, then the surgeon should aspirate off the wind as much as possible.

The best practice in closing abdominal wounds was that which satisfies many of us to-day. A double-headed silver or silk suture was to be passed from within outwards entirely through the parietes, and having drawn the peritoneum to overlapping, the stitch was firmly tied. Ordinarily drainage was thought of little value, as it could affect but a very small area. After operation the bowels were always to be kept open and loose in order that any tendency to an inflammation might be averted. The belly was to be firmly bandaged, which was often quite enough for the union of the wound even without the use of stitches. For the first few days the patient was to be kept on a low liquid diet with very little water, and the wound not disturbed. On the seventh or eighth day the stitches were to be removed and the diet increased. If there remained any discomfort or bloating, hot applications and cathartics were to be employed.

This was the teaching in the days of Louis XIV.

A great number of expedients were tried for repairing injured viscera, and, when the bowel was cut across or necrotic, resections were attempted, with occasional recoveries. The teaching was that in this work the glover's needle must not be used, but in its place a small, round, embroidery needle. Le Dran employed a fine looped suture in stitching the divided bowel; and the principle of this was not very unlike a continuous Lembert suture. It is evident that when this was drawn home the peritoneal surfaces would overlap. In all cases in which stitches were taken, the ends of the thread were drawn out at the abdominal wound and the bowel drawn up so as to be easily accessible should trouble occur, and that if necessary an artificial anus might be opened, which we are told most commonly would close of itself in the course of time.

An extremely interesting development of intestinal surgery, by the French surgeons of the last century, nearly two hundred years ago, was the use of some sort of plate or ring to reinforce the end-to-end suture. This was commonly a hollow cylinder of tallow, or some other soluble material, which was run into either end of the divided gut. The bowel being stitched over it, one or two stitches were run through to hold it in place. Le Dran says that it acts admirably and, as the intestines become adherent in from fifteen to twenty hours, it is easily permanent enough.

When the stomach and small intestine were wounded, nourishment by the mouth was to be entirely omitted for five or six days, and nutrient enemata resorted to.

Various signs are recorded for evidence as to the

seat of injury. Thus, for wounds of sigmoid flexure, pain over the bladder; pain in the *yard* is indicative of wounded kidneys; for wounds of the liver pain in the right shoulder; and in these cases as there is probably extravasation of bile in the belly, the warning is to drain always. Here it is remarked that biliary fistulæ nearly always close of themselves.

A wounded bladder was to be sewed up always, were the rent intra-peritoneal, as the serous surfaces were known to adhere readily; but when the wound was extra-peritoneal, drainage was to be employed. Sir Astley Cooper said that a tendency to adhesive inflammation in the peritoneum was common and was the salvation of the patient in these cases; and for the free catharsis, so essential to drain away the inflammatory secretions, Epsom salts and calomel were most useful, given in small and frequently repeated doses.

Thus it will be seen that traumatic abdominal surgery was undertaken frequently, doubtless also with most frequent fatal results due to sepsis; but of pathological surgery in this region very little is said, except of drainage by aspiration, which was often employed. The usual cause for this operation was the presence of ascites or cysts. Sir Astley mentions an oft-quoted case recounted on a tombstone near Dartford, Kent: "Here lies the body of Ann Mumford, daughter of John Mumford, Esq., of Sutton Place in this Parish. Her death was occasioned by a dropsy, for which, in the space of three years and ten months she was tapped 155 times. She died the 14th of May, 1778, in the twenty-third year of her age, an example of patience, fortitude and resignation."

Cysts, too, were treated by the same method, though the possibility of their removal was considered, and Sir Astley proposed oöphorectomy though he never performed it.

I have seen no evidence that the vermiform appendix was regarded as a possible source of danger or as a factor in abdominal disease, before the present century; though one writer speaks of the gut strangulated by being enfolded in the vermiform appendix.

In view of the late developments of abdominal surgery, such teaching as I have cited is sufficiently striking to need no comment. *Sub sole, nova non sunt.*

When one considers the subject of tumors, in the light of old-time pathology, it seems futile to discuss the matter. Diagnoses were unreliable, and the distinction between benign and malignant tumors carelessly drawn; yet there were some operative measures which must interest the modern surgeon, and some sound precepts laid down which hold to-day.

Apparently benign tumors were cut out safely and without much ceremony, one would think; for we read of the common practice of removing chronic mammaries in the office, and sending the patient home. Lipomata gave little trouble, and even small goitres were removed by Cooper, though he recognized as do we, the danger of secondary hemorrhage after the removal of large goitres.

Students were, of course, constantly told to distinguish chronic mammaries from scirrhus; and Bell says that the benign tumor is very apt, in middle life, to degenerate into the malignant, and the excoriated nipple, which I take to be what we call *Paget's disease*, was regarded with great suspicion as a precursor of cancer. Another condition is described which seems to have been due to the neglect of the breasts in nurs-

ing mothers, in which quarts of fresh milk were sometimes stored in the breast by the blocking of a duct. "Drain this off and cream will rise," was the direction given. "It is not at all an abscess."

It has been understood for hundreds of years that some cancers were more malignant than others, according to their structure, seat and other conditions.

The best teachers of the last century held that caustics were to be eschewed, except sometimes in that variety of cancer of the face known to the ancients as *Noli me tangere*.

The scirrhus of the breast may sometimes be cured by the knife, it was said. By the best men it was thought useless to attempt cure unless breast, fascia and axillary glands were thoroughly removed; and Sir Astley Cooper adds that more than that, the skin over the cancer with the nipple and all the infected channels leading from the breast to the axilla, whether or not they appear invaded, must be thoroughly cleared away. Even so Le Dran says: "A cancer of the breast may be removed, but it will surely return, and more especially when it adheres to the pectoral muscle." He directed that the breast should be dressed with dry lint and a firm bandage. Benjamin Bell says that the extirpation of all the axillary glands is absolutely essential, and that when this is done it is well to make a counter-opening through the dependent skin flaps for seton drainage. He goes as far even as our most thorough operators of to-day, and says that one must clear off the pectorals down to the ribs; and rather hopelessly adds that if nothing else is gained by this, much severe, subsequent pain may be avoided.

Speaking of the mortality from the operation, Sir Astley Cooper says, in 1820: "Death from excision of the breast could never happen in these days. In forty-five years of surgical practice I have lost but five cases." He sums up by a statement on which we have improved but little, "That the complaint is in part constitutional and in part local."

Perhaps of all operations in the old days amputation of the limbs was the commonest. In the seventeenth and well through the eighteenth century, nearly all seriously injured members were amputated. The operation was almost always done for compound bone injuries, for opened joints and for gunshot wounds. As we come down towards the Napoleonic era, however, surgery, keeping pace with the great progress of the other arts and sciences, made a decided advance. Material for practice, too, was abundantly furnished by the great European battle-fields of those days; and when one reflects that for nearly one hundred years England alone was hardly ever at peace, we can understand how great must have been the increasing endeavor to save limb as well as life.

The conditions under which life might be saved were more thoroughly investigated, and we find a writer of Marlborough's time saying, "I have often observed that an amputation has more often succeeded, that is, a greater proportion of the patients have recovered, who have previously been considerably reduced than of such as have still remained in a full habit of body." A familiar example is that of a man long bedridden with a tuberculous knee, who, after an amputation through the thigh, regains health, strength and vigor with astonishing rapidity.

Towards the end of the last century, too, attempts were made to save limbs having joints disorganized by disease. The operation of Mr. Park, of Liverpool,

in 1792, who excised the knee for white swelling was considered a most promising manœuvre.

M. Bilgner, the famous surgeon-general of Frederick the Great, was a strenuous advocate of what was then thought most radical surgery—the attempt to save limbs shattered in battle; and his teaching largely influenced the great Larrey. Even when Bell says: “An open joint means amputation,” Bilgner says, “Try other means first,” and Mr. Cline, Bell’s contemporary at Guy’s Hospital, removed successfully loose cartilages from the knee-joint, while in 1820 Sir Astley Cooper wrote, “The improved treatment of compound fractures renders it rarely necessary to amputate a limb for these accidents.”

Long before the days of ether, surgeons began to look beyond mere speed in amputating; and the character of the stump as regarded its future usefulness was most carefully considered by Cooper. He followed the teaching of his predecessors in making long skin flaps, saying: “Don’t cover the stump with muscles. They will retract and draw back the skin. Use skin only.” He dressed his stumps with a light alcohol compress, and applied a tight roller bandage to immobilize the muscles. He seems to have frequently expected primary unions, for he directs that the dressing should not be disturbed until the eighth day, and that, pending that dressing, the temperature of the two limbs should be compared daily by the surface thermometer. Long before his day, he says, we learned to tie the femoral before amputating at the hip joint, but he adds, that after forty-five years of hospital surgery, he never had but one successful case of hip-joint amputation.

The usual custom of those days, which I have seen once or twice in country districts in our own time, was to secure the large vessels with long ligatures, which were brought outside the wound for drainage.

The high mortality of hip-joint amputations was but little improved upon until within the present generation, if one may judge from reports scattered through surgical literature, the most startling death-rate recorded being that of the French during the siege of Paris, where, from September, 1870, until February, 1871, but one case of hip-joint amputation was saved.

There is one class of cases in which we have learned to amputate with greater freedom than did the old masters: in cases of gangrene they always waited for the line of demarkation, and in senile gangrene they did not believe in amputating at all.

Good genito-urinary surgery is as old as Hippocrates, and surgeons after the Renaissance got back to his standard. Stones and strictures were common enough, apparently, and were vigorously treated. It is an old French teaching that a distended bladder is best tapped above the pubes, though through the retro-prostatic area is a safe path for the skilled hand; and to that same hand only should be entrusted small sounds and catheters; for the tyro should employ none but the large-sized instruments. Says the often quoted Le Dran: “The great art is to have a kind of intelligence between the hand supporting the penis and that holding the catheter.” His favorite treatment for strictures was by the use of compressible bougies which would swell after being placed. These were never left more than an hour at a time. He claims never to have damaged a urethra by this means.

In the same age and for many years later external urethrotomy was done for impermeable stricture; and

Sir Astley Cooper mentions a successful case of urethroplasty from the skin of the scrotum. The same great authority advises strongly against tapping the bladder in all cases of complete retention from stricture, and makes it his rule invariably to do a perineal section.

Tumors of the scrotum and testicles received their share of attention, and most of all is hydrocele discussed. Probably the most famous hydrocele of the last century was Gibbons’s, from which Mr. Cline, of Guy’s Hospital drew off six quarts of fluid. Radical cures were, of course, sought by various means; the favorite with most writers being some form of alcoholic injection. Sir Astley used port wine, but adds that after all, the most satisfactory thing is to dissect out the tunica vaginalis and sew up the skin over the testicle.

The excision of malignant and scrofulous tumors was, of course, commonly done, and was considered an operation of great delicacy. Most especially does Sir Astley reprobate “that cruel practice of tying the whole cord with a broad ligature, which is now being properly abandoned by every good surgeon.”

It is needless to go into the discussion of cutting for stone as practised by the old surgeons. The mechanical part of our present methods is but little changed, except that we now more often employ the supra-pubic route. Attempts were frequently made to remove stones per *vias naturales*, but it was reserved for our own Bigelow to render that method practicable.

If there is any one surgical procedure of those days which is conspicuously absent from our own practice, it is that of bleeding. As we know, this was not by any means limited to phlebotomy, but both arteries and veins were opened; and cupping and leeching were employed according to the special complications.

It would be futile here for me to go into the question of blood-letting as it was discussed by our fathers, the point of most interest being to inquire how judiciously it was employed, and how far from indiscriminate was its practice.

In this connection Baron Larrey says: “It is a great and sometimes fatal mistake to bleed immediately everybody that has had a fall or received an injury. Such bleedings augment the state of collapse and frequently deprive nature of the few remaining resources to re-establish the equilibrium between the enfeebled vital forces.”

Sir Astley Cooper, too, bled “sparingly and with great caution for fear of impairing the reconstructive powers.” He “especially avoided bleeding in compound fractures.” “The one indication for bleeding” he said, “is a *hard* pulse, no matter what its rate or volume.”

In cases of tetanus, in which the classical treatment consisted of opening the vein in a warm bath, he vehemently asserted that both the bath and the hemorrhage did great harm, and that bleeding in lock-jaw hastens death. Here, as in other infectious conditions, he used opium; and, after the favorite method of moderns, he said, “In giving opium, use small and frequently repeated doses. Large doses nauseate and the effect is more transient.”

Men differed much about their methods, and Larrey’s assertion that general blood-letting is preferable to leeching would not altogether commend itself to us. His reason was that leeches, so far from dis-

persing the inflammation, increase it and invite an attack of gangrene.

Perhaps the most logical and frequent use of bleeding was in the case of head injuries, and in this respect I believe we might learn an occasional lesson. In all head injuries in which there was obvious brain compression, not only were ice caps and cathartics resorted to, but free bleeding, especially from the temporal artery, was the rule.

It would be an endless task, too, to go into the subject of complications of injuries. The treatment of gunshot wounds, for instance, was a matter of constant surgical warfare; the main contention, then as now, regarded the infectiousness of bullet and punctured wounds. Larrey says, "Enlarge and drain all punctured wounds"; and in another place, "Don't touch gunshot wounds, but dress them and leave the dressing undisturbed until the seventh, eighth or ninth day." And Bell says, "Do not needlessly and for a long time explore wounds for bullets or other foreign substances." Indeed, nearly all of the best old authorities agree in leaving alone inaccessible bullets.

Benjamin Bell's treatment of bruised and sprained joints, too, reminds one strongly of the best treatment of our own days: "In severe sprains first plunge the ankle into very cold water. In the subsequent treatment use frequent hot and cold bathings, showering from a height; then rubbings with emollients. A flannel bandage should be constantly worn, carried smoothly and spirally from the toes to the knee." And Cooper says that, in these injuries, when there is much undispersed inflammatory exudate, we should use electricity to absorb the indurations, but the best of all are mercurial ointments and friction.

One might go into the discussion of the treatment of gangrenous quinsies, by which is evidently meant diphtheria, of the value and abuse of tracheotomy, of the nerve and tendon suture, of the treatment of aneurism, and similar subjects almost without end; but, fascinating as such research and inquiry becomes, it would lead us too far afield for the purposes of this essay.

Such an article would be incomplete, however, without some further reference to head injuries, a subject of great controversy in the pre-antiseptic days, and dreaded equally with wounds of the joints and abdomen. We know that the custom of trephining is very ancient, not only from our own literature but from Mexican and Egyptian remains which are many hundreds of years old; but leaving that aside, the practice of more recent days touches us most nearly.

It was early recognized that skull fractures were not in themselves dangerous when not compound, though the extent of the fracture in such cases was impossible of determination, and a fact is emphasized which even with us has been seldom mentioned, namely, that a blow on the vault may produce a crack entirely encircling the skull.

We know how the practice of trephining fluctuated from time to time, according as one school or another became prominent and popular. Through the last century English surgeons and many French surgeons trephined constantly, but it was the teaching of the French army surgeons, especially of Larrey, which gradually brought about a change.

Larrey said, "Trephine for evident cause—for splintering, depression or effusion causing compression symptoms"; and Cooper adds, "Trephining for con-

cussion is now completely abandoned; however, in obvious cases trephine, but not through the uninjured dura." More than fifty years earlier Le Dran had taught to explore thoroughly all wounds of the scalp and to trephine punctured fractures. He had a sure instinct for surgical cleanliness, and insisted that the head must be thoroughly and entirely shaved to avoid clotting the hair with blood, and consequent fouling of the wound. He also said that in all head injuries, and more especially when the skull was opened, thorough drainage should be instituted. The most frequently employed treatment for pressure symptoms was general bleeding, as I have said; all the old authorities insist upon it, and cite many cases in which it was obviously of benefit.

Hemorrhage from the meningeal arteries was checked, however; the most highly lauded hemostatic being the actual cautery.

Baron Larrey seems to have recognized the advantage of thoroughly draining the base to prevent pressure symptoms, for he describes the case of one Nicholas Baumgarten, a private, who received a fencing thrust through the orbit which did not injure the eyeball. At once a copious draining hemorrhage came on and persisted for a day or two, so that there were no pressure symptoms, and the man did perfectly well. Later the orifice became plugged, compression of the brain developed, and the man died on the fourth day.

He cites another case of undoubted fracture in the middle and posterior fossæ. A cavalry officer fell from his horse upon his head. There was immediate coma, with profuse hemorrhage from the ears and mouth, which was allowed to persist. After two or three days large ecchymoses developed behind the mastoids. Treatment consisted in supplementing the depletion of the brain by opening frequently the external jugular veins and occipital arteries. The man recovered.

In view of our recent advances in cerebral surgery this case is full of interest.

We know that shrewd guesses at cerebral localization had been made before Larrey's time. He himself notes that "in injuries to the cortex cerebri by pressure the intellectual faculties are impaired; in injuries to the base and ventricles there are paralytic phenomena, but not intellectual." Also that "in extensive injuries to one hemisphere the opposite limbs are paralyzed; therefore even in old cases operate for the removal of pressure on the opposite side."

Speaking of the phrenologist's bump of amativeness over the occipital protuberance, Larrey notes the peculiar physiological effect of traumatism in that region, and relates several cases of gunshot injury to the back of the head followed by impotency and atrophy of the testicles. He speaks with a note of admiration also of the reverse process, telling of castrati who have lost their bumps.

A further fact which became well recognized in the last century was that "considerable portions of brain matter may be lost and, if there should be no inflammation, life and even the functions are not jeopardized."

The old field-surgeons were, of course, well accustomed to seeing very serious brain lacerations in battle as well as resulting herniæ cerebri. Larrey recognized the uselessness of attempting their reduction or excision, and states that the real source of the trouble is swelling of the brain itself for some cause. He recom-

mends constant lime-water applications with strapping.

Le Dran asserted that when a bullet was obviously lodged in the brain, it could be safely probed for with an elastic catheter, and removed if found.

In connection with the practice of chiselling out bone flaps instead of trephining, another statement of this surgeon is striking. He tells of a skull from which a large slice had been cut by the glancing stroke of a sabre. The bone with the overlying soft parts had remained hinged to the skull by firm attachments, had been replaced and had thoroughly reunited, leaving only a thin cicatricial line of union, with no loss of substance.

Many other branches of surgery prominent in the modern schools I have omitted: ophthalmology, laryngology, gynecology. These are comparatively new studies. This short sketch of a subject so broad and a literature so voluminous is obviously not intended to be a rigorous critique, but rather a selecting out of some little of the notably sound work, leaving it for us moderns to compare it with our own; to show how good those ancient men were, not how much better we have become.

THE GONOCOCCUS.

BY HENRY DEXTER CHADWICK, M.D.,
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(Concluded from No. 14, p. 341.)

A STUDY of the diplococcus which was so often met with in my series of cases showed it to have the following characteristics:

Biology. — After twenty-four hours in an incubator there appears on the surface of the agar round, white dots having a faint yellow tinge, semi-translucent, varying in size up to half a millimetre. After another twenty-four hours the colonies will have about doubled in size, lying slightly elevated from the surface with a sharply defined circular outline. The colony is thicker in the centre, and the very slight moist appearance on the surface produces a pearl-like lustre as seen in reflected light. By transmitted light the colonies are semi-translucent, and the thicker central portion appears a darker yellow tinge. The colonies show but little disposition to become confluent so that the development in size of the individual colony depends on the number present. With only two or three present in a tube, they may become three or four millimetres in diameter after several days; and as the growth begins to dry first in the thinner circumference of the colony, the edges become somewhat scalloped, and the regular rings which represent successive periods of growth encircle the central point which was the original colony. With a low power the colony is seen to be made up of very fine, slightly yellow granules closely packed together. On gelatine plates the diplococcus begins to be seen about the third day as minute white points. They do not liquefy the gelatine, and therefore remain on the surface. Very minute colonies develop below the surface, which grow very slowly. The color and appearance are the same as when grown on agar.

Slab cultures show development along the length of the needle track in very fine white colonies, giving a granular appearance to the growth. There is but little tendency to spread over the surface adjacent to the puncture.

On potato, growth was noticed in from three to four days as faint lines, nearly the color of the medium on which it was growing. Later, as the colonies become dry, they are almost a pure white, as on all other media. When grown on the potato there is considerable variation in the size of the organism. When grown in milk the casein becomes coagulated in twenty-four to thirty-six hours. Beef serum and hydrocele fluid were tried, and the diplococcus developed equally well on each, having no characteristic growth. It stains readily by all the aniline colors, and is not decolorized by Gram. This diplococcus does not produce gas. It produces acid, as was demonstrated on litmus agar and in milk. It is anærobic, but will grow slowly under mica. Non-motile.

Pathogenesis. — A culture from a case of gonorrhea of several days' duration was made on agar, and transplanted into acid bouillon and incubated for forty-eight hours. The diplococcus developed rapidly, causing a clouding of the bouillon with sedimentation. A small quantity of this bouillon was injected into the vagina of a bitch, having previously slightly scarified the mucous membrane. Three days later there was a very slight muco-purulent discharge, which continued to increase in quantity, and the swelling and inflammation of the vulva became greater during the following ten days. No cultures were made until the tenth day, when one was taken upon which numerous typical white colonies of diplococci developed. These were identical in appearance and morphology with the organism used for inoculation. Cover-glasses of the pus showed an occasional cell containing a number of diplococci about two-thirds the size of the gonococcus as found in man. Cultures taken at intervals for six weeks showed the characteristic diplococcus, which decreased in number after the third week, as the inflammation subsided. Many other bacteria were present in the latter part of the disease. A culture from blood taken from the ear during the fourth week proved sterile. A pure bouillon culture obtained from this bitch during the second week was injected under the foreskin of a bull-dog. In this case no attempt to scarify the parts was made, but on the contrary, care was exercised to avoid any abrasion or injury to the tissues. Cultures taken on the third day after inoculation showed a few diplococci. The purulent discharge increased in amount from this time for about two weeks, when it was very abundant and accompanied by considerable inflammation of the parts, which appeared to cause the animal some discomfort. The discharge then gradually lessened in amount and the inflammation subsided. Cultures made at intervals always showed a diplococcus like the one used for inoculation. Cultures of the blood taken from the ear, which was cleaned well with alcohol, showed numerous diplococcus colonies identical in cultural peculiarities and morphology with that from the urethra. Both would stain by Gram. One week later a culture from the blood taken in precisely the same way proved sterile.

A bitch was then inoculated in the same way as dog No. 1, with a culture of diplococci from a gonorrheal case grown on an alkaline medium. No purulent discharge or inflammation followed. A fourth dog which had not been inoculated was found suffering from severe purulent discharge. Cover-glasses were made, but in none of them was a satisfactory specimen obtained, on account of the quantity of extraneous matter included

with the pus. Cultures showed several colonies of a small diplococcus, apparently the same as has been described. In this case also, blood cultures from the ear were made, and an organism similar to the urethral diplococcus was found. In following out this diplococcus, which was at first considered to have been contained in the blood, cultures were made from the blood of a patient suffering from an acute gonorrhea of six days' duration, with positive results. One week later another culture taken from the ear as before, failed to show any growth.

Another case of gonorrhea of four weeks' duration, from which blood cultures were taken, failed to develop.

One case, also, of chronic synovitis of the knee-joint, in which no history of gonorrhea could be obtained, failed to develop any growth on the blood cultures. A culture was then made from the deep layers of the skin on the arm of a healthy person and a very few white colonies of the small diplococcus developed.

Whether or not these skin diplococci are identical with the urethral diplococcus, I am not prepared to say, as the colonies were often moister in appearance, and some were of a faint bluish cast, instead of white or yellowish tinge — a very slight difference which might have been accidental. There was not time to follow this through all the culture media. Their appearances in cover-glasses were the same, and both would stain by Gram. A large diplococcus, which was obtained from the superficial skin in one instance, had a distinct yellow colony. These stained by Gram, and were often seen in groups of four, like tetrads.

In regard to the diplococcus which appeared in the blood cultures, it would be impossible to say it did not come from the skin, and the same objection could be raised against all the published reports in which observers have stated that the gonococcus had been found in the blood. The only way to avoid this chance of error would be to take the blood from the bottom of a deep incision or from a vein. From the results obtained in this series of cases, it is apparent that Turro's investigations could not be confirmed. Although a small diplococcus was found in most of the cases, it was not the gonococcus for the following reasons: First and most important, is the fact that they could not be decolorized by Gram, while the gonococcus is decolorized very rapidly. Second, their arrangement and size was very much like that of a staphylococcus, and groups of four were seldom seen. Their small size makes them easily mistaken for cocci when stained deeply. The diplococcus appearance was found to be best shown in cultures not over forty-eight hours old, as degenerative changes occur about that time. These should be stained in a very pale watery solution of methylene-blue (three or four drops of the alcoholic solution to a watch-glass of water) for thirty to forty seconds, after which it is important to wash very thoroughly. Third, it was found that the diplococcus would grow luxuriantly on all common neutral media as well as on acid material. Fourth, although the results obtained on dogs were positive, this fact would seem to be negative evidence as regards the gonococcus, for all observers, excepting Turro, have claimed that dogs were immune to gonococcus infection, and attempts to produce the disease with pure gonorrheal pus have not been successful. The fact that a purulent urethritis is produced by a diplococcus is not of itself proof that the disease is gonorrhea. Fifth, Finger states that the development

of gonococci is favored if the culture media or tissue is alkaline in reaction, and points out that although the mucous membrane of the urethra is usually bathed in an acid fluid, it will under conditions of sexual excitement pour out an abundant secretion from the glands and follicles, which neutralizes the previous acidity. Any condition, therefore, which tends to produce an alkaline secretion, either from long sexual excitement or alcoholic stimulants, serves to furnish material most favorable for infection and gonococcus growth.

In the cases of gonorrheal ophthalmia, for instance, where infection is usually very virulent, the eye is bathed constantly in the lachrymal secretion which is alkaline or neutral in reaction. In connection with the diplococcus above described, it is interesting to note that Bockhart (1886) reported 14 cases of urethritis, which he found were caused by a very small diplococcus and an ovoid streptococcus.

The only result which tends to confirm Turro's announcement which I have found, is a report by Ghon and Schlogenhauer. They wished to try cultures on acid material, and so prepared for this purpose a medium composed of two parts agar and one part fresh acid urine. In this material a culture of gonococci was obtained, with which they produced a urethritis in a healthy man and gonococci were found in the discharge.

In my series of cases, large diplococci in colonies of varying shades, yellow and pink, were met with several times. These organisms were about the size of the gonococcus, which they resembled very closely in form and arrangement. None of them, however, would decolorize by Gram's method. The most common bacterium present, aside from the small diplococcus, was a small coccus producing yellow colonies, and resembling the staphylococcus pyogenes aureus in appearance and arrangement. Once an organism having the characteristics of the bacillus fluorescens liquefaciens was observed. Besides the bacteria already mentioned, there were a few other bacilli and cocci which were occasionally found. The inference to be drawn from this work is that the gonococcus will not grow on acid media; and in reviewing the results obtained by all the different investigators, we must conclude that the gonococcus is a strict parasite, having a very slight power of saphrophitic growth. Until some better method of cultivation is found, a positive diagnosis of gonorrheal infection is impossible in many cases, as was made evident from the investigations of Lustgarten and Wannaberg (1887), who found diplococci in healthy urethræ which were identical with Neisser's gonococcus in appearance and reaction to Gram's stain. These diplococci were also found in epithelial cells; and as these organisms may exist within the urethra, they may be taken up by leucocytes and closely simulate gonococci. After their results were published, a pupil of Neisser, Steinschneider, admitted the possibility of error in about five per cent. of all cases. Lustgarten thinks it even greater, and says the principal distinction between the gonococcus and this normal organism seems to consist only in the fact that in gonorrhea this diplococcus is found in larger numbers and in masses with but few other organisms present, and concludes that in a case of chronic gleet it is impossible to decide whether it is of gonorrheal origin or not, and that even with the microscopical examination one must rely on their clinical experience. In cases

of vaginitis even greater doubt is thrown on the presence of the gonococcus, since Bumm and many others have found the presence of diplococci not to be differentiated from the gonococcus in the vagina of healthy females. By summarizing all the well authenticated work on the subject, we conclude as follows:

That the gonococcus of Neisser undoubtedly causes true gonorrhea, but to make a certain diagnosis of this organism it must be found in considerable numbers and these arranged in groups within the leucocytes. They must also decolorize very readily by Gram's method of staining. In cases where but few scattering diplococci are found and most of those outside the cells with other bacteria, a diagnosis of gonorrhea is not justifiable; particularly is this the case in the vulvovaginites of children.

METHODS OF STAINING THE GONOCOCCUS.

- (1) Place cover-glass after fixing in Löffler's methylene-blue, five minutes.
- (2) Wash in dilute acetic acid (one drop to watch-glass) one to three seconds.
- (3) Wash, dry and mount.

The nuclei are found stained blue, but the protoplasm and cell outline are hardly visible, often making it impossible to say whether the diplococci are within the cell or not.

NEISSER'S METHOD.

- (1) Stain cover-glass with saturated alcoholic solution of eosine, thirty to forty-five seconds.
- (2) Drain off excess with filter paper.
- (3) Stain the unwashed cover-glass with saturated aqueous solution of methylene blue.
- (4) Drain off excess with filter paper.
- (5) Wash, dry and mount.

The result shows outline of cells distinctly, with their protoplasm stained pink, the nuclei blue and the bacteria a darker blue. Gram's reaction should be always used to make diagnosis doubly sure.

GRAM'S METHOD.

- (1) Analine water, gentian violet, three to five minutes.
- (2) Iodine iodine solution, one to two minutes. (Iodine one gramme, potassium iodide two grammes, water 300 cubic centimetres, mixed.)
- (3) Rinse off stain in alcohol.
- (4) Dry and mount.

The gonococcus when treated by this method is decolorized almost instantly when rinsed off in 95 per cent. alcohol, five to ten seconds at the most being the time necessary for complete decolorization.

NOTE. Since this paper was written an elaborate article on the gonococcus has been published by Dr. Henry Heiman, in the *New York Medical Record* of June 22, 1895. After trying various culture media on which different observers have cultivated the gonococcus, he decides that pleuritic fluid, plus two per cent. nutrient agar, plus one per cent. peptone, gave the best results. He attributes the superiority of pleuritic fluid over other serous effusions or blood serums to the fact that it contains more albumin. The gonococcus would grow readily and could be transplanted on this medium. His work was confirmed by positive results on the human urethra. He believes that the diplococcus described by Turro was not the gonococcus, as none of the diplococci which he was able to grow on acid media would decolorize by Gram. Heiman's study of the bacteria of the normal urethra and the healthy vulvo-vaginal track is very important, for although he found several species of diplococci, none of them would decolorize by Gram and concludes that the gonococcus is never present in healthy mucous membrane and that it can always be positively differentiated from other diplococci by the Gram method.

Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-FIRST ANNUAL MEETING, BOSTON, JUNE 5, 6 AND 7, 1895.

(Continued from No. 14, p. 543.)

SECOND DAY. — MORNING SESSION.

DR. JAMES J. PUTNAM, of Boston, read a paper on
HYPEROSTOSIS CRANII (CEPHALOMEGALY), WITH
ILLUSTRATIONS.

CASE I. Swedish woman, twenty eight, married. No sign or history of syphilis or other constitutional ailment. Mother and sister both suffered greatly with their head. Not sure that they had hyperostosis. Patient thinks trouble dates from a confinement nine years ago when she was subject to drowsiness, headache and pain in ears and eyes. Teeth began to fall out; hair finally lost. Pain in head increased. Broadening of head and prominence of eyes then noticed. For past five years has been getting dark and discolored. Sight poor in one eye. Opacity in one lens. Double facial paralysis, due to obliteration of the facial canals.

CASE II. Young man, eighteen. When five, he fell and injured himself slightly, and it was thought that this gave rise to the trouble. His head was shaved when examined, and his brother said the two hyperostoses were present which afterwards became the dominating feature of the disease. At eighteen, when I saw him, he was totally blind and deaf. Head somewhat deformed. These two hyperostoses had become excessively large, and merged into a diffuse enlargement of the whole head. I followed him until his death, five years later. Chief symptoms: headache, loss of the special senses, and finally staggering gait. He had epileptic attacks occasionally, from the onset of the disease apparently.

CASE III. Patient shown. First seen three years ago. Then fifty, married, in provision business. Healthy previous to present illness. Head had been growing larger ten or twelve years. Neuralgic pains recurring at short intervals and in various parts of the head especially troublesome, at time attended with nausea and vomiting. Eyesight good, but hearing poor a number of years.

With reference to the pathology, it was Virchow's idea that the origin was inflammatory, generally originating in some injury or inflammation of the skin, one of the cases having come on after an attack of erysipelas, another after suppuration of the tear-passage. It was, however, noticeable that the disease, as a rule, began in youth, sometimes in infancy. As suggested by Baumgarten, the suppuration of the tear-passage might be the result, not the cause, of the disease of the bone. In Dr. Starr's case the changes in the soft parts suggested that in one type of these affections there might be something of the nature of a general dystrophic change besides the alteration in the bone. The tendency to overgrowth of other parts of the body seemed to increase the probability that we had to do with a general process.

DR. PRINCE, of Boston, spoke of a case in which the symptoms apparently followed injury to the forehead. The symptoms were very similar to those of cerebral tumor. There was a large protuberance con-

fined to the frontal bone. Parietal bone enlarged. Operation advised against. The autopsy showed that it might have been feasible to relieve the pressure by operation. This probably was an exceptional case. There was no history of syphilis.

DR. HAMMOND, of New York, mentioned a case in which there were five or six enlargements, and the skull was fissured in all directions. The bones, wherever they could be felt, showed enlargements and nodosities, and it was probable that the same cause produced the structural changes in the bones of the skull and in those of the skeleton. The patient had had syphilis.

DR. CHARLES K. MILLS opened a discussion on

CORTICAL LOCALIZATION IN THE LIGHT OF RECENT RESEARCHES INTO THE MINUTE ANATOMY OF THE CORTIX.

He said that the different theories as to the separate cortical localization of movements and of cutaneous and muscular sensation, which had been the subjects of so much controversy, have again become prominent in the light of the researches founded upon the methods of Golgi, and particularly those made by Ramon y Cajal, van Gehuchten, Schaeffer, Andriezen and others. Those who contend against the doctrine that the Rolandic cortex is a purely motor region believed they there received additional support for their views. The varying hypotheses with reference to the functions of the cortex were reviewed. He held that, as shown by Forell and Manson, we have been too long handicapped by prevailing ideas of cell action, and by theories of the parts played by the cell bodies as originating centres. Impulses are transmitted and transferred by processes as well as by cell bodies, and the function of the latter is chiefly trophic. The new researches and theories, he believed, did not compel an abandonment of former views as to special localizations, although different standpoints might need to be taken. Disregarding theory entirely, he believed that the subdivision of the cerebrum into physiological lobes — higher psychical, motor, sensory (meaning for the representation of cutaneous and muscular sensations) visual, auditory, olfactory, gustatory and naming — remained for the practical purposes of the physician and surgeon the best. While the whole of the cortex in some of its strata may be regarded as a sensory expanse, its Rolandic portions, and particularly the convolutions cephalad of the central fissure, constitute a region which is related to specialized movements of various parts of the body. One calls it motor, another kinesthetic, another sensory-motor, and another executive; but for the purposes of the physician and surgeon it is a motor sphere, the irritation of which causes specialized movements, while its destruction impairs or abolishes these movements. It is as much the area where the motor portion of the great sensory-motor arc begins as where the sensory portion of it ends. He did not believe with Andriezen that it was necessary to regard the ambiguous and great pyramidal cells of this region whose apical processes received the terminals of the fillet radiations as the first sensory cells of the cortex. Indeed, he regarded it as important to rid ourselves entirely of the idea of sensory cells and motor cells. The cortex contains localized areas in which are found cells that might be of the same kind, although cells of a peculiar type may prevail in certain portions of it. To abandon

separate sensory and motor localization would, he believed, necessitate the abandonment of visual auditory, gustatory and other subdivisions of the cortex. The cerebro-sensory area — that is the area of representation for skin and muscle sensations — both cortical and subcortical, would be, from his point of view, that part of the cerebrum where the fillet radiations concerned with these sensory excitations in their most compact forms, are nearest to the surface of the brain, and therefore this region might continue to be destroyed as it had been by him, as in the postero-parietal, quadrate and fornicate convolutions. Destruction of this region, especially if bilateral, caused more or less permanent loss or impairment of sensation. He referred to cases reported by Savill, Sharken, Starr and McCosh and himself as confirming this view. In the cerebrum as in the spinal cord were fields of junction between the various so-called cortical areas and lesions of these fields of conjunction, or at the terminations of the sensory projection, fibres might give rise to temporary sensory phenomena, as might also lesions anywhere in these fields of conjunction; but persistent sensory disturbances were found only when the lesions involved the convolutions included by him in the general sensory area. The somewhat numerous contradictory cases were capable of reasonable explanation.

DR. DANA, of New York, said that he still held to the view that the motor and sensory functions were practically united. He could not explain the clinical and pathological facts upon any other hypothesis. Upon removing a section of the pre-central convolution, tactile anesthesia and muscular anesthesia with paralysis followed, which he thought pointed to the union of these two functions in that spot. Such cases were numerous. He had directly irritated the motor cortex and produced sensory disturbance associated with motor disturbance. The whole weight of clinical evidence, the surgical operations, the tumors, the softenings, indicated that these two functions were essentially identical anatomically. He did not think that Dr. Mills's theory that the centres for visual, auditory and gustatory sensations were separate, held against actual facts. The visual sensations were not so closely related to motions as were the cutaneous and muscular sensations. For the performance of co-ordinated movement we must have a very close relationship anatomically between the muscular and cutaneous sensations. He agreed with Dr. Mills that sensations were not closely localized.

DR. PUTNAM, of Boston, thought that the convolutions in advance of the fissure of Rolando, the function of which we ordinarily associated with localized movements, had also to do with sensation. He believed that the function of sensibility was very widely distributed. He thought it was interesting to remember that a sensation would make its way from a minute portion of the spinal cord that was left; and in the brain, if one channel was cut off, it would make its way into other channels. We knew that nerves would stand a high degree of injury, sufficient to destroy their motor functions, without interfering materially with their sensory functions. The same was true in the cord; a minute portion of it would convey centripetal impressions. Sensibility would seem to be rather peculiar in the fact that it is almost always related to something else. A sensation was felt almost always for the sake of something else.

DR. STARR, of New York, said we were positive that a lesion of a limited area of the so-called motor zone did inevitably produce in almost every case more or less disturbance of sensation. He considered that he was mistaken in 1890, when he maintained that sensations were received only behind the fissure of Rolando. He believed with Dr. Dana that there were disturbances of sensation produced by small lesions anterior to the fissure of Rolando, that the sensory area of the body corresponded exactly with the motor area, so far as we could determine clinically. Dr. Starr referred to the address of Flechsig, in which he showed that in the course of development there were two distinct and separate periods of development to be traced in the embryo in the cortex; the first period in which there were formed projection tracts of different kinds, the so-called motor tracts, and sensory tracts of distinct kind, visual, auditory and olfactory and also tactile. The latter were distinct and separate from the motor and terminated in areas of the brain separate from the motor and posterior to the fissure of Rolando. Flechsig showed that the second stage of the development of the cortex was an enormous development of association fibres, separate and distinct in the life of the child, because it was only when these fibres began to develop that evidences of the combination of the various sensory memories were shown in conscious intellectual acts. He thought the solution of these apparently contradictory facts was found in the diffusion of sensations. From the Cajal and Golgi methods of staining we knew that the sensory fibres did not terminate in a distinct sensory cell, but in brush-like expansions. Diffusion of sensibility, he thought, explained the fact that in a few cases we got loss of sensations alone, while in the vast majority of cases sensation and motion were lost together. He thought we should come finally to the fact that a cell was to be regarded more as a trophic centre than as a motor or sensory cell.

DR. DERCUM, of Philadelphia, said that to his mind the various centres of the cortex, as we knew them clinically and pathologically, were simply highways of ingress and egress to the general cortex. General biological considerations also would negative the sharp differentiation of cells into special functions. Nerve protoplasm reacted to certain forces; and to say that one cell would react to one mode of motion and another to another, was to his mind unphilosophical, and not borne out by general biological considerations.

DR. PRINCE, of Boston, said that a great many cases could be mentioned where excision of a portion of the cortex had not been followed by loss of sensation. He thought if the word centre had any meaning, it must mean a portion of brain the function of which was destroyed when taken away. He did not know how to explain the cases alluded to by Dr. Dana, but they might possibly be explained in this way: that the disturbances occasioned by a lesion in the brain may be secondary, perhaps due to edema or local congestion. We knew that in injury to the hand, for example, the local phenomena were not strictly limited to the seat of the pain; we might have swelling of all the neighboring parts. He did not see why the same might not be true in the brain.

DR. KNAPP, of Boston, said he thought the whole of our knowledge of the neuron went to show the very pronounced dependence of the motor neuron upon the sensory neuron. In the primary neurons it had been

clearly proven that the terminal processes of the axis-cylinder of the sensory neuron were closely connected with the apical processes of the motor neuron in the cord. Recent studies in the development of the fibres in the brain itself showed that the sensory tract passed distinctly upwards toward the central convolutions rather than downwards and inwards toward the gyrus fornicatus. In other words, the higher sensory neurons must either pass upward directly to connect by their axis-cylinder processes with the cell bodies of the motor neurons, or there must be associated tracts from these axis-cylinders going up to the motor neurons. Now, we found no association tract passing up from the gyrus fornicatus to the central fissures. The positive cases of sensory disturbances following lesions behind and in front of the fissure of Rolando were increasing in number. The positive cases of lesion in the neighborhood of the gyrus fornicatus were very few.

SECOND DAY. — AFTERNOON SESSION.

DR. E. D. FISHER, of New York, read a
REPORT OF A CASE OF TUMOR OF THE CEREBELLUM,
WITH AUTOPSY.

DR. GEORGE J. PRESTON, of Baltimore, described
CASES OF BRAIN TUMOR.

DR. GEORGE L. WALTON, of Boston, considered
the subject of

PRESENTATION OF A BRAIN TUMOR.

The main interest of the case was the question whether operation might have proved successful. Mr. H., aged fifty-three, had complained of headache, frontal, only two months before death. The preceding symptoms were attacks of vertigo and loss of speech with several general convulsions, aphasia, agraphia, right hemiplegia and right hemianopsia. Double optic neuritis and loss of superficial reflexes on the right side. Autopsy: tumor surface two by one-and-a-half inches, occupied the angle between the Rolandic and Sylvian fissures. Extension forward under the healthy cortex reached beyond the transverse frontal sulcus. It was fairly well defined, but with no distinct capsule. The centre was necrotic. The symptoms suggested so extensive infiltration that operation was considered to offer small hope, but the extension backward was not so great as the hemianopsia would indicate, a fact which together with recently published cases of removal of large gliomata would lead perhaps to a somewhat more hopeful prognosis in another case of this nature.

DR. STARR, of New York, mentioned briefly a case of infiltrating glioma of the left hemisphere in the hand and arm area of the motor zone. No history of blow or of syphilis. Symptoms developed gradually in the course of a year. They consisted of, first, headache; second, gradually increasing optic neuritis; and, third, localized spasms commencing in the right hand and arm, associated with a moderate degree of anesthesia. No disturbance of muscular sense. A mild condition of motor aphasia developed. Operation by Dr. McBurney. On exposing the brain an extensive infiltrating glioma was found. It had no capsule, was very vascular, the merest touch causing hemorrhage into the substance of the tumor. The wound was closed. The man died that night from hemorrhage from the finer vessels through the tumor. In exposing the brain the gouge and chisel were used instead of the

trephine, which was a slower method. The fact brought out by Dr. Fisher's case, that the position of the pain gave no clue to the position of the tumor, had been confirmed by every collector of cases since 1880.

DR. DANA, of New York, thought the use of the chisel upon children and infants was a bad method. He thought that with the electric saw as now perfected much better results could be obtained. Dr. Powell, of New York, had now operated with the saw in twenty-five cases of idiocy and epilepsy with only two deaths, a mortality lower than that of any other surgeon.

DR. JACOBI referred to the method of lumbar puncture and removal of cerebro-spinal fluid for the relief of headache in cases of brain tumor. The puncture was made between the second and third lumbar vertebrae, and was as easy as thoracentesis. About 20 to 40 c. c. of cerebro-spinal fluid were withdrawn. While the fluid was flowing the pain increased, but after the removal there was relief for forty-eight to seventy-two hours. The puncture could be repeated at intervals of three or four days.

DR. COLLINS, of New York, called attention to the fact that in operating with the chisel the pulse would sometimes go as low as twenty beats, following several blows in rapid succession. In one instance the patient's condition became such that artificial respiration was resorted to and ether substituted for chloroform.

DR. HAMMOND, of New York, said that Dr. Powell had operated with his electric saw on seven cases for him, six infants and one adult. The infants varied from one to seven years, and the adult was twenty-two. The saw as now perfected worked admirably. The whole operation required not over twelve minutes. He did not think, however, that the saw would be adapted to incisions other than the straight-line incision.

DR. DERCUM, of Philadelphia, had also observed slowing of the pulse from the use of the chisel, which he attributed to inhibition from irritation of the dura.

DR. FISHER, of New York, said that while there might be some disturbance of the circulation from the use of the chisel, the after-effects did not indicate much cerebral shock or concussion.

DR. C. EUGENE RIGGS, of St. Paul, read a paper on

INJURY OF THE LEFT ANGULAR GYRUS.

DR. CHARLES L. DANA, of New York, followed with

A CASE OF HEREDITARY CHOREA, WITH AUTOPSY.

The patient, a peddler, was thirty-seven at death. His great-great-grandmother had chorea at the age of thirty, his great-grandmother at thirty-two, his grandmother at thirty, his mother at thirty; he himself began to suffer at thirty-three. The patient, before symptoms developed, was of good intelligence and of strong physique. Symptoms began with peculiar twitching movements of the face, a peculiar gait and some weakness mentally. About two years after the onset of symptoms he was obliged to enter the hospital. He was then in good physical health aside from his special trouble. He presented the usual physiognomy of a case of hereditary chorea, had a peculiar high-stepping gait, twitches of choreic character in the face, peculiar disturbance of articulation, and a slight degree of dementia, which gradually progressed. He was once in the course of the disease trephined, and for several months seemed distinctly better, but soon

relapsed into his former condition, and the disease progressed. The patient continued without much change in his condition except that he grew more demented until he had had the disease about five years, when he died from an intercurrent attack of typhoid fever. In examining the brain there were few peculiarities which could be considered of significance. There was interruption of the fissure of Rolando by a bridging convolution which was rare. There was also absence of Dercum's convolution. He also made a series of measurements of different parts of the cortex with reference to the relative thickness of different areas. In the microscopical study of this brain he was not able to use the recent methods of staining. The brunt of the disease in this process was in the sensory motor cortex and in the pyramidal area of that cortex, although all of it was to some extent affected. His conclusion was that in these cases the defect was a teratological one, that these people were born with brains bound to become senile, and atrophy at an early age in different spots.

DR. MILLS, of Philadelphia, agreed with Dr. Dana that the explanation of these cases consisted in the fact that these individuals were born with a certain potentiality, and that at a certain age they were bound to be prematurely senile. He would put on the same basis the familiar forms of spastic paralysis, etc.

DR. H. A. TOMLINSON, of St. Peter, read a paper on
INSANITY AND PHTHISIS, THEIR CONCURRENCE, CO-EXISTENCE AND TRANSMUTATION.

DR. EDWARD WYLLYS TAYLOR, of Boston, gave a
LANTERN EXHIBITION OF THE MEDULLA OBLONGATA OF A CHIMPANZEE, WITH OTHER SPECIMENS.

Dr. Taylor showed sections on the screen from the medulla oblongata of a chimpanzee, and a number of pathological preparations from the human cord and brain of somewhat unusual interest.

Comparing the chimpanzee with the human bulb, especial attention was drawn to the following points of difference:

- (1) The great development of the motor tracts in the case of the chimpanzee.
- (2) The relatively small development of the gray matter and its peculiar conformation.
- (3) The high level at which the nucleus cuneatus first reaches its complete form, and the simplicity of the olivary nuclei.
- (4) The peculiar irregular character of the sensory crossing, and the smallness of the fillet.
- (5) The fewness of the external anterior arcuate fibres, and the absence of the arcuate nucleus.
- (6) The course of the hypoglossal nerve.
- (7) The large size of the ascending root of the fifth nerve at upper levels of the bulb.

Other sections shown were tumor of the cord, gliomatosis with cavity formation, syphilis, tabes dorsalis, multiple sclerosis, thrombotic softening of the pons, and degeneration of the restiform bodies and middle cerebellar peduncles from sclerosis of the cerebellum.

The first case was one of tumor of the cord itself, a much rarer condition, excluding gliomatosis, than meningeal new growths.

The second case showed cavity formation in the lumbar region, unassociated with the central canal, with accompanying degeneration of the pyramidal

tracts. A destructive lesion of the sacral and lower lumbar cord was attributed probably to syphilis, in its later stages of retrograde metamorphosis. The limitation of the disease and its unusual histological characters were especially noted.

The sections of *tabes dorsalis* were an attempt to demonstrate the incorrectness of Obersteiner's recently published view, that the tabetic degeneration is primarily due to a syphilitic meningitis.

A series of preparations from cases of multiple sclerosis showed that the lesions appeared indiscriminately in the central nervous system, and stood in no definite relation to gray or white matter.

A section through the pons, with softening due to thrombosis of the basilar artery, illustrated the production of the symptom-complex of apoplectiform bulbar paralysis.

Finally, of rather special interest was a complete degeneration of the middle peduncles of the cerebellum and that portion of the restiform body made up of fibres of the cerebellar olive tracts, occasioned by an extensive sclerosis of the cerebellum at and about the corpus dentatum.

THIRD DAY.—MORNING SESSION.

DR. WILLIAM N. BULLARD, of Boston, read a paper on

THE DIAGNOSIS OF HEMORRHAGIC CEREBRAL PACHYMENINGITIS.

DR. EDWARD WYLLYS TAYLOR, of Boston, showed an interesting case in which he had made the diagnosis of

TABES DORSALIS COMBINED WITH MULTIPLE SCLEROSIS.

The history of the case, in brief, was as follows: Negative family history. Probable syphilis twenty years ago. The patient, aged forty-six, first noticed tremor of the hands fourteen years ago, which increased. This was followed by pains of a lancinating character in the legs, with weakness, girdle sensation, difficulty in micturition, with increasing tremor and weakness. Mind at all times clear. Examination at present time showed a well-marked *tabes* of typical character, the main symptoms being loss of knee reflex, Argyll-Robertson pupil, lancinating pains, girdle sensation, slight Romberg. In addition to these symptoms were others of no less characteristic sort, namely, well-marked intention tremor, hesitating (though not typical) scanning speech, nystagmus varying at different times, muscular weakness, and spasm of muscles on forced flexion at the knee-joint. The existence of these two sets of characteristic symptoms was held to justify the diagnosis of an actual combination of *tabes* and multiple sclerosis, a condition which must be regarded as one of extreme rarity, though not undescribed in literature.

DR. JOSEPH COLLINS, of New York, presented

A CONTRIBUTION TO THE PATHOLOGY AND MORBID ANATOMY OF AMYOTROPHIC LATERAL SCLEROSIS.

DR. WM. C. KRAUSS, of Buffalo, made a

REPORT OF A CASE OF PERONEAL MUSCULAR ATROPHY, WITH AUTOPSY.

The patient was a man seventy-eight years old, of excellent family and personal history. In the sum-

mer of 1834, while driving logs, he was struck in the back by a log, which had been off during the summer. In the fall could not wear shoes because of the cramped condition of the toes and feet. Weakness of the legs appeared slowly, gradually increasing until he was obliged to walk with crutches. Occasionally had rheumatism, particularly in the knees and elbows. Complained much of the feet being cold. Patient came under observation in 1890. Laborious locomotion and striking malformation of the legs. Both feet clubbed. Atrophy of the muscles of the left leg very pronounced. On the right side the peroneal and hamstring muscles wasted. Symmetrical atrophy of the leg muscles. Fibrillary contractions never noticed. Disorders of sensation never obtainable. Hands and arms not wasted. Patient died in August, 1894. On microscopical examination marked changes were revealed in the lumbar and sacral regions of the cord. The disparity between the right and left ventral horns was striking, the left being smaller than the right, and the right smaller than normal. Atrophy and disappearance of the cells especially prominent. No increase in the neuroglia. Walls of the blood-vessels not affected.

Dr. Sachs had examined the specimens microscopically and concurred in the diagnosis. During life no electrical tests were made owing to the prejudice of the patient.

DR. J. W. PUTNAM, of Buffalo, described

A CASE OF WRITER'S CRAMP, WITH ASSOCIATED CRAMP OF THE OTHER MUSCLES ON THE SAME SIDE.

DR. GEORGE L. WALTON, of Boston, read a paper on

THE ETIOLOGY OF OBSTETRICAL PARALYSIS.

A hiatus existed in previous theories of the mechanism of this paralysis. Dr. Carter assumed a stretching of the brachial plexus at a spot above the origin of the suprascapular nerve. This did not account for the escape of the branch (immediately below) to the pectoralis major. The same difficulty presented itself in Oppenheim's theory of pressure against the clavicle. Dr. Walton suggested that the suprascapular was probably bruised independently against the suprascapular notch or the spine of the scapula, while the plexus below was bruised against the clavicle. The branch to the pectoralis major escaped through having no bony point of fixation. Probably rotation of the face away from the shoulder, which was caught at the brim of the pelvis, aided the stretching, as well as the drawing away of the head already described in this connection.

The other papers were read by title.

THE ANTIQUITY OF MAN.—We clip the following from the correspondence of the *Medical Press and Circular*:

SIR:—Would you kindly answer me a question through your columns. The question is this, Does there appear, as far as you can judge, *unanimity of opinion* amongst scientists as to the antiquity of man, that is to say, within very rough limits? Does any scientist attempt to limit man's antiquity at a less remote period than, say, fifty thousand years?

I am, sir, yours, etc.,

O'HARA.

[Will any correspondent kindly oblige? Our "files" do not go back far enough.—ED.]

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LESIONS PRODUCED BY THE ACTION OF CERTAIN POISONS ON THE NERVE-CELL.

In the August 31st number of the *Philadelphia Medical News*, Dr. Henry J. Berkley, of Baltimore, publishes a preliminary paper on "Experimental Lesions produced by the action of Dog's Serum on the Cortical Nerve-Cell of the Rabbit's Brain." A brief notice of analogous work appeared not long since in the *Johns Hopkins Hospital Bulletin*, and we are exceedingly glad to welcome this completer statement, with details of the results obtained.

The great interest which the study of the bacterial poisons is exciting is now a matter of common knowledge. Their effects upon the nervous system have been made the subject of a vast amount of more or less profitable speculation, but any investigations which could lay claim to scientific demonstration have only within the last few years been forthcoming. The difficulties in the way of anatomical and pathological research in the domain of the nervous system are unquestionably much greater than those of any other tissue in the body. The active neuro-anatomical and pathological work of the past few years has demonstrated, first of all, the difficulties and also the possibilities of investigation in this field. Methods of staining have multiplied and been elaborated to an extent quite in excess of that in any other branch of histological work, and yet the possibility of detecting minute structural cell changes is still beyond our reach. In the method so carefully developed by Nissl we have been able to see far into the structure of the cell, and in the various silver and sublimate methods known by the general name of Golgi, we have had an absolutely new light thrown on the component elements of the nervous system. Nevertheless the methods must still be regarded as inadequate to that complete understanding which we desire, but which, in the nature of things is likely to remain forever beyond our grasp. In the meanwhile we must make the most of what we have.

Nissl's method has been used with marked success, especially by its author, to determine pathological changes in nerve-cells, and certainly must be regarded as a means of extreme value in such research. The method devised by Golgi, on the other hand, and so elaborately worked out by Ramon y Cajal and many others, has done its chief and perfectly incalculable service in reforming our notions of the ultimate ganglion-cell-nerve unity and its relation to its fellows. The term "neuron," a product of the Golgi teaching, has won for itself already a permanent place in our nomenclature. For various reasons, however, which we need not here enter into, Golgi's method and its modifications have not been of distinct value in the determination of pathological changes, although it has been generally felt that such a use would be finally demonstrated.

Berkley's article, to which we now turn, is an attempt of value and significance in this direction, although not absolutely the first. His aim was to determine experimentally the effect upon the cortical ganglion cells and neurons of the injection of dog's blood-serum whose toxic effects upon other animals is a well-recognized physiological fact. Berkley regards the serum as analogous in its action, though by no means identical with that of bacterial toxins.

The research, of which the one before us is a continuation, was begun by Dr. Simon Flexner in 1893, at the Pathological Laboratory of Johns Hopkins Hospital. Flexner found that injections of serum of 1.5 per cent. of the bodily weight of the animal experimented upon were usually fatal in from ten to twelve hours. A less amount produced profound disturbances of a toxic character. The organs studied microscopically showed marked changes in the blood and also in the parenchyma.

From a later series of similar experiments the brains of three rabbits were carefully examined by Berkley — the subject of the present paper — with the hope of determining the changes occurring in the cerebral cortical cells, and whether they were, if found, in a manner equivalent to those observed in the other viscera.

Alluding to the greater difficulties in the way of the investigation of the brain, Berkley justly remarks: "Unfortunately for our closer knowledge of the cerebral cells, these elements do not show mitotic figures, nuclear fragmentation and coagulation-necrosis in the same manner as the liver cells; but with our best stains, whether chemic combinations with the cellular substance or simple dyes, they are eminently stubborn to microscopic analysis. . . . These difficulties in obtaining accurate results from minor changes in the nerve-cells probably arise from the circumstance that the nerve-cells are completed elements, incapable of regeneration and only show alterations of a pronouncedly degenerative type."

So far as the lesions of the cortical cells were determined in the three brains examined, they were constant and identical in all the animals, though vary-

ing in intensity, seemingly according to the severity of the poisoning. Two of the rabbits became greatly emaciated before death, but Berkley believes from analogous changes in the brain cells of alcoholics who show no emaciation, that the alterations of the cells were due to the direct action of the poison, rather than to the general denutrition of the tissues.

The methods pursued in the preparation of the brains were, fixing the tissues in alcohol and in Müller's fluid, and after treatment with various anilines, staining with hematoxylin and silver, according to the silver phosphomolybdate formula.¹

To understand the changes induced by the administration of serum, it will be necessary to allude briefly to the anatomical structure of the neuron. The nerve unit or neuron is made up of a cell body and all its processes. The processes consist, first, of the neuraxon, commonly termed the axis-cylinder process, and, secondly, of the dendrons, more often called the dendritic or protoplasmatic processes. Upon the dendrons of the nerve-cells of the cortex there are a minimal number of thickenings or varicosities. The majority of these occur at the forkings of the dendritic branches. In the course of the neuraxon there are also knots of somewhat greater frequency. Occasional varicosities of the dendron as of the axon are therefore to be regarded as normal. Some work has already been done upon the subject of these varicosities. They have been found in increased numbers in abnormal conditions — paralytic dementia — and also to a certain extent, as already stated, in normal brains.

Berkley finds, after serum poisoning, that the number of varicosities upon the dendrons is greatly increased, and concludes, that, when this takes place and the whole dendron is taken up by such swellings, the change must be regarded as distinctly pathological. He finds further that the entire cell, with the exception of the axon, which remains intact, frequently shows signs of the presence of a destructive process. The gemmules or lateral buds upon the branches of the dendrites, are found to disappear when the tumefactive process is at all advanced.

The specimens stained by Nissl's methylene-blue and magenta and by hematoxylin-eosin showed in one case the presence of a considerable number of polynuclear leucocytes in the perivascular spaces. The vessels, both large and small, were entirely normal. Nissl's stain also showed changes only of minor significance. Specimens hardened in Müller's fluid and stained by the silver phosphomolybdate method brought out changes, to which Berkley attaches great importance. The alterations were, in general, closely allied to those found in alcoholic brains (*vide* paper in *Brain*). Cells of all layers were involved in the pathological process. The degree of degeneration divided the cells into three fairly well-marked groups: (1) Cells, in which the process was beginning, (2)

those in which it was moderately advanced, and (3) those in which the dendrons were very much degenerated.

In the first class it was found that the finer branches of the dendrons were slightly tumefied and had few or no gemmules attached to the swellings. In other respects the neuron appeared normal.

In the second, the most numerous type, the tumefactions were much more numerous and involved the entire length of the processes, whereas the finest branches were often entirely degenerated. There was, further, an absolute loss of gemmules on the dendritic processes. Finally, in extreme cases, the twigs were reduced to a mere knotted thread, and their continuity broken, leaving ultimately merely the body of the cell, with the stumpy, tumefied remains of the thicker dendrons attached to it. Berkley draws special attention to the loss of the finest branches of the dendrites within the limits of the molecular layer, since in this part of the cortex many of the associations are made between the dendritic branches and the terminations of nerve fibres of all descriptions. In consequence of this fact, it is evident that disease here must lead to marked disturbance of the mental and motor functions of the cortex, to the extent of partial or complete loss of all the mental faculties of the animal.

In the third group, or that in which cells were most extensively involved in the degeneration, the dendrons were shortened to mere stumps, the finer branches had entirely disappeared, and the coarser ones were irregular in outline, with large and small swellings upon them. The gemmules had entirely disappeared. The cell bodies themselves presented in certain cases the appearance of health, in others the body was clearly involved in the destructive process. The edges of the cell were roughened and irregularly eroded; deep excavations proceeded from the periphery toward the central regions of the body, and in exceptional instances nothing but a mass of detritus was seen occupying the site of the cell body, with the barest traces of the prolongations remaining. Remarkable in all cases was the fact that the neuraxons were scarcely, if at all affected.

The changes observed in the cerebellum were much slighter in degree than in the cerebrum, though of the same general character, and need not detain us.

There were no alterations in the neuroglia either in cerebrum or cerebellum, from which it was justly inferred that the degeneration of the nerve cells was probably a simple, primary, non-inflammatory process.

Berkley concludes his paper as follows: "While the small number of the pathologic serum-brains does not allow us to speak with entire positiveness of the lesions of the cortical cells, yet from their constancy in all our preparations it is more than probable that we have found a new class of degenerative changes of the nerve-cell that will ultimately prove of the greatest importance in a long series of irritative ab-

¹ The details of methods will be found in the autumn number of *Brain*, in connection with a paper by Berkley on "Experimental Lesions produced by the Action of Absolute Ethyl-Alcohol on the Nerve-Cells of the Rabbit's Brain."

normal conditions in the human subject, and will also open up a new field for the student of mental changes. The absence of vascular lesions of importance precludes the possibility that alterations of nutrition from disease of the vessels are of the first importance in the production of the degeneration of the dendron. Much rather would we refer them to the direct action of the toxalbumin upon the cellular protoplasm, causing, in some unknown manner, at first swelling of the substance of the dendron, and later atrophy and destruction."

It is altogether probable that the optimistic views expressed in the paragraph just quoted and in others of Berkley's published work will not meet with universal acceptance. Valuable and conclusive as the investigation may be for the special class of cases to which he has devoted his attention, we are hardly ready to go as far as to say that such results as he has obtained will necessarily "open up a new field for the student of mental changes," or as he still more strongly puts it in another article:² "It would seem that by the use of this new method of staining — the phosphomolybdate of silver in free nitrate of silver — which offers a constancy and fineness of detail before unattainable in pathological preparations, that we have almost passed the border-land of the uncertainty of mental disease, and will be able to relegate, in the fulness of time, all decided mental changes to the same definite category, in which we are now able to place the formerly obscure diseases of the nervous system, whose lesions are now more or less thoroughly understood, and place psychiatry upon the same footing as many of its sister branches of medicine, that rest upon a secure pathological basis."

To this we cannot assent. A method of staining, however refined it may be, can never reveal the changes which underlie symptoms having their sole expression in the field of mind. It is certainly no extreme conservatism to say that the pathological anatomy of abnormal mental states must remain, as it has in the past, a sealed book, and that an adequate pathology of mind, in the sense that we use the term in speaking of the nervous system, is quite beyond the range of possible accomplishment.

MEDICAL NOTES.

THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE OF THE UNITED STATES ARMY now contains 116,847 volumes and 191,598 pamphlets.

EVERY FATAL CASE OF TYPHOID, says Mr. Ernest Hart, is, in fact, a violent death, an example of water poisoning, and should be the subject of sanitary inquest.

SMALL-POX IN LONDON. — The English journals state that the outbreak of small-pox in London goes on increasing, despite the energetic measures taken by the health authorities.

² Johns Hopkins Hospital Bulletin, April, 1895.

DR. HUGHLINGS JACKSON HONORED. — Dr. Hughlings Jackson was presented with a portrait, subscribed for by many friends and admirers of his eminent services to neurology, on October 1st, at the London Hospital Medical College.

THE PROHIBITION OF WET NURSES. — It is reported that a proposal is to be discussed at the annual congress of the German Social Democratic Party, which is to be held at Breslau next month, that a law be enacted prohibiting wet nurses. The reasons alleged for this extraordinary proposition are said to be the advantages attending the use of sterilized milk.

A SUCCESSFUL OPERATION FOR INTUSSUSCEPTION IN A CHILD FOUR MONTHS OLD. — Dr. J. Bion Bogart presented to the Brooklyn Surgical Society a child four months old which had been successfully operated upon for intussusception three weeks before. The symptoms of the trouble had been present for three days, when the child was chloroformed and an air inflation tried, with partial success, all but about eight inches of the imprisoned intestine being dislodged. As this portion was not affected the abdomen was promptly opened and the remaining portion reduced. The success of the operation in so young a child makes the result certainly a brilliant one.

A LINGUIST IN THE NAVY. — We are glad to know that some of our naval officers do good work in addition to their routine service. Surgeon F. B. Stephenson, U. S. N., has lately finished translations from several Russian publications about the gypsy moth, for the State Board of Agriculture of Massachusetts. During a recent cruise on the Asiatic Station, Dr. Stephenson made use of his opportunities to advantage in gaining a practical knowledge of the language of this nation — so rapidly growing in strength and influence. — *Army and Navy Journal*.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, October 9, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 91, scarlet fever 17, measles 6, typhoid fever 46.

CONTAGIOUS DISEASES IN CAMBRIDGE. — Contagious diseases are reported to be unusually prevalent in Cambridge, Mass., fourteen cases having been recently reported to the Board of Health in one day.

NEW YORK.

THE PREVENTION OF CONTAGIOUS DISEASES IN SCHOOLS. — With a view to the further prevention of contagious diseases among the children of the public schools, the Board of Health has ordered the discontinuance of the use of slates, sponges and common drinking cups. It has also established a rule requiring that all school books shall be re-covered with fresh paper at least once a month.

A FORTUNATE COMBINATION. — For some time past an orchestra has been maintained among the

male nurses of the New York Hospital, and this orchestra assists at the various entertainments given during the winter season for the patients and employes of the institution. Men who are musicians of fair ability as well as efficient nurses are therefore in demand, and they are paid something for their musical services in addition to their regular salaries as nurses.

THE CASE OF DR. BURNETTE.—It was Dr. George Lenox Curtis, and not Dr. B. Farquhar Curtis, as stated, who assisted Dr. Rowland Jones at the autopsy in the case of Dr. Edward W. Burnette. He was also associated with Dr. Jones in the treatment, and is preparing with him the report of the case for publication. Dr. Curtis, who is a specialist in cancerous diseases and has studied abroad under Koch and Virchow, states that they propose to prove that Dr. Burnette was really inoculated with the virus of cancer, and that there is no cancer traceable in the family of the latter. It should have been stated that Dr. Burnette was a graduate of the College of Physicians and Surgeons, and not of Bellevue Hospital Medical College. He received his degree of M.D. in the year 1869.

A CASE OF RAYNAUD'S DISEASE.—A death from a rare cause, Raynaud's disease (*la gangrène symétrique des extrémités*), occurred in Brooklyn on October 1st. The patient was a male, thirty-five years of age, and was first affected with the trouble about a year ago. After consulting various authorities in this country he went to Germany, where his case was presented at a number of clinics, and only returned a few weeks before his death, which resulted from exhaustion. The gangrene was located in the upper extremities.

THE QUESTION OF CHILD INSURANCE.—The sixth annual convention of the State Societies for the Prevention of Cruelty was held at Albany on October 1st and 2d. Elbridge F. Gerry, Esq., of the Society for the Prevention of Cruelty to Children, was re-elected President. Resolutions were adopted looking to the doing away with the practise of insuring the lives of children under the age of ten years and proposing legislative amendments to render effective the law relative to the "age of consent," and action was taken in regard to various other reforms.

IMPROVEMENT IN THE PUBLIC HEALTH.—The fine autumn weather of the past week has had an excellent effect upon the public health. The number of deaths reported during the week ending October 5th was 704; which is nearly 50 less than the average mortality of the city for the corresponding weeks of the past five years. Of the total number of deaths no less than 103 or more than one-seventh, were due to phthisis; while 58 deaths resulted from pneumonia, and 44 from the various forms of Bright's disease. Diphtheria still continues to be by far the most prevalent of the zymotic diseases, and the number of deaths from it during the week was 27. Of the 704 deaths, 302 occurred in children under five years of age.

Miscellany.

THE CRAIG COLONY FOR EPILEPTICS.

This Colony, named for the late Oscar Craig, of Rochester, formerly President of the New York State Board of Charities, occupies 1,900 acres of land in the Genesee Valley, on the line of the Erie and the Delaware and Lackawanna railways. The farms, gardens and orchards of which it consists are in a high state of cultivation, and yield an income of from \$12,000 to \$15,000 a year.

The colony is arranged on the village plan, and the village, for such it is, was planned under the direction of Frederick Law Olmsted. The patients will be set to work in the farms, gardens and orchards, and (under careful supervision, of course) will do the work of the community. Various trades will be represented among the patients, and the tailors', shoemakers', carpenters' and painters' work of the town will be carried on as far as possible by the patients themselves.

In such a community those patients who are strong and able to work will not be ostracised, deprived of educational advantages and opportunities to attend social and religious gatherings by the fact that they have occasional convulsions. In a community where all are more or less subject to this infirmity, it will not stigmatize its possessor and debar him from free communication and competition with his neighbors.

For those unable to work and who need constant treatment and attention, hospital facilities will be provided, and their treatment will be carried out according to the best known methods.

Inasmuch as the resources of the land are nearly adequate when under cultivation to supply the patients with food, and it is estimated that by the sale of surplus agricultural and manufactured products the colony can be made practically self-supporting, it is probable that the epileptics now supported by the State of New York will be no longer a burden to the tax-payers.

The work of preparing the existing buildings for the reception of patients has been in progress during the summer, and by November the first quota of patients, sixty in number, will be received from the New York State almshouse. There are at present 600 epileptics in the State almshouses, and additional buildings will have to be erected before more than 300 of them can be received.

As soon as the State patients have been accommodated, provision will be made for the reception of private patients; and such patients will be allowed, if they desire and are able, to build cottages for their own use in the grounds of the colony.

There will be no restriction as to the age of patients admitted, and the only restriction practically applies to the mental condition. Insane epileptics, or epileptics subject to insane outbreaks, cannot be taken into the colony.

The object of the colony is to provide for the four great needs of these unfortunates:

- (1) To give them schools where they may be educated as other children and young people are.
- (2) To afford them industrial training in any sort of occupation they may desire to follow.
- (3) To provide those epileptics a home to whom all other doors are closed.

(4) To treat every case of epilepsy according to the best known scientific methods.

This undertaking is not without precedent. It is the second institution of its kind in this country. An example of what can be accomplished by such a colony is furnished by success of the colony which was started with four epileptic patients at Bielefeld in Westphalia, Rhenish Russia, in 1867. The beginnings were made with doubt and hesitation, but it was soon found that the patients, instead of looking with horror upon the attacks of their fellows, and thus being made worse themselves, developed an *esprit du corps*, as possessed of a common infirmity and were ever ready to go to the aid and protection of a fellow-patient suffering from an attack.

As a result of gradual growth and organization, there now stands at Bielefeld a large colony, with hospitals, schools, shops, farm-houses, shoe-factories, book-binders, and buildings for numerous other occupations in which epileptics are employed. Between the founding of the institution in 1867, and the end of the year 1888, 2,534 epileptic patients were treated in this institution. During the year 1888, 1,091 patients were cared for by 67 brothers and 68 sisters of religious orders, showing that one attendant was necessary for approximately seven epileptics.

In the care of so large a number of cases exceptional opportunities have been afforded for the study of the treatment of the disease, and the results attained have greatly contributed to our present knowledge on this subject.

In our own country the need of such colonies for epileptics has long been recognized, and a beginning has been made in Ohio and New York. A similar purpose will be served for Massachusetts by the new epileptic hospital to be established at Monson, and it is to be hoped that the charity and philanthropy of other States will provide these unfortunates with similar advantages.

ELECTROTHERAPY AS A MEANS OF DIAGNOSIS IN GYNECOLOGY.

DR. APOSTOLI, of Paris, after a long and thorough trial of his method, has come to the following general conclusions, which were presented by him to the British Medical Association at its last meeting:

(1) The faradic current of tension (generated by the coil of long and fine wire) applied to the uterine cavity, according to the rules established by Dr. Apostoli in 1883, relieves, for a longer or shorter time, all ovarian pain of nervous or hysterical origin, but remains powerless or nearly so in cases of ovarian pain caused by inflammatory lesion of the peri-uterine tissue or of the appendages.

(2) The same faradic current is therefore useful in diagnosis, inasmuch as it helps us to distinguish the nature of so-called ovarian pain, and to determine rapidly the differential diagnosis between hysterical and inflammatory ovarian pain. Where the two kinds of pain exist in the same patient we are helped to understand their nature by the fact that the one is relieved and the other is not.

(3) If, then, the curative effect of the faradic current clears up or rectifies a doubtful diagnosis, it protects us at the same time, from undertaking a useless operation. On the other hand, if the same faradic current proves ineffective, the lesion being inflammatory, we

are led to resort to a supplementary galvanic treatment or to a surgical operation sooner or later.

(4) The constant galvanic current, applied to the uterine cavity in doses gradually increasing from 50 to 120 milliampères, according to the rules published by Dr. Apostoli in 1884, and bearing in mind the individual susceptibility and tolerance, will be almost always supported without much pain during the seance, and without febrile reaction afterward, if the parts adjacent to the uterus are free from inflammation. Simple cystic, peri-uterine tumors, which are neither inflamed nor suppurating (such as ovarian cysts and hydro-salpinx), may also show perfect tolerance of the galvanic current. The galvanic current is also sometimes perfectly supported by cases in which the uterus is surrounded by old inflammatory products or exudations no longer pathogenic.

(5) There are three classes of cases which should be considered as exceptions to the preceding rule, for they bear the galvanic current more or less badly, though they do not necessarily produce much febrile reaction after the seance. They are: (a) certain forms of hysteria, (b) fibro-cystic tumors of the uterus, (c) enteritis with false membrane.

It is generally easy to diagnose these cases of intolerance.

(6) All acute peri-uterine inflammation (of the pelvic cellular tissues of the peritoneum and especially of the appendages) will cause the galvanic current to be badly borne when it passes 40 or 50 milliampères, and will cause intolerable pain and febrile reaction when carried beyond this intensity.

(7) The intolerance for the galvanic current is generally proportionate to the extent and gravity of the lesions referred to and increases with the intensity of the current employed — especially when it passes 40 or 50 milliampères.

(8) All inflammation of the appendages which is curable (*symptomatically at least*) without radical operation, will bear the galvanic current better and better, and there will be a corresponding improvement of the prominent symptoms, such as pain and hemorrhages.

The intolerance noted at the beginning progressively disappears.

(9) All grave inflammatory lesions of the appendages, and notably all suppurative processes which are incurable (*even symptomatically*) by conservative means, show the same intolerance from the beginning to the end of the treatment which was noticed at first, and which is apt to increase instead of diminish if the treatment is continued.

(10) Thus, the simple study of the tolerance or intolerance of the intra-uterine galvanic treatment, and especially of the post-operative pain and fever occurring on the evening of, or the day following the treatment, enables us to make the diagnosis. It also, in four or five seances, given twice weekly, informs us of the condition of the appendages, of their possible inflammation and its degree, and in this way it lessens the number of laparotomies and exploratory incisions.

(11) The same study of the so-called galvanic reactions also informs us rapidly (in five to ten seances) of the curability of these inflammatory lesions which the electric current has demonstrated, and in consequence of this it tells us in one case to abstain from operation while in another it shows an operation to be urgent.

(12) *En résumé*, gynecological electro-therapeutics,

carefully, methodically and patiently applied, instead of being opposed to the marvellous progress of surgery, comes to its aid.

Independently, in fact, of the great therapeutic service which it renders every day, electricity serves as a *touch-stone*; it assists us in diagnosis and thus directly serves the interests of surgery, in one case showing an operation to be useless and dangerous, in another that its necessity is urgent.

Thus many laparotomies, so-called exploratory incisions and mutilations practised without due deliberation for the relief of rebellious ovarian pain or for lesions of the appendages of uncertain nature, should be, from this time forth, delayed or formally proscribed until all the resources of *faradic sedation* on the one hand and of the *intra uterine galvanic effect* on the other, have been tried. Experience has abundantly proved these currents to be innocuous, if given with necessary aseptic precautions.

A PERSEVERING THERAPEUTIST.

M. H. BARYE, the medical officer in charge of the State dispensary at Phaltan, India, reports in the *Medical Reporter* of September 1st, the case of a female child of eighteen months treated by him for some time for gastro-intestinal symptoms attended by fever, before his attention was called by the child's father to a marked enlargement of the liver, to which his treatment was directed. In spite of his care, and that of a native specialist, by whom the child was treated for eight days, and a journey to Poona for a consultation (the doctor seems rather surprised that this produced no diminution in the size of the liver) the child continued to grow worse. Homeopathy and electro-homeopathy were tried for some twenty days without effect, and a second journey to Poona finally ended the child's sufferings.

General edema, ascites and jaundice preceded the child's death, which the doctor attributed to scirrhus of the liver. In order, probably to prove that death was not due to lack of therapeutic resource on his part, the doctor publishes the following list of drugs which were tried in different combinations during the course of treatment. Nothing is stated with regard to the details of their administration; but he naively informs us that the medicines which are marked with an asterisk produced some temporary effect, and only in one instance, that of citrate of caffeine, does he state what symptoms were favorably affected. If a child can die after such thorough drugging as this, and after consultations, electro-homeopathy and homeopathy itself, there would seem to be nothing left for these cases but Christian Science.

- | | |
|------------------------------|---------------------------------|
| 1. Ammon. chloridum | 15. Calumba |
| 2. Taraxaci | 16. Quinine sulphas |
| 3. Potass. iodidum | 17. Sodii salicylas |
| 4. Potass. bromidum | 18. Digitalis |
| 5. Podophyllum | 19. Potass. bicarb |
| 6. Sodii sulphas | 20. Ingluvin |
| 7. Mag. sulphas | 21. Pepsin |
| 8. Iodine | *24. Berberis aqua folia - with |
| 9. Arsenic | eunomyn |
| 10. Mercury | 25. Caffein citricum acted |
| *11. Donavon's sol. | well for a time as a diuretic |
| 12. Ipecacuanha | and stimulant - reduced |
| 13. Acid nitro Hydroch. dil. | dropsy and crowsiness. |
| 14. Cascara coriul | |

The preparations of iodine, mercury and camphor were tried externally.

METEOROLOGICAL RECORD.

For the week ending September 28th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:

Date.	Baro. Thermon-		eter.		Relative humidity		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.	Daily mean.	S. N.	E. W.	S. N.	E. W.	S. N.	E. W.	
S...22	30.05	82	94	71	62	63	62	W.	W.	10	7	C.	0.
M...23	29.96	84	96	66	60	65	62	W.	W.	10	7	C.	0.
T...24	30.14	87	73	61	52	53	54	N.	N.	18	6	F.	C.
W...25	30.20	58	65	52	92	92	77	N.	N.	18	8	F.	C.
T...26	29.88	72	85	55	95	95	85	N.	N.	18	8	F.	C.
F...27	29.96	68	73	63	76	70	72	N.	N.	18	10	F.	C.
S...28	30.24	55	60	50	64	80	72	N.	N.	18	10	F.	C.

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., stormy; R., rain; E., evening; N., snow. † Indicates trace of rainfall. Means for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 25, 1893

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria.	Typhoid fever.	Diphtheria.	Diphtheria.
New York	1,704,506	864	413	23.52	10.56	15.36	1.89	—	—
Chicago	1,227,382	—	—	—	—	—	—	—	—
Philadelphia	1,163,864	—	—	—	—	—	—	—	—
Brooklyn	1,100,000	492	241	24.80	8.80	14.00	1.89	—	—
St. Louis	600,000	—	—	—	—	—	—	—	—
Boston	494,000	275	148	45.66	10.80	28.08	3.24	—	—
Baltimore	490,315	193	94	23.46	8.61	17.85	3.67	—	—
Cincinnati	350,970	115	48	18.27	12.18	3.00	—	—	—
Cleveland	325,000	104	47	5.76	4.80	—	2.88	—	—
Washington	285,000	95	36	23.00	13.00	—	12.00	—	—
Pittsburg	274,000	—	—	—	—	—	—	—	—
Milwaukee	265,000	—	—	—	—	—	—	—	—
Nashville	81,754	27	12	33.33	22.22	22.22	3.70	—	—
Charleston	65,165	—	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—	—
Worcester	98,487	32	12	28.17	9.39	6.26	0.25	—	—
Fall River	86,000	48	24	45.68	4.16	36.36	4.16	—	—
Lowell	84,359	43	23	52.62	4.06	30.29	2.81	—	—
Cambridge	81,519	29	15	47.90	3.44	31.55	1.69	—	—
Lynn	62,335	20	—	31.00	—	18.00	—	—	—
New Bedford	55,254	22	10	45.45	—	27.27	—	—	—
Springfield	51,534	20	6	15.00	15.00	5.00	5.00	—	—
Lawrence	52,153	35	17	22.80	3.70	11.40	—	—	—
Holyoke	40,149	—	—	—	—	—	—	—	—
Salem	34,437	14	7	42.84	21.42	—	7.14	7.14	—
Brookton	33,157	8	1	12.50	—	—	12.50	—	—
Haverhill	30,185	6	1	16.66	—	—	16.66	—	—
Malden	29,706	8	3	—	—	—	—	—	—
Chelsea	31,286	12	4	8.33	16.66	—	—	—	—
Fitchburg	26,394	7	5	12.00	—	12.00	—	—	—
Newton	25,022	12	5	25.00	—	12.50	—	—	—
Gloucester	25,003	—	—	—	—	—	—	—	—
Taunton	27,093	8	2	—	—	—	—	—	—
Waltham	20,877	7	0	28.56	14.28	28.56	—	—	—
Quincy	20,712	—	—	—	—	—	—	—	—
Pittsfield	20,447	4	3	50.00	—	50.00	—	—	—
Everett	18,578	—	—	—	—	—	—	—	—
Northampton	16,738	12	0	—	—	—	—	—	—
Newburyport	14,564	—	—	—	—	—	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—	—

Deaths reported 2,393; under five years of age 1,215. principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 724, consumption 257, acute febrile diseases 19, diarrheal diseases 50, diphtheria and croup 85, typhoid fever 8, whooping-cough 29, scarlet fever 13, cerebro-spinal meningitis 12, malarial fever 8, measles 7, erysipelas 5.

From whooping-cough New York 12, Brooklyn 1, Fall River, Boston and Providence 2 each. From scarlet fever New York, Brooklyn, Boston and Fall River 2 each, Cambridge, Lynn, New Bedford, Springfield and Chelsea 1 each. From measles epidemics meningitis New York and Lawrence 4 each, Lynn, Somerville, Brookline and Hyde Park 1 each. From measles New York and Brooklyn 3 each, Cincinnati 1. From malarial fever Brooklyn 4, New York 3, Charleston 1. From erysipelas New York 2, Brooklyn, Baltimore and Boston 1 each.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 28, 1895, TO OCTOBER 4, 1895.

CAPTAIN GUY L. EDIE, assistant surgeon, is relieved from duty as assistant to the attending surgeon in the city of Washington.

FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Clark, Texas, for duty relieving CAPTAIN BENJAMIN L. TEN EYCK, assistant surgeon.

CAPTAIN TEN EYCK, on being thus relieved, is ordered to Columbus Barracks, Ohio, for duty.

FIRST-LIEUT. WILLIAM W. QUINTON, assistant surgeon, will be relieved from temporary duty at Fort Logan, Colorado, to take effect upon the arrival there of CAPTAIN W. W. JOHNSON, assistant surgeon, and ordered to Fort Riley, Kansas, for duty.

LIEUT.-COL. JOSEPH K. GIBSON, deputy surgeon-general, will report in person to the president of the Army Retiring Board at Washington Barracks, D. C., at such time as he may designate for examination by the board.

LIEUT.-COL. JOHN S. BILLINGS, deputy surgeon-general, having served over thirty years in the Army, is on his own application and by direction of the President, retired from active service, this date October 1, 1895.

FIRST-LIEUT. FRANK T. MERIWETHER, assistant surgeon, having been found incapacitated by an Army Retiring Board, on account of disability incident to the service is, by direction of the President, retired from active service this date.

CAPTAIN HENRY P. BIRMINGHAM, assistant surgeon, is granted leave of absence for one month, to take effect upon the arrival at Fort Trumbull, Conn., of CAPTAIN GEO. E. BUSHNELL, assistant surgeon.

CAPTAIN GEO. E. BUSHNELL, assistant surgeon, will proceed to Fort Trumbull, Conn., and report for temporary duty during the absence on leave of CAPTAIN H. P. BIRMINGHAM, assistant surgeon.

MAJOR WASHINGTON MATTHEWS, surgeon, having been found incapacitated for active service by an Army Retiring Board, on account of disability incident to the service is, by direction of the President, retired from active service this date, September 26, 1895.

Leave of absence for four months, to take effect about November 5, 1895, is granted CAPTAIN THOMAS U. RAYMOND, assistant surgeon.

Leave of absence for one month, to take effect when his services can be spared, with permission to apply for an extension of one month, is granted CAPTAIN EUGENE L. SWIFT, assistant surgeon, Fort Yates, North Dakota.

PROMOTION.

CAPTAIN LOUIS W. CRAMPTON, assistant surgeon, promoted to be surgeon with the rank of Major, September 6, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 5, 1895.

E. S. BOGERT, medical director, detached from duty in charge of naval hospital at New York, November 1, and ordered in attendance on officers of the Navy in that city.

T. N. PENROSE, medical inspector, ordered to duty November 1st, in charge of the naval hospital at New York in addition to his present duty.

R. C. PERSON'S, surgeon, recent orders are so far modified that when detached from the "Minnesota" he is ordered to special duty in connection with the improvements of the naval hospital at New York.

L. G. HENCKEGER, surgeon, ordered to duty in attendance on naval officers in New York.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING SEPTEMBER 30, 1895.

FESSENDEN, C. S. D., surgeon. Granted leave of absence for thirty days. September 24, 1895.

BAILHACHE, P. H., surgeon. Detailed to represent Service at meeting of American Public Health Association. September 14, 1895.

GASSAWAY, J. M., surgeon. Granted leave of absence for one day, September 21, 1895, and for fifteen days, September 23, 1895.

CARTER, H. R., surgeon. Granted leave of absence for one day. September 24, 1895.

BROOKS, S. D., passed assistant surgeon. Directed to proceed from Chicago, Ill., to St. Louis, Mo., for temporary duty. September 16, 1895.

WILLIAMS, L. L., passed assistant surgeon. Relieved from temporary duty at South Atlantic Quarantine and directed to rejoin station at Charleston, S. C. September 19, 1895. Granted leave of absence for twelve days. September 25, 1895.

KINYOUN, J. J., passed assistant surgeon. Detailed to represent Service at meeting of American Public Health Association. September 24, 1895.

STONE, J. B., passed assistant surgeon. Granted leave of absence for thirty days. September 20, 1895.

ROSENAU, M. J., passed assistant surgeon. To proceed from Eagle Pass, Texas, to San Francisco Quarantine Station for temporary duty. September 16, 1895.

COFER, L. E., assistant surgeon. Granted leave of absence for thirty days. September 23, 1895.

NYDEGGER, J. A., assistant surgeon. To proceed from Savannah, Ga., to Mobile, Ala., for temporary duty. September 16, 1895.

OAKLEY, J. H., assistant surgeon. Granted leave of absence for thirty days. September 30, 1895.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet at 10 Boylston Place on Wednesday, October 16th, at 8 o'clock P. M.

Papers: Dr. Edward Wyllys Taylor, "Report of Cases of Brain Tumor."

Dr. Frederick Coggeshall, "Clinical Tests of Some New Remedies."

JOHN L. AMES, M.D., Secretary.

NEW YORK STATE MEDICAL ASSOCIATION.—The twelfth annual meeting will be held Tuesday, Wednesday and Thursday, October 15, 16 and 17, 1895, at the Mott Memorial Hall, 64 Madison Avenue near 27th Street, New York City.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

DR. WM. F. WHITNEY will lecture at the Medical School October 10th and October 17th, at 8 P. M. Subject: "Tumors of Embryonic Origin." The profession are invited.

RECENT DEATH.

HORATIO S. SOULE, M.D., M.M.S.S., died at Winthrop, October 7th, aged seventy-two. He was graduated from the Bowdoin Medical College in 1854 and had practised in Winthrop for many years. During the Civil War he was assistant surgeon in the Fifty sixth Massachusetts Volunteers. He was for many years chairman of the Board of Health of Winthrop.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Diphtheria by Antitoxin. By William H. Welch, M.D. Reprint. 1895.

Surgical Clinic held at St. Mary's Hospital, February 10, 1895. By H. O. Walker, M.D., Detroit, Mich.

Words not Usually Found in Medical Dictionaries. By Irving C. Rosse, A.M., M.D., F.R.G.S., Washington, D. C. Reprint. 1895.

Trattato di Patologia e Terapia Chirurgica Generale e Speciale. Opera Illustrata da circa 500 figure originali incalcolate nel testo e da tavole litografiche. Volume I. Printata 3a (pag. 401 a 576 viii). Lire 5. Roma: Società Editrice Dante Alighieri. 1895.

Modern Materia Medica with Therapeutic Notes, for the use of Students of Medicine. By Dr. Otto Roth. Seventh edition. Revised by Dr. Gregor Schmidt, Director of the Royal National and Provincial Boards of Health in Wurzburg. New York: William Wood & Co. 1895.

A Manual of Organic Materia Medica, being a Guide to Materia Medica of the Vegetable and Animal Kingdoms, for the Use of Students, Druggists, Pharmacists and Physicians. By John M. Maisch Ph.M., Pharm.D., late Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Sixth edition. Revised by Henry C. C. Maisch, Ph.G., Ph.D. With 253 illustrations. Philadelphia: Lea Brothers & Co. 1895.

Cutaneous Medicine, a Systematic Treatise on the Diseases of the Skin. By Louis A. Dühring, M.D., Professor of the Diseases of the Skin in the University of Pennsylvania; Author of "A Practical Treatise on Diseases of the Skin," and "Atlas of Skin Diseases." Part I. Anatomy and Physiology of the Skin; General Symptomatology, Etiology, Pathology, Diagnosis, Treatment and Prognosis. Illustrated. Philadelphia: J. B. Lippincott & Co. 1895.

Original Articles.

THE CONSERVATIVE VALUE OF THE PLAY-IMPULSE.¹

BY IRVING C. ROSSE, M.D., WASHINGTON, D. C.

SOME years ago, when helping to write the surgical history of the late Civil War, I had occasion to study, among other things, about ten thousand cases of fractures of the skull. Needless to say that after several months' application I found myself becoming morbid; the sight of any broken object, as a fractured glass or a flag-stone in the street, instantly suggested visions of all sorts of head injuries with their sequences of dizziness, epilepsy, and paralysis; while the hypnagogic hallucinations that usually precede sleep were more or less tinged by these notions.

Acting upon the principle of doing the most frivolous thing I could think of to offset this condition, I immediately entered the swim of the gay world, and turned my attention to athletic sport. The effect was soon restorative, and led to some of the reflections that form the burden of this paper.

Old and common hackneyed similes are often none the less condensed propositions of important practical truths bearing on the subject in hand. For instance the bow shoots all the better for being unbent at times, and we all recognize the wisdom and propriety of the homely adage, "All work and no play makes Jack a dull boy," and the little nonsense now and then relished by the wisest, finds its counterpart in the Horatian maxim, "*Sunt etiam musis suæ ludicræ.*" So why should not we with a reflexive object put aside for a while the study and contemplation of neuropathic conditions, and the dismal and discouraging cases afforded by the decay of the nerve elements, which many of our members write about in style of impressive Latinity and Hellenic elegance, and turn our minds to a consideration of some of the causes procreant and conservant which concern the well-being of the next generation, and enable us to keep or preserve from decay or injury, within reasonable limits, the existent health of the present?

In studying the comparative physiology of the sentient organism we find the play-instinct in various animals as the zoological scale is ascended. The ludicrous performances of spiders is more suggestive of incitation than of any other imaginable purpose, says Romanes, while no less a person than the illustrious author of the "Descent of Man" writes with fulness and particularity upon the love-antics of birds; and others since his time have commented upon the play-impulse in discussing the theory of natural and of sexual selection, which Darwin says acts throughout all the higher division of the animal kingdom.

We recall from childhood days the skip and play of the gay young lambs that our primers used to tell about, as well as the romping sports and the festal pleasure of balls, routs and parties occurring in the heyday of life and marking red-letter days in our career, which go to show the existence of an impelling force inciting to the performance of actions not the result of reflection and manifesting themselves in the form of sport, frolic, gambol, recreation, pastime, or amusement.

Primitive tribes show the same disposition as our-

selves to yield to the deep-planted instinct of play and amusement. Many of their forms of pastime and recreation differ from ours only in detail, being in fact only differentiated forms of the same tendency. An instance is a group of games to which our backgammon belongs. It is ancient and widely spread over the world, as the ancient Mexican game of *patolli*, which appears to be of Asiatic origin. I have also observed, in an ethnological way, similar instances of mimetism and the like, during a sojourn among the Eskimo of Bering Strait, and the Chuckchis of Arctic Siberia, among whom I found the game of football. The relativity of the latter fact may be of interest in connection with the remark of the Duke of Wellington, who said that Waterloo was won on the ball grounds of England. The Chuckchis are the only tribe of Northern Siberia who have not yielded to the Russians, and the existence of football among them may be looked upon as suggestive of the incitation that prompts the manly pastimes of a vigorous race.

In no people perhaps is the play-instinct more apparent than in the Japanese. Their country has been called "the play-ground of the world"; and, aside from being the most light-hearted people, recent events show their pluck and manliness to be worthy of admiration. It seems unnecessary to say more in order to justify the position that the play-impulse, deeply implanted in the race, is one of the motor activities evolved from the central nervous system, and that such manifestations of it, as we shall mention, are not only essential parts of life, but things that have a conservational tendency and make life worth living.

Analogous facts may be adduced to show the disappearance of epidemic affection among soldiers and others when rigid discipline has been relaxed. The statistics of military medicine furnish numerous instances. I recall an epidemic of boils which occurred on board one of the Naval Academy training-ships. On allowing the boys liberty ashore, where they required no incentive to indulge in fitting sport, the epidemic soon disappeared.

The recreative effects of change by breaking up monotony in the treatment of many nervous diseases is so well known to physicians that some of them go so far as to say that an occasional spree benefits health, and Hufeland even says that it prolongs life. The question of relative longevity of English and American public men was investigated some time ago by my friend Dr. Charles K. Mills, of Philadelphia, who stated, in a lecture at the Smithsonian Institution, that the average usefulness and longevity of English public men exceeds that of American by ten years. Most men in public life in England are among the best and keenest sportsmen. Imagine the effect on his constituents of one of our hayseed senators in a pink coat, riding to the hounds, or frequenting the golf links with the British ambassador.

Notwithstanding these well-recognized facts of sport and play the deep interest that should be felt in the people's amusements still awaits a champion; and a philosophical study looking to the furtherance of the great cause of innocent recreation most fit for health is yet a virgin science badly in need of an exponent.

Newspaper readers are enabled at all seasons of the year to learn of the fanatic folly which still possesses a certain large section of otherwise respectable and well-meaning persons who make vague statements and present statistics in the interest of various fanatical

¹ Read at a Meeting of the American Neurological Association, Boston, June 5-8, 1895.

notions; but neurologists, who, as a class, are accustomed to turn on the electric light and examine into the dark corners of human weaknesses, occupy something of a vantage-point as regards temperance reformers, salvationists, and other oddities who would have enacted sumptuary laws that interfere with innocent pleasures of the people to the extent of restricting personal liberty.

Aside from the fanaticism shown in the question of alcoholic intemperance, which we have always with us, nowhere do we find such distortion of facts and temerity of language as in the howl set up against athleticism and the out-of-door sports and pastimes of the present day. Although they mark the rejuvenescence of individual and phylogenic good, it is common to hear and read intemperate denunciations against exercise and training as well as unreasonable claims in their favor. But there is consolation in knowing that the truth lies between the two extremes, and that many of the popular fallacies prevailing in the community at large and even among medical men, are owing mainly to the fact that heretofore most of the published opinions have emanated either from sporting men who knew nothing of medicine, or from physicians lacking in practical acquaintance with athletic sports.

One of the more current of these fallacies and the most difficult to down is that athletes are subject to organic disease and die young. Some years ago, in a paper embodying the experience of thirty years, read before the American Medical Association in Cincinnati,² I endeavored to controvert this erroneous notion by citing many examples of athletes who had lived to a hale and hearty old age. These cases cited by way of disproof can hardly be exceptional, since the exceptions in regard to the matter are, like those in Professor Sophocles' Greek Grammar, coextensive with the rule. Moreover, my information has been supplemented by other observers in the same line, notably Sir Morell MacKenzie, who shortly before his death wrote me a very complimentary letter in which he expressed his gratification that we agreed on the subject. Another example of a very old athlete who died at the age of eighty, is the former champion of the prize-ring of England, John Gully, the grandfather of the present Speaker of the House of Commons.

I cannot leave this part of my subject without mentioning in connection therewith one of the most delightful amusements and useful accomplishments, concerning which I may show more than ordinary enthusiasm. The educational, hygienic and even curative advantages of aquatic sports, more especially swimming, are beyond question. Aside from being an aid to physical development the acquirement and exercise of pushing angry waves aside, in addition to accrued physical benefit, goes a great way towards strengthening self-possession, and contributes more than any other manly pastime to the cold-blooded quiet and absolute presence of mind which enable us to avoid or conquer danger or lend ourselves to an act of devotion. I may say, I trust, with pardonable vanity, that through knowing how to swim I have jumped overboard from a ship in the mid-Atlantic; plunged into the icy waters of Kotzebue Sound inside the Arctic Circle; and, better than all, have the proud satisfaction of saving a number of persons

from drowning. I should say that the art of swimming is rather mental than physical, and that many persons though able to swim, are drowned in consequence of psychic disturbance or from becoming "gallied," if I may be allowed the very expressive phrase used by whalemén. The finest specimen of a black Hercules that I have ever seen was drowned at Fort Monroe a few years since, through inability to swim, when a few strokes would have saved his life. Since so many benefits accrue and many lives may be saved by only a moderate knowledge of an easily acquired art that is one-third muscle and two-thirds intelligence, it is lamentable in this practical age that so little heed attaches to the prophylactic and conservant value of swimming. A few years ago, in a paper at Newport, R. I., I called attention to the frequency of drowning accidents.³ The paper appeared in several of the great daily journals of the Eastern cities, and was used as an advertisement by the enterprising proprietor of a swimming pool in Providence, and also by another in Salt Lake City.

Later, in treating the medico-legal relation of death from submersion,⁴ I refer to modern statistics, which show the great development of this class of emergency, than which none is of more startling character. They are none the worse for repetition.

In France between four and five thousand cases of this kind of accident are officially recognized each year, which is about one-third of all the accidental deaths, and the number appears to increase yearly. Nearly the same figures apply to the inland waters of England and Wales, not including the coast. The Board of Trade return shows that out of 86,695 seamen who died in English ships abroad, 56,673 were drowned, and a late report of the Fisherman's Federation places the number drowned in the inland waters and upon the immediate coasts of the United Kingdom and the adjacent islands as 6,268 annually. The many hundreds drowned in the *Victoria* disaster, in the great storm that swept the British Isles two years ago, and in the late foundering of the *Elbe* and the *Reina Regente* are matters of current knowledge. In our own country accounts of drowning are of daily occurrence, more particularly in summer, when one can scarcely take up a newspaper without seeing such accounts. Not only does the sea claim its numerous victims, but the great floods and cyclones have destroyed thousands, while on the lakes and rivers drowning accidents are lamentably frequent. If the statistics of such accidents were as available as those of the late war for instance, the exhibit would doubtless be surprising. Where the aggregate of killed in action is shown to be 67,058, there were drowned 106 officers and 4,848 men. The small regular army lost 5 officers and 89 men from this cause; the negro troops, 6 officers and 289 men; and the volunteers furnished a large contingent, the State of Ohio alone having lost 14 officers and 770 men from drowning.

The object in reciting these observations is to emphasize the fact that the great majority of such accidents are preventable; as most of them occur in such circumstances as fording a stream, crossing narrow rivers, by the upsetting of small boats, or from falling overboard, when a few strokes only would suffice to save life.

² Popular Fallacies regarding Athletes and Athletic Exercises, Journal American Medical Association, April 27, 1889.

³ Bathing and Boating Accidents, Journal American Medical Association, June 27, 1889.

⁴ Witthaus and Becker's Medical Jurisprudence, vol. I.

As a curative means this form of exercise merits high praise. Increased activity of the heart and lungs, the action of muscles not ordinarily used, the tonic effect of cold immersion, exposure of the naked body to the actinism of sunlight, and an exhilaration akin to flying, are conditions that conduce to the elimination of urea, and the abolition of dyspepsia and insomnia, and are superior to the tent-cure, to massage, electricity, or drugs. Chorea and hysteria I have known to be cured after a course of swimming, and my experience as a neurologist leads me to recommend this form of exercise as one of the best adjuncts in the treatment of functional nervous diseases. I shall not attempt to discuss possible objections to a sport that may harm a few yet benefit a thousand, but must say that if more educational attention were given to this form of recreation we should have fewer cases of neurasthenia, not so many flabby hearts and lungs, and a lesser number of torpid minds.

And so I might include in this enumeration the whole "Badmington Library of Sports," as polo, shooting, playing tennis and golf, and cycling, the beneficial effects of which latter sport has been so ably touched upon by our worthy secretary, Dr. G. M. Hammond.

There comes, however, in connection with the development of my subject, the question of that most innocent and delightful amusement afforded by sportive motion regulated by music.

The exercise of this instinct, symbolical of joy and delight, has incurred *odium theologicum* in the past, and we find cranks and sham pious denounce its manifestation as a wicked thing, because in their prudish and evil-thinking minds there still lingers the puritanical spirit which calls anything sinful that makes people feel happy.

This special mode of manifestation of the play-impulse does not appear to have claimed much attention, serious or otherwise, from either biologist or physician. Although the latter functionary is so often questioned as to the effect of dancing upon the health and morals, I do not find, among large collections of medical works, that any physician has had the boldness to treat this apparently frivolous subject with ordinary seriousness and place the same on record. Yet, in an unpublished letter of General Washington, lately shown to me by the Assistant Librarian of Congress, Mr. P. Lee Phillips, the dignified Father of his Country gives his declining years as an excuse for not attending an assembly, but, at the same time, mentions dancing as "so agreeable and innocent an amusement."

One of the deepest-rooted instincts of our race is the spontaneous activity shown in the wish to jump in symmetrical combinations. A succession of cadenced movements of the body, regulated by music, vocal or instrumental, and done commonly with the reflexive object of either exercise or amusement, has been performed among all peoples from primitive times, and has been concerned in all the actions of life.

Biblical and literary references to tripudiary acts are almost too common to require mention. This manifestation of feeling in its bodily discharge was indulged in by Miriam and Moses, and David danced before the Ark. The priests of Osiris had their astronomic dances; with a view to bringing about a happy concurrence of the stars the Indians and Chinese admitted dancing into their theogonies and

cosmogonies; Livy speaks of it as a means of placating the gods during the pest at Rome; during the epidemics and disasters of the Middle Ages ignorant and pious terror attempted to abate pestilence by the atrocious spectacle of the Macabre dance, or dance of death; and religions have always sought to exalt nervous sensibility upon which dancing has a powerful action, to the profit of the dogmatic idea. Choregraphical performances have attended all the stages of social evolution, and all the expression of joyous excitement, Pyrrhic, Bacchanal, hymeneal and sacred.

Dancing, ranked with poetry by Aristotle, and according to Homer the sweetest and most perfect of human enjoyments, still forms the base of religious ceremonies among the rudest savages; but for civilized people it is a frivolous and innocent amusement highly conducive to decency, elegance and politeness, and acting by virtue of the threefold enjoyment provoked by the organic pleasure of the exercise, the effect of the music, and the enjoyment caused by the reunion of the sexes.

The recreative exercise of dancing has been regarded by certain ascetic and lugubrious persons as very dangerous to youth, and it is common to hear from the vantage-ground of religion ribald utterances concerning the cardinal sin of dancing, the devil's procession, and the like. Nevertheless, there are among the sound and faithful those that incline in this respect to the statements of some of the Fathers, who represent the angels to be always dancing, and the glorious company of the apostles in reality a chorus of dancers. But admitting the principle that concedes the worthlessness of a lame man's opinion of dancing, the connotation from the moral point of view may be at once dismissed, since it little concerns the physician.

Dancing being one of the most spirited of innocent amusements is, at the same time, one of the most useful gymnastic exercises. In this relation several legislators of antiquity concerned themselves; and Tissot recommends dancing as a part of physical education in colleges. Its physical influence upon youth, with whom sportal movement is a necessity as imperious as the play-impulse that prompts all young animals, is advantageous by the light diversion of nervous energy which, by the effect of study, tends to accumulate in the brain to the detriment of other organs. At the same time, the effect of music causes an agreeable sensation of well-being from which a fortifying nervous action must accrue. Added to the nervous and vascular excitement of the exercise, the reaction from which stimulates and strengthens all the living parts, there is the circumstance of the reunion of the sexes, which develops and enlivens the imagination, causes a happy dissipation of melancholy ideas, and brings into being and excites the passion of love. It cannot be gainsaid that love affairs are among the most important affairs of life, since they decide the make-up of the next generation; consequently everything relating thereto merits serious attention from all thoughtful persons.

The opposite sex is usually associated with dancing, and it is particularly in women that it is desirable and useful to procure grace and ease of movement while joining agreeable distraction to salutary exercise. Women obliged to lead workday lives, as seamstresses, washerwomen, and shop-girls, procure enjoyment from dancing that counterbalances somewhat their monotonous existence; while the more luxuri-

ously placed, especially young girls of sedentary habits, whose gastric and uterine functions are deranged by want of bodily exercise, may break this inaction of body so prejudicial to health by the exercise of dancing, which calls the blood to the periphery to the benefit of the uterine and abdominal regions, and, at the same time, diminishes nervous susceptibility. Dancing is also useful to excite fecundity in young married women by developing the natural sensibility of the generative organs. Yet the exercise should not be indulged in during menstruation, or gestation, or when nursing. It is, moreover, hurtful in inflammatory affections, in advanced engorgements of the organs, in organic pulmonary or cardiac troubles, and it should be interdicted to persons affected with aneurism, or subject to hemorrhages. On the other hand, dancing may be used to hygienic advantage, and even as a therapeutic means. The celebrated navigator, Captain Cook, claims to have reduced the mortality of his crews to ordinary chances by making the men dance on deck as a means of distraction during calm weather. A few years ago the leading physicians of New York City who had distinguished themselves in a gynecological way, were interviewed on the subject by an enterprising reporter of one of the large dailies, and the result appears to be an absolute consension of opinion as to the good to be derived from this exercise.

Regarded in the category of a medicament, dancing may be advantageously employed in all maladies where it is necessary to excite, to strengthen, or to provoke abundant cutaneous exhalation.

In scrofulous diseases, where all the organic apparatus is atonically impressed, and all the metabolic functions are slow and irregular, dancing often repeated is one of the first curative means.

Anemia, chlorosis, amenorrhea, and all functional derangements of the uterus depending on its weakness also call imperatively for the employment of dancing. In fact, most diseases attended by complete uterine inertia need the energetic excitement to double action such as dancing affords.

Flabby fatness, so much dreaded by many women, and dependent entirely on relaxation of the tissues, demands the employment of a mechanical excitement that shall stimulate the respiratory and circulatory organs, and reanimate the activity of the absorbent vessels, and thereby effect the return into the circulation of the stagnant fluids from the cellular tissue, to be afterwards exhaled through the skin and lungs.

The good effects of dancing in mental and nervous diseases are witnessed in the balls given to inmates of insane asylums. It acts as a powerful remedy in melancholia and hypochondria by changing the order of ideas and scattering morbid fancies. Somnambulism and nightmare occurring in persons of full habit who take but little exercise are more effectually broken up by this active exercise than by the administration of drugs. Neuralgia, chronic rheumatism, gouty affections, and many ailments owing to suppressed secretions are also benefited. The spasmodic affections of women dependent on the predominance of the nervous over the muscular system, find in dancing a remedy as sure as agreeable; and the antispasmodics, tonics, etc., usually given in such cases may be replaced by inspiring music and the aspect of an exercise that, at the same time, gratifies the imagination.

In establishing the lost tone of the stomach, and as an

efficacious remedy in polysarica, if often repeated and long continued, dancing is to be commended. In lymphatic subjects it also heals certain migraines and habitual pains in the head. Obstinate quartan intermittent fever, in which the attack holds on merely on account of the morbid habit, is also reported to have yielded to the exercise of dancing taken at the beginning of the attack, which, in consequence of the lively exercise and profuse perspiration, is not only broken up, but fails to reappear.

The caprices and infatuations of dancing require no extenuating comments, nor do the evil effects of promiscuous balls, since it is the bad accessories that impose limitations and not the dancing that exercises a baneful effect. Because the Prodigal Son indulged in the wassail bowl and roistering festivity while he and his friends danced, is no reason why the innocent son and his friends must never dance. Aside from these considerations, the innocent amusement of the dance under favorable circumstances improves the body, breaks up the vices of the mind and inspires happy confidence; and it is, moreover, an agreeable diversion like golf, tennis, and other sports suited to all sorts and conditions of life.

Just as long as mankind is endowed with the faculty of emotional expression so will its demonstration in various forms continue to manifest itself. As a rule, people must and will divert and amuse themselves, and nobody can prevent them. But in these days of excessive drive and overpressure, when undue waste of vital energy shows itself to the clinical observation of the neurologist in the way of various nervous and brain diseases, the question of averting or mitigating such mischief comes to us as a serious problem.

The obvious solution lies in the encouragement of all innocent recreations as a compensating factor in the phenomena of life. If we want to keep up the spirit of a race in which runs the blood of Robin Hood and the old Viking kings, the palestric element must enter into its pastimes. If we would hold the trident of Neptune and have a long run on the world's political stage "the man behind the gun," as well as the political ruler, will be none the worse for having been trained in the manly school of rude play and romping sport.

Therefore, we should do all we can to further the great cause of innocent sport and recreation that bring together men and women of the leisure class at such places as the tennis court, the hunt, the meet, the golf links. In the light of more humanistic ideals of the present day, we do not admit the ethical cogency that such amusements are wrong because they are worldly. We should strive to reach the people with a simple word or two expounding "the gospel of relaxation," with a view to make life better, and make human actions abler when prompted by the two great motor forces of life which incite in our subliminal-self the source and spring of all human actions, namely, the preservation of the individual and the continuance of the species.

A VALUABLE CONTRIBUTION TO MILITARY HISTORY.—It is reported that Prof. Joseph Jones, of New Orleans, is engaged in the compilation of a medical history and roster of the medical department of the Confederacy, with biographical notices of its principal surgeons. The work will be presented at the next session of the Confederate Veterans.

CARCINOMA OF THE CARDIAC END OF THE STOMACH.

BY ALBERT N. BLODGETT, M.D., BOSTON.

THE following paper is founded upon a case which was quite unique in my experience, and of which I have been able to find only very few recorded examples. The patient was seen repeatedly in consultation by Dr. R. W. Lovett, who corroborated my observations, and kindly made valuable suggestions in temporary treatment and prospective surgical procedure, and to whom I here wish to record my sense of grateful obligation. The following is an outline of the principal features of the clinical aspect of the case, condensed from my records:

March 31, 1894. Patient is a Swede, age forty-seven years, and referred to me on account of supposed "consumption." He states that he has been in this country for the past twenty-six years, and has always been well until a period about four months ago. He denies any sickness or disease except those of childhood, and especially denies syphilis, of which there is no indication or suspicion. His own complaint is of "dyspepsia." His family history is in no way remarkable, and has no apparent bearing, on his present condition. He has two children, the youngest at present aged sixteen, who are both well and strong. He has worked very hard, first as seaman, and later for many years in a brewery. He says that he has never abused malt or spirituous liquors. He states that he has felt ill since Christmas, 1893. The symptoms at that time consisted in a slight feeling of obstruction in swallowing, especially solids, which has persisted, and has gradually become more pronounced, until he is at present entirely unable to swallow anything except fluids, or very soft substances. On attempting to swallow solids, the food disappears as if it went into the stomach, but is almost immediately regurgitated, without admixture with other substances, and unchanged in character. At times, when he feels worse than usual, fluids are also rejected. He has become gradually thinner, and has lost strength to a marked degree. He is thirty pounds lighter than at Christmas. There has been no cough, expectoration or night-sweat, no chill, and no fever. Pulse and temperature are normal; bowels are regular, though stools are small in amount. Peristalsis is active, and visible through the thin abdominal wall. Sleep is quiet and prolonged, as if patient were excessively fatigued. Physical examination reveals nothing abnormal in chest. Ribs prominent, on account of emaciation. Liver area normal or possibly slightly contracted, and there is marked retraction of the abdomen. Across the epigastric region in a direction from the left toward the right, is a distinct, hard ridge, three centimetres in diameter, which is felt issuing from beneath the left costal border near the nipple line. This curves downward and slightly to the right, toward the median line, whence it extends to the border of the right epigastric region, where it becomes indistinct and is lost. Between the edge of this ridge and the dulness of the liver is an area of clear resonance on percussion. Pressure over any part of the mass is painful, the distress being referred to a point in the epigastrium near the end of the xyphoid cartilage. No enlarged glands are discovered in the axilla, groin, or mesenteric region.

April 15th. Patient states that he has never

vomited nor has he passed any blood by stool. Pain has been continually present, but is not more acute than at last report. Weight 130 pounds. Emaciation is more pronounced than heretofore. The outline of the growth is not materially different from that described, though the density and prominence of the tumor is more marked. At this time Dr. Lovett kindly saw the patient in consultation, and verified the condition. He sustained the diagnosis of probable carcinoma of the cardia. The character of the disease was explained to the patient, and the probable course and termination of the malady was clearly set before him. Immediate operation was advised, but the patient would not listen to suggested gastrostomy as long as he could swallow enough food to sustain life.

May 12th. Patient was comparatively comfortable until about ten days ago, when he began to experience shooting pains in the vicinity of the epigastrium. These have since persisted, and have extended into the region of the loins, buttocks, thighs and pelvis. Appetite is about the same; the patient takes food as well as at last report. Sleep is reported as fairly good, but the general condition of the patient is not so favorable, and he is evidently failing in strength and flesh. Cachexia is now apparent, and patient is practically entirely disabled. Heart is normal, pulse 72, respiration normal when not interrupted by groans and sighs. The left epigastric region is the seat of great tenderness on pressure. No vomiting or tenesmus. The stools are yellow. The patient complains chiefly of recurrent attacks of agonizing pain and increasing debility. Speedy operation is now considered *conditio vitalis*.

June 9th. The condition of the patient has gradually become more serious since the last report. Pain has increased, and swallowing has become more and more difficult, until at present, and for two days past, the patient declares that nothing which he swallows reaches the stomach. All food taken is at once rejected in an unchanged condition. The tumor is more prominent than at last report, and is hard and unyielding in consistency. It can be felt retreating toward the ribs on the left side, and is lost beneath the costal border, at the left of the ensiform appendix. There is a well-marked caput medusæ, and the color of the surface is faintly livid.

June 20th. Soon after the last record the patient began to swallow fluids and the pain in the region of the stomach became less intense. At the same time a moderate diarrhea with offensive stools commenced, which continued as long as the patient lived. From this time, there was never again complete occlusion of the passage into the stomach, though there were periods when swallowing was considerably hindered, and was painful. These periods would end in a sharp attack of diarrhea, when the stenosis would become less troublesome, and the patient could again take food as well as before.

July 16th. Patient has had no recurrence of the gastric stenosis, and states that he has suffered little from pain, although there are periods of distress and cramping of spasmodic character, due in part, he thinks, to the motions of the abdominal viscera, especially intestinal peristalsis. He now takes liquid food, not only without obstruction or distress, but with positive relish. He is weaker, but is in good spirits though much emaciated and very anemic. There is now noticeable considerable enlargement of the inguinal glands, and pressure over the abdomen is painful, prob-

ably from implication of the mesenteric or other glands. Neither spleen, liver, pancreas nor kidneys afford any indication of metastasis.

August 3d. The signs of advancing malignancy are more pronounced. There is swelling and induration of the axillary glands, and of the supraclavicular lymphatics, and the course of the veins may be plainly traced over the surface of the thorax and abdomen. The patient suffers no pain, but is rapidly becoming exhausted.

He continued in much the same condition, and died September 9th, about six months after coming under observation. An autopsy was much desired, but unfortunately was not obtained. It was learned, however, that the patient suffered no pain, nor was there marked agony at the end, but death seemed to follow from sheer exhaustion.

The only definite allusions to cancer of the cardiac end of the stomach which I have been able to find in the literature of this subject are the following, compiled from the original reports of the cases. These are to some degree doubtless questionable as to correctness, as has been stated by Hilton Fagge, so that their absolute value as to the frequency of the disease may be diminished to some extent. All the evidence seems to point, however, toward the fact that this seat of cancerous development is one of the rarer locations in the body. The outlines of the heretofore recorded cases are as follows:

I. M. Lepelletier¹ presented the stomach of a man who for a long time had vomited directly after taking any form of nourishment, and in which digestion had become impossible. The patient was emaciated to a most extraordinary degree. At the autopsy an enormous cancer of the cardia was found. The patient had been accustomed to swallow balls made of lead, in order to dilate the cardia to a sufficient degree to permit deglutition, and one of the balls was found at the autopsy. There was also a tumor of the convex surface of the liver, which had pierced the tissues of the diaphragm, including the peritoneum and the pleura, forming a diaphragmatic heptocele. The growth had also penetrated into the intestine.

II. Lannois and Courmon² report the following case in a man, aged seventy-seven. His illness began five months previously, with diarrhea which lasted a month, and with difficulty in swallowing. On admission he could only swallow liquids. The obstruction was at 36 centimetres from the teeth. There was now obstinate constipation. Nothing abnormal was found in the abdomen, except perhaps a diffuse resistance later, to the right of the xyphoid cartilage. There was no jaundice. At the autopsy a tumor was found in the lower part of the esophagus, producing almost complete obstruction; the microscope showed it to be a squamous epithelioma. In the duodenum and about the papilla a soft tumor was present. The pancreas and liver with their ducts were absolutely healthy. This tumor was a columnar carcinoma, and apparently presented a similar degree of invasion as the esophageal growth. Some 13 cases of two primary independent malignant neoplasms are on record. The duodenal growth here was considerably larger than usual. It is the rule in these cases to have no biliary obstruction owing to the softness of the growth, but there are exceptions.

III. Dr. Henry P. Loomis³ presented the specimen. The patient was a man, fifty-three years old, who had an excellent family history, and also a good previous history, except that he said he had had a slight bronchitis for many years. His last illness began with anorexia, uneasiness in the epigastrium, and slight vomiting. The pain was most intense in the left hypochondriac region, and near the xyphoid cartilage. For two months he could only take solid food with difficulty, and then finding that solid food caused pain, he swallowed nothing but oatmeal and milk. On admission he was very greatly emaciated, had a haggard, apathetic expression, and vomited curdled milk. Physical examination of the abdomen showed an area of flatness about four inches in diameter, with its centre one inch below the xyphoid cartilage. The autopsy was made thirty-six hours after death. No pathological lesion was found in any of the organs or tissues until the stomach and esophagus were opened. A firm, dense, cancerous infiltration was found in the wall of the lower portion of the esophagus and the esophageal end of the stomach. About three inches of their walls were infiltrated with a dense mass, which narrowed the opening of the esophagus into the stomach to such a degree that it was with difficulty that an ordinary penholder could be introduced down the esophagus. There was no ulceration or involvement of the rest of the stomach wall. The infiltration presented the ordinary appearance of a scirrhus cancer. There was marked atrophy of the intestines. The patient apparently died of inanition due to mechanical obstruction which interfered with the introduction of food into the stomach. The extreme narrowing of the tube was due partly to infiltration and partly to the contraction of the newly-formed connective tissue as the result of the irritation of the new growth. The dense infiltration no doubt produced the feeling of obstruction which was constantly referred to by the patient during life. The absence of ulceration was unusual. The esophagus and stomach at the site of the cancer were tightly bound to the cellular tissue behind them. The tumor was diagnosed during life, and an operation advised. If this advice had been followed, no doubt the patient's life would have been prolonged considerably by the establishment of a gastric fistula.

IV. Dr. James Tyson⁴ presented the specimens, from H. W., aged seventy years, a Pennsylvanian. "He has been apparently healthy, except as to occasional attacks of rheumatism, until about the middle of June, 1872, when he began to complain of a dull burning pain in the epigastrium, which continued and became worse after eating, when a sense of distention and weight was superadded. Later, he vomited his food, and complained of nausea at times, especially in the morning before eating. Occasionally, also, he vomited small quantities of blood. His bowels were obstinately constipated, being often without a defecation for five or six days. There was exquisite tenderness in the epigastrium, and percussion-dulness in the median line, two and one-half inches below the end of the ensiform cartilage, and thence towards the left to the edges of the ribs, and towards the right also as far as the edges of the ribs but an inch lower down. There was, however, no sense of a tumor communi-

¹ Société Anatomique, Paris, July and August, 1848.

² Rev. de Méd., April, 1894.

³ Medical Record, New York, August 11, 1894, p. 185.

⁴ Transactions of the Pathological Society of Philadelphia, vol. iv, p. 84.

cated on palpation. About the 10th of September it became quite impossible for him to retain any solid food, when he was restricted to a diet of milk, of which he took a pint daily in divided portions. Thus administered, the milk was retained; and the plan was so successful that the quantity was soon increased to a quart daily. About the 26th, however, he was no longer able to retain the milk in any quantity, while he seemed to reject it, not by an act of vomiting, but by a species of regurgitation. Thenceforward, emaciation progressed, and he died on October 18, 1872. The post-mortem examination was made six and one-half hours after death. On opening the abdomen, no visible derangement was present, until the omentum was removed, when a white, glistening prominence was noticed, which proved to be the pyloric end of the stomach, thickened to the extent of an inch in section, and for two and one-half inches towards the centre of the stomach. The cardiac end was similarly involved and to a like degree, while the body of the stomach was normal. To the naked eye the appearances were rather those of a hypertrophy of the muscular substance of the organ in these situations." [Remarks. The regurgitation of the food here noticed is probably explicable by the condition of the cardiac orifice of the organ. The temporary relief derived from the milk treatment is quite in accordance with recent experience in similar cases.]

V. The following are the notes of a case under the care of Dr. J. Allden-Owles.⁵ "Mrs. L. was first seen by me in February, 1884. She was low in stature and small in limb; was a widow in her fifty-third year; had one child aged nineteen. She had enjoyed good health up to the time of twelve months' previously to being seen. She then began to have difficulty in swallowing food; and from the symptoms she exhibited I arrived at the conclusion that the esophagus was probably the seat of malignant disease, in which opinion I was supported by Dr. Habershon, who saw the case in consultation. On November 5th, I passed a gum-elastic esophageal bougie, No. 3, a short distance beyond the cricoid cartilage, farther than which it would not go without the exercise of more force than would have been justifiable. Upon withdrawing it there was a little blood at the tip. The dysphagia was increased for the next two days; and in consequence of this the patient refused to have another bougie passed. After some days, however, the discomfort subsided and deglutition became easier. Previous to this, that is, for several months, the disease had made but little progress, and temporary relief had followed the use of the various remedies, such as bismuth, hydrocyanic acid, creasote, and others. Examination of the ejecta under the microscope showed the presence of a great deal of squamous epithelium; the ejecta consisted of undigested food, with a large quantity of glairy mucus, probably chiefly saliva which had collected in the esophagus. One enlarged gland over the left breast was detected about this time. In the end of February, 1885, the patient suffered from acute pain in the gastric region. A careful examination could detect no distinct swelling or tenderness, although the beginning of emaciation favored the discovery of anything abnormal; but there was some suspicion of thickening at the esophageal opening of the stomach, inasmuch as on careful listening, the passage of fluids into the stomach was

accompanied by a gurgling sound which was unnatural. On March 10th Dr. Klein examined the ejecta, and he reported that they did not come from the stomach; there were no sarcinae, there was no blood, and no positive evidence under the microscope of malignant disease.

"For another four months the patient continued fairly well; but early in July a sudden change occurred, excessive vomiting setting in, accompanied with hemorrhage. At this time she was seen by Sir W. Gull in consultation, by whom my opinion of the case was confirmed. The patient rallied again after this, and was fairly well until October, when she became worse. At this time some disaffected ladies said that as the eminent consultants, who had seen the patient, were biased by me, it was better to see some other able practitioner without me. This was acted on, and the patient passed out of my hands, and the history of the case is completed from the reports of others. She continued much as before until Christmas, 1885, and was seen once prior to that date by Sir Andrew Clark, but early in the present year the symptoms became worse and the end seemed near. The vomiting was almost constant and abundant; the pain was excessive, necessitating the hypodermic injections of morphia in large and repeated doses, and the dysphagia was so great that for about a fortnight she was nourished entirely by enemata—a means to which she had much repugnance. Then some relief to her symptoms suddenly ensued, and in consequence of her ability to take large quantities of nourishment, and the constant use of morphia with other things, the patient lingered till June, 1886, a period of probably quite three years from the commencement of her illness.

"A post-mortem was arranged, and I was present at the request of the executors; and extensive malignant disease of the lower third of the esophagus was found, together with much glandular enlargement of the anterior mediastinum. A portion of the disease was submitted to Dr. Klein, who reported as follows: 'The microscopic examination of the sections showed that the mucous membrane is permeated in all its layers by clusters and streaks of epithelial cells, extending even amongst and between the bundles of non-striated muscular tissue; some of the streaks resemble tubes lined with epithelium, and their cavities filled with loosely aggregated epithelial cells. In many of the clusters, cell-nests characteristic of epithelioma could be clearly recognized. The following points are worthy of note; the comparative rarity of esophageal diseases; the variety of epithelium as an aid to diagnosis; the detection of only one enlarged gland in the whole course of the disease; the use of the bougie and its beneficial results; the widening or removal of the stricture in the later stages of the disease, and its bearing on the prognosis in such cases, and the explanations of it; the duration, probably three years, mainly due to the ability to take food, and the use of morphia; the *pros* and *cons* of gastrostomy or other operations. Dr. Owles said that the patient at an early period of her illness expressed herself strenuously against submitting to any operative interference, so that he considered it futile to press the question of gastrostomy.'"

VI. W. T. Gairuder,⁶ contributes the following report:

⁵ The Medical Press and Circular, November 17, 1886, p. 427.

⁶ Monthly Journal of Medical Science, vol. xix, July, 1884, p. 79.

"The cancer of the cardia and of the cardiac end of the stomach, and of the lower part of the esophagus, was in an ulcerated condition. The pericardium was found thickened, and the pleura contained recent lymph, and was full of fluid. The case was not correctly appreciated during life. There was intense emaciation, but no dysphagia or vomiting. The patient had little appetite and appeared to be phthisical. He suffered from cough, and had effusion into the pleura, which had been evacuated several times to the amount of one or two pints. The preparation showed that the ulcerated opening of the stomach was quite pervious, and thus the absence of dysphagia was explained. Diarrhea, resembling that found in phthisis, had been a prominent symptom; but though old tubercles were found in both lungs, and ulceration of the small and great intestines, the ulcers were rather of a dysenteric than of a phthisical character."

VII. Ferguson,⁷ reports the following case:

"The patient had suffered from pain in the epigastrium and back which was aggravated by the presence of food in the stomach. Subsequently there was vomiting. When admitted to the hospital, although fairly well nourished, she had lost flesh to a marked degree, her appearance was cachectic, and she suffered constant pain in the back and epigastrium. All solid food was rejected by the stomach. She had hematemesis at one period, recurring repeatedly every day for three weeks. Nourishment was given principally by the rectum. A diagnosis of cancer of the stomach was made. She died on the 29th of January, 1884. Full one-third of the cardiac portion of the stomach was found ulcerated, the ulceration also involving the lower end of the esophagus. There were no enlarged glands in the neighborhood of the growth, and no secondary deposits in other organs."

VIII. At a meeting of the Society for Medical Improvement, Dr. Jackson⁸ showed a specimen of cancer of the cardiac end of the stomach with the following history:

"Mrs. B., died February 27th, aged fifty-three. She was a small, spare, tough woman, and passed all her life in this region. At twenty-two she married, and had nine healthy children. Catamenia ceased at forty-four. She worked very hard; had always a good appetite; but her food often distressed her after meals, so that she 'had dyspepsia ever since she was a girl.' She was hardly ever known to vomit; and during her pregnancies she was well, and never had nausea. Until she became sick, could never relish acids — as vinegar, cider, or even an apple — then, these were particularly grateful to her. I can get no trace of cancer in her family. In August, 1859, she had so much distress in the region of the stomach and esophagus, that she commenced taking homeopathic remedies, which she continued till near the close of life. There was no improvement of her suffering, and in the spring of 1860 there was nausea and sometimes vomiting; and by July the vomiting was constant on taking food. In December she complained of no pain except a peculiar distress which came on a few minutes after taking food, and was generally relieved by its coming back again. There was not at this time any hardness to be felt in or around the stomach; nor was there any ever discovered; nor was there much tenderness at the epigastrium. The settled opinion seemed to be

when I first saw her in December that she had a stricture of the esophagus. This arose from the fact that she persistently felt and said that the food stopped a little more than half-way down the esophagus — putting her hand to mark the exact spot; so circumscribed was the pain, and so confident was she that the stoppage was there that it had to be believed. She was at this period taking liquids and pap, literally all the time, and vomiting nine-tenths of it again, within ten minutes, alleging that it had stopped half-way, 'just there.' Exploration of the esophagus with instruments of various kinds, discovered no resistance whatever. Still, the same experience went on to the last, and the patient was sure the food went only so far, and from that spot was thrown back. For the last two months she took large quantities of food, and her relish was keen, being nothing hurt by the constant ejection of what was taken. Five days before death she raised about a pint of dark, bloody, grumous mucus, somewhat, but not very offensive, and this was the only time anything of the kind appeared — or anything but food. Until a few days before the close, she kept about the house, and on the whole, I think suffered less pain than any other victim of this disease I have seen. Except the stomach, the organs of the body were found remarkably healthy. The cardiac portion of the stomach was in a state of open cancerous ulceration, to the extent of two and a half to three inches from the lower extremity of the esophagus, but the disease did not extend at all up the esophagus, and it was perfectly defined in the stomach, the rest of the organ being quite healthy. The general character of the structure was that of a firm encephaloid, and the surface of the ulcer uneven, and of a yellowish-white, opaque color; the edges were softer, raised somewhat, rounded and vascular. The esophagus throughout was quite healthy, being neither thickened nor dilated."

(To be continued.)

WHAT NUMBER OF CASES IS NECESSARY TO ELIMINATE THE EFFECT OF CHANCE IN MORTALITY STATISTICS, ESPECIALLY THOSE OF TYPHOID FEVER: A STATISTICAL STUDY.

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WITH a view to ascertaining to what extent chance may affect statistics gathered for the purpose of determining the mortality of any particular disease and incidentally the results of any special treatment as shown by such mortality, I have tabulated from the records of the Boston City Hospital, a long series of cases of typhoid fever — over 3,000 in number — this being a disease which hospital records render convenient for this purpose.

These cases have been divided into groups of different sizes — that is, into groups of fifties, hundreds, two-hundreds, etc., and the mortality computed for each group. In thus arranging them no selection, of course, has been made, but every case has been included, and the cases taken *chronologically* according to the time of entrance into the hospital. Thus each group represents a continuous sequence of cases.

According to the doctrine of chances, the larger the groups, the smaller the variations will be found to be between the rates of mortality of the individual groups. By increasing the size of the groups, other

⁷ New York Medical Journal, March 8, 1884, p. 277.

⁸ Boston Medical and Surgical Journal, June 20, 1861, p. 332.

things being equal—that is, the conditions remaining the same—we should expect to find that with groups of a sufficiently large size, the mortality would be practically constant, and we should have a standard mortality; but, of course, the conditions do not remain the same. Nevertheless, we should expect to find that in groups containing a sufficiently large number of cases, these fluctuations would be reduced to a relatively small figure. The question is, What number of cases is necessary to eliminate variations due to chance and thus reduce the fluctuations to this degree?

The results given in the following tables are only directly applicable to typhoid fever; to what extent they are true of other diseases can only be determined by a similar collection of statistics for each disease.

These tables do not take into consideration any variations that may possibly be due to different modes of treatment. It is assumed that the treatment or the effect of treatment upon the mortality has been essentially the same in all the series.

Between 1882 and 1893, 3,176 cases entered the hospital; of these, 412 died, a mortality of 12.66 per cent.

Arranging these cases chronologically by fifties, we have Table I. By this it will be seen that the highest mortality was 24 per cent. and the lowest two per cent., a difference of 22 per cent.

TABLE I.

TYPHOID FEVER IN BOSTON CITY HOSPITAL 1882-1893 INCLUSIVE.

By Fifties.							
Cases	Dths.	%		Cases	Dths.	%	
1882	50	10	20	1887-88	50	1	2
	50	7	14		50	9	18
	50	11	22	1888-89	50	8	16
	50	7	14		50	6	12
1882-83	50	9	18		50	8	16
	50	9	18	1889	50	4	8
	50	8	16		50	3	6
	50	7	14		50	7	14
1883-84	50	10	20		50	4	8
	50	9	18	1889-90	50	8	16
	50	3	6		50	5	10
	50	3	6		50	5	10
	50	5	10		50	2	4
	50	2	4		50	7	14
1884-85	50	12	24		50	5	10
	50	5	10	1890-91	50	8	16
	50	3	6		50	3	6
	50	9	18		50	8	16
1885-86	50	3	6		50	7	14
	50	9	18		50	4	8
	50	7	14		50	1	2
	50	6	12		50	5	10
	50	4	8	1891-92	50	4	8
1886-87	50	7	14		50	10	20
	50	7	14	1892	50	8	16
	50	8	16		50	7	14
	50	7	14	1892-93	50	10	20
	50	9	18		50	4	8
1887-88	50	6	12		50	5	10
	50	7	14		50	5	10
	50	8	16		50	8	16
	50	8	16		50	8	16
Lowest mortality				3,176	412		
Highest "						24%	
Difference						22	

Table II shows the relative frequency of the various mortality rates from two to 24 per cent.

TABLE II.

Number of groups with mortality of	
2%	1
4%	2
6%	6
8%	8
10%	7
12%	3
14%	12
16%	10
18%	8
20%	4
22%	1
24%	1

Number of groups with mortality of 19%+ (26 cases) . . . 63

As it might be thought that possibly these large variations might be due to a difference in the virulence of the disease in particular years, the highest and lowest mortality in each year is shown in Table III, the per cent. being as before for groups of fifty. It will be seen by this table that in no year was there a group which did not have a mortality of at least 16 per cent., and with the exception of three years there occurred yearly groups with as low a mortality as two, four, six, and eight per cent.

TABLE III.

HIGHEST AND LOWEST MORTALITY IN GROUPS OF FIFTY BY YEARS.

	Highest.	Lowest.
1882	24%	14%
1882-83	18	14
1883-84	29	4
1884-85	24	6
1885-86	18	6
1886-87	18	14
1887-88	18	2
1888-89	16	6
1889-90	16	4
1890-91	16	6
1891-92	29	8
1892-93	29	8
1893-94		

In the same year (1884-1885) in which occurred the highest mortality, 24 per cent., there is found a series with only six per cent. In every year, with the exception of three (1882, 1882-83 and 1886-87), the variations are quite large. On the other hand, in these three exceptional years, although the highest mortality is not greater than that of other years, the average is much higher, owing to the fact that no group has a lower mortality than 14 per cent, and consequently the variations are comparatively small. The average high mortality of these years, affects the larger groups as will be seen by the following tables. But as most of the years with high mortalities show also low mortalities, the greatest variations in Tables I and II cannot be attributed to differences of virulence in different years.

TABLE IV.

By Hundreds.

	Cases	Dths.	%		Cases	Dths.	%
1882	100	17	17	1888-89	100	17	17
	100	18	18		100	14	14
1882-83	100	18	18		100	7	7
	100	15	15		100	11	11
1883-84	100	19	19	1889-90	100	13	13
	100	6	6		100	7	7
	100	7	7		100	12	12
1884-85	100	17	17	1890-91	100	11	11
	100	12	12		100	15	15
1885-86	100	12	12		100	8	8
	100	13	13		100	9	9
1886-87	100	11	11	1891-92	100	14	14
	100	15	15		100	15	15
	100	16	16	1892-93	100	14	14
1887-88	100	16	16		76	10	10
	100	14	14				
	100	9	9		3,176	412	
Highest mortality						19%	
Lowest "						6	
Difference						13	

TABLE V.¹

By Two-Hundreds.

	Cases	Dths.	%		Cases	Dths.	%
1882	200	35	17.5	1888-89	200	36	18.0
1882-83	200	33	16.5		200	21	10.5
1883-84	200	25	12.5	1889-90	200	24	12.0
1884-85	200	24	12.0		200	19	9.5
1885-86	200	24	12.0	1890-91	200	26	13.0
1886-87	200	24	12.0		200	17	8.5
	200	31	15.5	1891-92	200	29	14.5
1887-88	200	30	15.0	1892-93	176	24	13.6
Highest mortality							17.5%
Lowest "							8.5
Difference							9.0

¹ The division by years in this and the subsequent tables is only approximately exact.

TABLE VI.

By Three-Hundreds.

	Cases	Dths.	%		Cases	Dths.	%
1882-83 . . .	300	53	17.6	1887-88 . . .	300	40	13.3
1883-84 . . .	300	40	13.3	1888-89 . . .	300	32	10.6
1884-85 . . .	300	36	12.0	1889-90 . . .	300	32	10.6
1885-86 . . .	300	36	12.0	1890-91 . . .	300	34	11.3
1886-87 . . .	300	47	15.6	1891-92 . . .	300	38	12.6
Highest mortality						17.0%	
Lowest "						10.6	
Difference						7.0	

TABLE VII.

By Four-Hundreds.

	Cases	Dths.	%		Cases	Dths.	%
1882-83 . . .	400	68	17.0	1888-89 . . .	400	47	11.7
1883-85 . . .	400	49	12.2	1889-90 . . .	400	43	10.7
1885-86 . . .	400	48	12.0	1890-91 . . .	400	43	10.7
1887-88 . . .	400	61	15.2	1891-93 . . .	376	53	14.0
Highest mortality						17.0%	
Lowest "						10.7	
Difference						6.3	

TABLE VIII.

By Five-Hundreds.

	Cases	Dths.	%		Cases	Dths.	%
1882-84 . . .	500	87	17.4	1891-93 . . .	500	61	12.2
1884-86 . . .	500	54	10.8	1893 . . .	176	24	13.6
1886-88 . . .	500	71	14.2				
1888-89 . . .	500	61	12.2		3,176	412	12.66
1889-91 . . .	500	54	10.8				
Highest mortality						17.4%	
Lowest "						10.8	
Difference						6.6	

TABLE IX.

By Six-Hundreds.

	Cases	Dths.	%
Group 1 . . .	600	93	15.5
Group 2 . . .	600	72	12.0
Group 3 . . .	600	145	14.5
Group 4 . . .	600	64	10.6
Group 5 . . .	600	72	12.0
Group 6 . . .	146	24	16.5
Highest mortality			15.6
Lowest "			10.6
Difference			4.9

TABLE X.

By Seven-Hundreds.

	Cases	Dths.	%
Group 1 . . .	700	100	14.2
Group 2 . . .	700	96	13.7
Group 3 . . .	700	88	12.5
Group 4 . . .	700	75	10.7
Group 5 . . .	376	53	10.4
Highest mortality			14.2
Lowest "			10.7
Difference			3.5

TABLE XI.

By Eight-Hundreds.

	Cases	Dths.	%
Group 1 . . .	800	117	14.6
Group 2 . . .	800	109	13.6
Group 3 . . .	800	90	11.2
Group 4 . . .	776	96	12.0
Highest mortality			14.6
Lowest "			11.2
Difference			3.4

TABLE XII.

By Nine-Hundreds.

	Cases	Dths.	%
Group 1 . . .	900	129	14.3
Group 2 . . .	900	123	13.6
Group 3 . . .	900	98	10.8
Highest mortality			14.3
Lowest "			10.8
Difference			3.5

TABLE XIII.

By Thousands.

	Cases	Dths.	%
Group 1 . . .	1,000	141	14.1
Group 2 . . .	1,000	132	13.2
Group 3 . . .	1,000	115	11.5
Highest mortality			14.1
Lowest "			11.5
Difference			2.6

TABLE XIV.

By Fifteen-Hundreds.

	Cases	Dths.	%
Group 1 . . .	1,500	212	14.1
Group 2 . . .	1,500	176	11.7
Difference . . .			2.4

Arranging the highest and lowest mortality in each of these groups in one table we have the following (Table XV). By this it will be seen that not till 1,000 cases are recorded are the variations between the different groups reduced below three per cent.

TABLE XV.

Groups of	Highest Mortality	Lowest Mortality	Difference	Difference, omitting first 400 Cases
Fifty	24.0	2.0	22.0	22.0
One-Hundred	19.0	6.0	13.0	13.0
Two-Hundred	17.5	8.5	9.0	7.5
Three-Hundred	17.6	10.6	7.0	5.3
Four-Hundred	17.0	10.7	6.3	4.5
Five-Hundred	17.4	10.8	6.6	4.0
Six-Hundred	15.5	10.6	4.9	3.8
Seven-Hundred	14.2	10.7	3.5	3.3
Eight-Hundred	14.6	11.2	3.4	2.7
Nine-Hundred	14.3	10.8	3.5	1.3
One-Thousand	14.1	11.5	2.6	.8
Fifteen-Hundred	14.1	11.7	2.4	

It was said at the beginning that the continuous high mortality through 1882 and 1883 made the variations in all the groups containing more than one hundred cases larger than would be the case if these exceptional years² were omitted. If the first 400 cases of these years be excluded, it will be seen by the fourth column of Table XV that the differences between the highest and lowest mortalities is less in all the groups containing two hundred or more cases. The smaller groups are not affected for reasons that will be obvious on studying the tables.

In groups of one thousand cases the variations are reduced to eight-tenths of one per cent., while in groups of eight hundred cases they are less than three per cent.

It would thus appear that, assuming the conditions to remain the same (as was done in these tables), it requires from 800 to 1,000 cases to eliminate the effect of chance upon statistics giving the mortality of typhoid fever. Likewise it would seem that if the results of one kind of treatment are to be compared with those of another, an equal number of cases is required to obtain a standard mortality for each. The error due to assuming the conditions to have been the same in the above tables must be appreciable, if not large but it is partially if not wholly allowed for in the persisting variation in the largest groups of cases. It stands to reason that the less the variations in the conditions the less the variations in the results. On the other hand, the condi-

² In 1886-87 was also continuously high.

tions will always vary more or less. The only condition we have control over is treatment. It is doubtful if this has practically varied in the above series — that is, so as to affect the results. It should be said that the average mortality of 12.6 per cent. does not correctly give the result of treatment in the Boston City Hospital, as the cases dying within a few days after admission have not been excluded.

May it not well be that similar variations from chance alone may occur in statistics of mortality or statistics of the effect of special modes of treatment, of other diseases, such as diphtheria, pneumonia, chorea, epilepsy, etc.? At any rate until the contrary has been shown to be the case, it would seem that it is not safe to accept such statistics as evidence of the efficacy of treatment unless based upon the results in a very large number of cases. That so large a number as 800 to 1,000 is required in typhoid fever at least, is, I think, generally overlooked.

CARDIAC STIMULANTS.¹

BY HERMAN F. VICKERY, M.D., BOSTON, MASS.,

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THE condition of the heart is constantly watched by the medical man. From time immemorial all physicians have sought in the pulse as exemplifying the heart of their patients, important aid with regard to diagnosis and weighty suggestions as to treatment. To-day no practitioner is too wise and none too simple to regard it. Neither the gravest consultation nor the most hurried and perfunctory visit is ended before skilful fingers, watched with a mixture of awe and approval by the family, have dwelt upon the radial artery. In all diseases at all stages the behavior of the heart is considered both as an index of the bodily state and a guide for the management of the case.

Unfortunately, this singular unanimity of the profession scarcely extends to the interpretation of the silent message which the heart vouchsafes, and still less to the mode of treatment appropriate to the occasion.

It is the object of the present paper to lay down some general rules as to the choice of cardiac remedies.

As has already been intimated, such a subject touches upon or overlaps all therapeutic measures in all conditions, so that our present consideration will unavoidably be very limited in its scope and incomplete in its details. Yet it is hoped that some practical benefit may be obtained.

In a general way, the disorders of the heart may be divided into those in which it shares in a general weakness of the system and those in which the original trouble is circulatory, using the word in its broadest sense.

The term general weakness is meant to include nervous debility. It is an interesting fact that the great majority of patients who come voluntarily to a physician because they believe the heart to be diseased are happily mistaken, and are really either dyspeptics, hypochondriacs, sufferers from intercostal neuralgia or addicted to some excess which has occasioned palpitation. The hypochondriacs are many of them medical

students, some of whom come in anxiety each year to their instructors for examination. I can recall only one of all such whom I have happened to auscult who actually had an organic lesion. The cases of intercostal neuralgia are apt to be anemic and to have tender spots along the course of an intercostal nerve and the heart is found to be normal. The victims of excess (in tea, coffee, tobacco or venery) are numerous. Their general appearance betrays them; and their heart-sounds have a hurried, quick, sharp, and as it were impatient character at the apex, unassociated with enlargement or persistent murmur. There is little muscular element in the first sound. There may or may not be a slight basic systolic murmur, or at the apex a systolic whiff, once or twice during each respiratory cycle. The nervousness of the apex sounds is quite recognizable. The auscultatory signs are valuable in these functional cases, because the patient may not voluntarily confess his wrong-doing, and yet it is useless for him to swallow drugs without reforming his habits. It is better that for a time the special indulgence should be wholly stopped both because total abstinence is more likely to be attained than is temperance and because even a small amount of tobacco, for instance, will keep the already nicotized heart in its diseased state.

Alcoholic excess often affects the heart in the way just described, but the other bodily effects are usually too evident for one to need to auscult the heart in order to recognize the nature of the case, and besides arterial and myocardial degeneration may be present, so that the prognosis and treatment are not those of functional disturbance.

In the purely functional cases, bromide and a tonic usually bring immediate subjective improvement, and make it easier for the patient to abstain from the exciting cause. If there be anemia, iron is useful. Otherwise I am apt to prescribe compound tincture of cinchona. *Nux vomica* and strychnine are usually regarded as physiologically incompatible with the bromides, but in this class of cases ten or fifteen grains of bromide of sodium and five or ten minims of tincture of *nux vomica* seem to me an efficient combination. An analogous experience is the favorable effect upon some cases of enuresis when the belladonna which has been used in vain is combined with *nux vomica* and the enuresis ceases. Clinical facts are sometimes like Wilkie Collins's heroine, "superior to logic."

Tincture of *strophanthus* in a dose rarely exceeding five minims, three times a day, has a good effect upon nervous palpitation.

Cases of general and nervous debility sometimes have excessive cardiac weakness out of proportion to the other symptoms. The heart impresses one as thin and flabby. It may be somewhat dilated and there may be inconstant murmurs. The condition is not devoid of danger. There may be sudden collapse, with pulmonary congestion and death. At the same time the mind has considerable influence upon the disturbance, so that assurances that there is no valvular disease and that with returning bodily vigor the heart will become strong, contribute to the cure. About two years ago, a gentleman who had returned from a scientific expedition to Mexico with neurasthenia, and whose condition was causing his family much anxiety, allowed me to show him to a class of medical students as an unusually fine illustration of multiple inorganic murmurs. He recovered rather rapidly after a sea-

Read, by invitation, at a meeting of the Plymouth District Medical Society, in Plymouth, July 17, 1895.

voyage and is now well and actively engaged in his profession of civil engineer. For this neurasthenic state there is no specific remedy. Economy of nervous energy, and a cautious tonic regimen, with massage, graduated exercise, naps, lunches, and such drugs as cod-liver oil, iron, arsenic and strychnine avail more than the ordinary cardiac tonics.

The specific fevers afford the greatest opportunity for careful observation, nice discrimination and good judgment in relation to the heart, of any bodily disorders other than circulatory. Some render the matter attractively simple by saying that fever contraindicates the use of digitalis. Others never allow any patient to get very near death before he swallows a certain amount of this panacea. Some of us believe the better way lies between these two extremes, but we are not above confessing that individual cases puzzle us.

It may be well to dwell somewhat upon the properties of digitalis itself, to learn what are the capabilities of the tool we desire to use. Here we find pretty general agreement that digitalis is a nervous stimulant, acting both on the heart itself and on the vagus nerve, and not directly supplying any energy but merely developing and regulating that which the heart already possesses. It is therefore plain that the drug if it leads to the display of more cardiac vigor, inasmuch as it does not contribute to the general store, hastens the time when all energy will be exhausted and death ensue. We have an illustration of this fact in the result of the stimulation of the sympathetic nerve, which makes the heart beat stronger and more rapidly but also leads to earlier exhaustion than otherwise occurs, while a stimulation of the inhibitory fibres of the vagus in such a way as to slow and weaken the heart, actually enables that organ to store up energy.

Digitalis does more good when the heart is rapid, feeble, dilated, irregular in rhythm and especially when it is irregular in force. If such conditions develop in the course of any disease, we may expect the drug to bring some improvement. What little force there is will be more efficiently employed and a crisis may thus be tided over, and complete recovery ensue. In long continued fevers therefore, the longer such imperative indications for its employment are deferred and the shorter time the drug is given the more good it is likely to do. To prescribe it early in a long illness and where perhaps the only abnormalities in the heart are moderate weakness and a rapidity not disproportionately high as compared with the bodily temperature, will in most cases lead to nausea, malnutrition and early exhaustion rather than to any good. In this connection, might be called to mind the well-known difference in the average pulse-rate of pneumonia and of typhoid fever. In uncomplicated typhoid the heart-beats are lower relatively to the fever than in most diseases, so that if the pulse remains permanently at 120 it is of evil omen, while a rate of 140 in pneumonia is perfectly compatible with a favorable prognosis.

The books mention that digitalis does especial good in the exacerbations of chronic bronchitis, beyond what it usually accomplishes in general diseases. It has seemed to me that the explanation of this lies in the strain that long-continued bronchitis and consequent emphysema exert upon the right ventricle, so that many such patients are heart-cripples, and re-

ceive the benefit from digitalis that dilated and enfeebled hearts usually get.

The habitual use of digitalis and other nervine cardiac stimulants in febrile diseases should in my opinion be deprecated. Many favorable cases can be guided to a successful issue without a single dose of the sort. The longer the exhibition of such drugs can be delayed, the less harm and the more good are they likely to do; yet, it is not impossible, although in my own limited experience it is rare, for them to save life, for example in the enfeebled state sometimes seen at the crisis of pneumonia, the subcutaneous injection of fifteen or twenty-five minims of tincture of digitalis may be of decided advantage.

In general systemic diseases, *nux vomica* or strychnine, alcohol and coffee commend themselves as more often useful and less often harmful than is digitalis. A temporary stimulation in collapse may be got from a hypodermic of atropine, one-sixtieth of a grain, or of cocaine, one-half a grain.

In the acute diseases of the heart cardiac sedatives, such as aconite, are sometimes preferable to stimulants. Every effort should be made to lessen the demands upon the affected but indispensable organ, by enforcing physical and mental rest, and by giving only easily digested nourishment in moderate amounts. If the circulation is being passably maintained, we should let well enough alone. The additional strain consequent upon the stimulation of digitalis and the like may magnify the inevitable damage done to the valves, aggravate the inflammation of the roughened pericardium, or exhaust the already impaired vitality of the muscular walls.

In chronic valvular disease, our first duty is to see that the demands made upon the enfeebled heart are not too great, or at least no greater than is absolutely necessary. If we can lessen the expenses of the economy so that they shall not exceed its diminished income, the heart may long continue to do a satisfactory business at the old stand. If, while it is thus carrying on the circulation, some one gives digitalis, not because it is needed but because there is a murmur, the heart may be prematurely exhausted. If, however, compensation has been ruptured, then digitalis may be of great benefit, tending to contract the dilated ventricles, and to strengthen and regulate the heart-beats.

All agree that mitral disease in its later stages is helped by digitalis; but, in regard to aortic regurgitation, many have an apprehension that digitalis may not be free from harm, because, the diastole being lengthened, more chance will exist for blood to regurgitate into an already overburdened left ventricle. In reply to this objection, we may say that digitalis tends to contract the left ventricle if dilated and also to invigorate it, and to render its contractions more efficient — advantages which more than counterbalance the lengthening of the diastole. One explanation why results are more unsatisfactory in cases of aortic regurgitation is that when once the heart begins to fail in this disease, life is near its termination and no drug, not even digitalis, can long defer death; whereas in mitral disease existence for years after the first symptoms of ruptured compensation is the rule rather than the exception.

An unfortunate characteristic of digitalis is that it contracts the arterioles and raises the intra-arterial tension, so that it is worse than folly to give it where

the pulse is already of high tension and the aortic second sound loud and booming.

When there are symptoms of cardiac failure, when the apex cannot be located, the heart-sounds are feeble though without a murmur, and the radial artery is calcified, we know that the degenerated myocardium will not long respond to any stimulus. The rational line of treatment lies in the direction of lessening the heart's burdens, both by general measures and by the specific employment of nitro-glycerine to diminish arterial resistance; and we may also prescribe potassic iodide in the hope that its absorbent powers may open up once more the calcified coronary arteries, and permit the better nourishment of the heart-muscle. Iron and arsenic may also contribute to nutrition. Strychnine and strophanthus often prove to be good stimulants. Alcohol is nothing but a palliative, and in this or any chronic cardiac disease is open to the grave suspicion of promoting degenerative processes. Against the exhibition of digitalis is its unfortunate property, just mentioned, of raising the intra-arterial tension. Given in combination with nitro-glycerine, we may hope to get the beneficial effects of both drugs. Abstract considerations aside, we do meet with cases of chronic myocarditis where nothing else gives the comfort which digitalis affords. It seems to search out and utilize every mite of energy the expiring organ still possesses. The subcutaneous employment of morphine is also sometimes valuable in the terminal stages of this and other forms of heart disease, not only giving relief but relieving the patient from impending death.

Sparteine, adonidin, cactus grandiflora and convallaria majalis may in certain cases be useful. They rank far below the remedies already mentioned. With regard to the choice of a preparation of digitalis, I believe that the tincture is as efficient as the infusion, and that the apparent superiority of the infusion may very likely lie in the fact (pointed out recently by H. C. Wood) that much stronger doses of the latter are given than of the former. In the present U. S. Pharmacopeia the infusion is made one-tenth the strength of the tincture, while its dose is said in the National Dispensatory to be not ten but twenty-six times larger. If we determine to try the drug in a given case, we should be prepared gradually to push the dose, if necessary, till either benefit or toxic symptoms are produced.

Medical Progress.

REPORT ON PATHOLOGY.

BY JAMES H. WRIGHT, M.D.,
Assistant in Pathology, Harvard Medical School.

THE ETIOLOGY OF THE SUPPURATIVE COMPLICATIONS OF TYPHOID FEVER.

THE question as to whether the typhoid bacillus is the causative agent in the production of the suppurative complications and sequelæ of typhoid fever has given rise to much discussion. Many observers hold to the view that the typhoid bacillus does cause these conditions, or in other words, can produce pus, for in certain cases it is the only organism found in the lesions. On the other hand, many bacteriologists consider, with Baumgarten, that these suppurations are merely the result of infection with the ordinary

pyogenic cocci, as has been demonstrated by a number of investigators, and that in those cases in which the typhoid bacillus has been found, it was present only secondarily, while the true cause of the process, the pus-producing cocci, had accomplished their work and had died out.

To this question there have recently appeared two interesting contributions. One of these is a case of multiple abscess formation in the kidneys in typhoid fever, reported by Flexner,¹ in which the most careful examination of the pus by all known methods failed to reveal the presence of any other organism than the typhoid bacillus. The other, by Dmochowski and Janowski,² is a very exhaustive résumé of the literature of the subject, with an extensive experimental study of the results of inoculation with cultures of the typhoid bacillus.

These investigators have shown, by injecting the typhoid bacillus into the tissues of animals in a great variety of ways, that under certain conditions it is capable of producing suppuration, especially if the resistance of the tissue be diminished, as for instance by subjecting the tissues to the action of a weak emulsion of croton oil.

From a consideration of their work and the work of other observers who have studied this question, it would seem that while the typhoid bacillus may cause the suppurations of typhoid fever in a certain proportion of cases, yet in the majority of cases such processes are simply the result of secondary infection with either the staphylococcus pyogenes aureus or the streptococcus.

RIBBERT'S THEORY OF THE ORIGIN OF CARCINOMA.

In a recent number of *Virchow's Archiv*, Ribbert³ contributes some further observations in support of his theory that the origin of carcinoma is due to a primary new growth of connective tissue, which encroaches upon the epithelium of a part and separates portions of it from their normal relations, so that a growth of masses of epithelial cells arises, under abnormal conditions. In the present paper he devotes particular attention to carcinomata of the alimentary canal, claiming to find in them the same elements of a primary activity of connective-tissue elements of the mucosa as in the epidermoid cancers.

While this theory of Ribbert is plausible and interesting, it cannot be said that the evidence he has adduced in its favor is convincing.

EXPERIMENTAL NEPHRITIS FROM SODIUM CHLORIDE.

Levi⁴ administered to dogs and rabbits by the stomach and hypodermatically daily doses of one to four grammes per kilo of sodium chloride, and examined the kidneys microscopically after varying periods.

After 5 to 15 days there was found "granular necrosis" of the epithelium of the secreting tubules, while in the conducting tubules hyaline and granular casts, rich in nuclear fragments, were seen. The glomeruli also showed swelling and desquamation of their epithelium.

After 22 to 70 days, in dogs, more extensive lesions were present, consisting for the most part of marked "granular necrosis" with almost complete transfor-

¹ Flexner: *Journal of Pathology and Bacteriology*, April, 1895.

² Dmochowski and Janowski: *Beiträge zur pathologischen Anatomie*, E. Ziegler, Bd. xvii, Ht. 2.

³ Ribbert: *Virchow's Archiv*, Bd. cxli, Ht. 1.

⁴ Levi: *Centralblatt für allgemeine Pathologie und pathologische Anatomie*, Bd. vi, Nos. 12, 13.

mation of the secreting tubules, in places, into masses of necrotic detritus. Fatty and hyaline degenerations, together with granular and hyaline casts, were also observed.

In the glomeruli there was fatty degeneration and disappearance of the nuclei of the epithelium, together with more or less fibroid change and capsular thickening. Changes in the interstitial tissue of the kidneys were also observed. These consisted in a proliferation of the connective-tissue nuclei and the appearance of fibroblasts with protoplasmic processes, while numerous aggregations of small round cells of the appearance of lymphoid cells were to be seen, especially in the neighborhood of small veins and glomeruli.

BACTERIA AND THE DIGESTIVE FUNCTIONS.

The presence of bacteria in the intestine has been stated by Pasteur to be necessary for the life of animals, and this view has been widely accepted, it being generally believed that these organisms play a very important rôle in supplementing the action of the digestive juices upon the ingesta.

At a recent meeting of the Physiological Society of Berlin, Nuttall and Thierfelder⁶ reported the result of an experiment which would seem to disprove this idea. A young guinea-pig, obtained by Cæsarean section at term under aseptic precautions, was kept alive and thriving during eight days in a sterile chamber, in which it was fed upon sterilized milk and breathed sterile air. At the expiration of this period, the animal, which was well nourished and healthy, was killed and a careful bacteriological examination of its intestine was made. This examination showed that the contents of its alimentary canal were free from bacteria, thus proving conclusively that an animal can live and thrive without the aid of bacteria in carrying on its digestive functions.

The many difficulties in the way of the successful execution of this experiment were overcome in a most ingenious manner, through the peculiarities of construction of the sterile chamber.

RHABDOMYOMA OF THE SCIATIC NERVE.

At the autopsy of an adult woman with congenital dislocation of the right hip and atrophy of the right leg, Orlandi,⁶ found two fusiform enlargements, about 14 and 16 cm. in circumference in the course of the sciatic nerve; one situated at its junction with the sacral plexus, the other near the popliteal space.

There was no history of pain along the course of the nerve, and the existence of the tumors was not suspected during life.

Microscopic examination showed that the tumors were rhabdomyomata, since they consisted essentially of striated muscle fibres, sometimes very atypical in character, intermixed with fibres of connective tissue together with normal and degenerated nerve fibres. Orlandi regards these growths as originating in an embryotic displacement of certain of the muscular elements, destined for the leg, in accordance with the theory of Cohnheim. In support of this view he calls attention to the close relation in development between the nerve trunks of the leg and the muscles. These tumors, therefore, are very closely allied to the teratomata.

This case is apparently the only one recorded in literature in which a rhabdomyoma developing in a human nerve has been observed. Pure rhabdomyomata are rather rare, occurring most commonly in the myocardium, while in the mixed tumors of the genito-urinary system striated muscle fibres are not infrequently present.

THE PATHOLOGICAL HISTOLOGY OF RABIES.

Germano and Capobianco⁷ have studied the spinal cords of dogs and rabbits dead of rabies. The gross lesions consist of hyperemia of the meninges, and more or less congestion and points of hemorrhage in the substance of the cord in areas having no definite distribution. On microscopic examination of these areas there are observed marked infiltration with leucocytes along the perivascular spaces and around nerve cells, while the endothelium of the vessels proliferates. The nerve cells undergo atrophy and vacuolation, leaving open spaces in the gray matter. The nerve fibres show varicosity and vacuolation of the axis cylinder, with degeneration of the myelin sheath. The neuroglia increases in amount with augmentation in the number of its nuclei and thickening of its fibres. The process, as a whole, consists in an acute inflammation of the cord tending to the destruction of the nervous elements and resulting in a hyperplasia of the neuroglia to replace them. This hyperplasia of the neuroglia, in turn, also seems to cause the destruction of nerve cells and fibres by compression.

THE LESIONS OF EXPERIMENTAL DIPHTHERITIC PARALYSIS.

Investigators are by no means in agreement with regard to the pathology of diphtheritic paralysis. Some have observed a peripheral neuritis, others lesions in the spinal cord, while still others have failed to find any lesion either in the central or peripheral nervous system.

Crocq⁸ has induced paralysis in rabbits with cultures of the bacillus diphtheriæ, and also with the toxine of diphtheria, and has studied the nervous system histologically. His results show that in the experimental diphtheritic paralysis of rabbits there occur lesions both of the spinal cord and of the peripheral nerves, the medulla and cranial nerves not being affected, however.

In the cord these lesions consist, at first, in enlargement and loss of staining power of the nerve cells, with disappearance of their processes; then proliferation of the neuroglia cells with atrophy and disappearance of nerve cells and then replacement by sclerotic tissue. The white substance is only exceptionally changed.

In the nerves, there is observed segmentation of the myelin, multiplication of nuclei and fragmentation of the axis cylinders. Later, the myelin becomes reduced into globules, the axis cylinder disappears, while nuclei become more and more numerous. Finally, the myelin is absorbed. This degeneration is most marked in the anterior roots, while the posterior roots are not affected.

Crocq believes that in the rabbit the diphtheritic paralysis is essentially a primary myelitis with secondary peripheral neuritis. In man, however, he

⁶ Nuttall and Thierfelder: *Verhandl. d. Physiolog. Gesellsch. zu Berlin*, June 14, 1895.

⁶ Orlandi: *Archivio per le Scienze Mediche*, vol. xix, Fas. 20.

⁷ Germano and Capobianco: *Annals de l'Inst. Pasteur*, ix, No. 8.

⁸ Crocq: *Archives de Med. Exper. et d'Anat. Path.*, July 1, 1895.

considers that the diphtheria poison only rarely produces such central lesions with secondary lesions in the nerves, but that the most usual form of paralysis in human diphtheria is due to primary peripheral neuritis.

Reports of Societies.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

NINTH ANNUAL MEETING, NIAGARA FALLS, MAY 28 AND 29, 1895.

FIRST DAY. — TUESDAY.

THE President, DR. L. BOLTON BANGS, read a paper on

TUBERCULOSIS AND NEOPLASMS OF THE BLADDER: SURGERY OR HYGIENE?

The author first reported three cases of tuberculosis of the bladder, which he stated were typical of many, and in which hygienic treatment was followed by very beneficial results. Vitalization of tissue is what these patients need, and they require at least two years of good hygienic residence in a temperate climate; besides climate, they need occupation, for *ennui* seems to be almost as deteriorating as confinement to the house. Surgical traumatism produced by over-zealous efforts to relieve local symptoms seems to result in more harm than good. Such efforts are apt to put the unhappy patient still further below par, and facilitate the development of other tubercular foci either in the same organ or in one more distant. It is not necessary, the speaker said, to enter into the question whether the infection is an "ascending" or a "descending" one: the bacilli are in the individual's blood, and they only await a local congestion (following some form of irritation) in order to lodge and proliferate.

After faithful and zealous efforts to relieve by surgical interference the local symptoms of these cases, he has been forced to the conclusion that the less instrumentation we resort to the better. In the genito-urinary tract, as elsewhere, the best defence of the tissues against the inroads of the bacilli, and that which finally effects a cure, is to be attained only by enabling the body to surround the tubercular deposits with a layer of healthy connective tissue. He expressed the opinion that this can be done in no other way than by improving the quality and resisting power of the individual.

Dr. Bangs next referred to a class of cases, in strong contrast to the foregoing, but in which the possibility of a cure also depends upon their early discovery, namely, malignant disease of the bladder. Unfortunately, in these cases, many of the early symptoms are overlooked, or, if appreciated, are misunderstood. The patients themselves, because of the insidious onset of the disease, become accustomed to their first symptoms and usually do not seek the advice of their medical attendant until the affection is well advanced. The speaker then reported three cases of malignant disease of the bladder, and stated that he contrasted these two groups in order to present for discussion the points (1) that incipient cases of tuberculosis of the bladder should be subjected to hygienic rather than surgical treatment, and (2) that in the incipient stages

of vesical neoplasms, early surgical treatment of the most radical kind should be instituted.

DR. JOHN P. BRYSON, of St. Louis, said, he is entirely in accord with the statements made by Dr. Bangs regarding the treatment of these tubercular cases. In tubercular cystitis, perineal drainage is not to be recommended. In two of his cases the perineal wound became infected, and never healed. The suprapubic route is altogether to be preferred when drainage is to be resorted to at all in these cases. An early diagnosis is of the utmost importance, and is possible, perhaps, earlier than was intimated in the paper. Careful examination of the prostatic urethra by means of the finger in the rectum and repeated searches for the bacilli in the urinary sediments will help us. When a suprapubic incision is deemed necessary, experience has led him to make the opening as high up and as far away from the vesical outlet as possible, so as to have a direct drainage channel and keep the tube away from the vesical outlet, which is the most sensitive part of the bladder.

In cases of vesical neoplasms, frequently the symptoms come on late. If the new growth is situated towards the fundus, or at any considerable distance away from the vesical outlet, there is no reason in the world why we should get any symptoms of its existence for a considerable length of time, and the first symptom is apt to be hemorrhage. The speaker said he is not so optimistic as the reader of the paper regarding the benefit to be derived from early operation in cases of neoplasms of the bladder. He has never yet seen a case of papilloma of the bladder, supposed to be benign, which did not prove to be malignant and destroy the life of the patient.

DR. GARDNER W. ALLEN, of Boston, reported a case of tuberculosis of the bladder, with very pronounced symptoms, which was cured by hygienic treatment.

DR. BRANSFORD LEWIS, of St. Louis, reported a case of tubercular cystitis in a farmer from Kansas. The patient came to St. Louis, and there, under supporting treatment, rest, and creasote and cod-liver oil internally, the urine, which had been cloudy for three years, cleared up, and the man gained about twenty pounds in weight in three months.

DR. BRYSON said that in these cases he has derived much benefit from the use of the simple hypophosphites. Cod-liver oil has not been particularly serviceable. He has seen no benefit from the malt preparations, and creasote has not in any way helped his patients. In the early stages of the disease, he has seen the frequency of urination relieved by the internal administration of the oil of yellow sandalwood.

DR. EUGENE FULLER, of New York, said he agreed with Dr. Bangs that hygiene is the most important factor in the treatment of these cases. Alcohol, in some form, is often of service.

DR. GEORGE CHISMORE, of San Francisco, expressed the opinion that the pain complained of by these patients is very frequently due to the methods of search employed in endeavoring to discover the cause of the trouble. As a routine treatment, washing of the bladder is not to be recommended, particularly in tubercular cases. He agreed with Dr. Bryson that early operation in cases of malignant growths of the bladder does not always effect a permanent cure.

DR. BANGS, in closing the discussion, said that while he is willing to admit that the cure of malignant

disease of the bladder is still a problem, the success he has obtained in operating upon cases of so-called papilloma of the bladder warrants him in expressing the belief that such cases are curable by early operative interference.

HEMATURIA.

DR. WILLIAM K. OTIS, of New York, read a paper on this subject. After detailing a number of chemical tests to demonstrate the presence of blood in the urine, the author stated that the actual presence of blood may also be determined by the use of the spectroscope; microscopes having a spectroscopic eye-piece are especially adapted for this purpose. When the existence of hematuria has been definitely determined, the next important step is to ascertain, as accurately as possible, in what portion of the urinary tract the lesion from which the hemorrhage emanates is situated. When it is located in the anterior urethra, between the meatus and the compressor urethræ muscle, if the blood is sufficient in amount it will exude from the meatus, or may be pressed out by stripping the urethra with the finger. If the urine is passed in two portions, the first only will contain blood. When the hemorrhage is situated in the posterior urethra, between the compressor urethræ muscle and the internal sphincter of the bladder, blood will not exude from the meatus, and if it is sufficiently large in amount, the pressure will overcome the lesser resistance of the internal sphincter, and the blood will flow back into the bladder, making it difficult to decide whether its source is from the bladder or from the posterior urethra. In most of the cases where the bleeding comes from the posterior urethra there is considerable urgency in urination, although occasionally this symptom is absent.

If the point of hemorrhage is situated within the bladder, the entire urine therein contained will be intimately mixed with blood; and if the hemorrhage is profuse, clots may form which have a certain diagnostic significance if they are too large to have passed through the ureters. Some authors consider the color of the urine an indication of the origin of the hemorrhage; but this varies so greatly under different conditions that it is unreliable, and is of but little value in arriving at a diagnosis. Microscopic examinations of the urine may show evidence of the presence of some new growth in the bladder; on the other hand, the detection of casts containing blood-corpuscles indicates that the lesion exists in the kidney.

Should the examination of the urine fail to locate the source of the hemorrhage, we may proceed to the direct examination of the bladder itself by carefully washing out the organ through a woven catheter by means of a hand syringe, and then inject a few ounces of clear fluid and withdraw the catheter just far enough to prevent the fluid from escaping; after a few moments the catheter is re-introduced, and if the fluid returns mixed with blood, the hemorrhage is probably vesical in origin.

The resorption test, made by introducing a solution of potassium iodide into the bladder and shortly afterwards testing the saliva for free iodine is also extremely valuable and satisfactory for the purpose of determining if a lesion exists within the bladder. When the bladder is the seat of a new growth, its presence may sometimes be determined by bimanual palpation with one finger in the rectum, or by examination with an ordinary searcher or sound.

The value of an examination with the electro-cystoscope in cases of hematuria in which the diagnosis is difficult can scarcely be overestimated. By its aid we are enabled not only to locate with exactness the portion of the bladder from which the hemorrhage emanates, but also to determine the cause and extent of the lesion. The instrument is especially valuable in making a correct diagnosis in renal hemorrhage, for by its aid we are able to ascertain not only that the blood is derived from the kidney, but also to tell definitely on which side the affected organ is situated.

In locating hemorrhage from the kidney, the clinical symptoms, physical signs and previous history of the patient are usually of great value, although hemorrhages occasionally occur without the slightest warning, and without other symptoms. As a rule, however, symptoms are present which point to the kidney as the seat of the difficulty. Lastly, if for any reason it is impossible to locate the lesion, and at the same time the bladder appears to be its most probable seat, it is perfectly allowable to perform an exploratory suprapubic section, especially if the hemorrhage is severe or has been of long duration.

DR. W. F. GLENN, of Nashville, said that by means of the Leiter cystoscope and the Otis urethroscope we can often make out with certainty whether the source of the bleeding is the urethra, bladder or kidney.

DR. BRYSON said that while he is inclined to agree with the statement made by Dr. Glenn, we still need an instrument which will enable us to get a good view of the vesical outlet. The speaker called attention to the possibility of determining the source of pyuria, when it is unilateral and of renal origin, by means of the cystoscope. He has catheterized the ureters in the female, and regards it as a very uncertain procedure, at least, in his hands. When properly and skilfully used, there is probably no instrument which affords the same amount of diagnostic advantage as the cystoscope. To use the instrument well requires long practice, and the photographs of cystoscopic views which are now accessible are among the very best aids we have in studying the vesical interior.

DR. EDWARD R. PALMER, of Louisville, said he has had no trouble in getting a view of the bladder neck, for which purpose he employs a long Klotz tube (No. 24-26) and the Otis instrument lamp.

DR. ABNER POST, of Boston, referred to two cases of carcinoma of the kidney recently coming under his observation, in which some very interesting casts of the ureter were seen. In one case there were a large number of very short casts, while in the other there was one continuous cast over five feet in length.

DR. R. W. TAYLOR asked Dr. Palmer whether he has not found that the introduction of such large instruments into the posterior urethra is apt to give rise to epididymitis?

DR. PALMER replied that he has never seen any untoward results follow the introduction of the long Klotz tube.

DR. OTIS, in closing the discussion, said that while the cystoscope is of great value in detecting the source of hemorrhage from the genito-urinary tract, there are certain cases in which it cannot be used because of the free bleeding, or when the bladder is very small. He agreed with the statement made by Dr. Bryson that in cystoscopy we are not able to get a good view of the internal urethral orifice.

GONORRHEA IN THE FEMALE.

DR. R. W. TAYLOR, of New York, read a paper on this subject. He stated that gonorrhea in the female is certainly much less frequent than it is in the male, and usually runs a much less definite course. In the main, it localizes itself in one or two parts, runs an acute course, becomes subacute and ceases. In many cases it begins and remains in a subacute condition for a considerable or a long time. Then again, in some cases, it progressively invades the genital tract.

Having become lodged in the cervix uteri, it may extend to the body of that organ, attack the tubes and ovaries and then the peritoneum. Patients thus affected are usually sterile, they suffer intense discomfort and pain, and their health is impaired until they may become mental and physical wrecks. These sad results certainly do occur in a relatively quite large number of cases. Instances are not infrequent in which wives are infected with gonorrhea by their husbands, who perhaps regard themselves as cured. It is very difficult and even impossible to get reliable statistics as to the frequency of the occurrence of acute gonorrhea in women. It, of course, exists largely in prostitutes, particularly in quite young ones, and those of the lower walks of life; and it is not uncommon in shop-girls and others who, for various reasons, leave their homes and cease to be under parental and family restraint. In the light of recent investigations and studies, it is clearly proven that in women over twenty years of age, the urethra and the cervix uteri are the parts most commonly attacked by gonorrhea. There can be no doubt of the existence of a true gonorrheal infection of the vulva, but it is not very common. It is sometimes met with in young girls between fifteen and twenty years of age, usually as a result of their first infection, and in their earlier attempts at intercourse. Although the existence of gonorrheal vaginitis has been denied, there can be no doubt that in a restricted number of cases, gonorrhea primarily attacking this tube does occur. It is also not infrequently infected by the gonorrheal secretion from the os uteri.

Gonorrhea in women, as in men, consists of an exudative inflammation of the submucous connective tissue, and the genital organs of women are so extensive, complex and involuted, and so profusely supplied by blood-vessels, which frequently undergo normal engorgement, that it can readily be understood why the morbid process may show a tendency to become chronic.

There has been a tendency developed within the past ten years to refer, in a loose and unscientific manner, all female ailments to gonorrhea, and attribute to many husbands who in earlier days had gonorrhea a gonorrheal infection of their wives, which produces serious consequences. The extreme and exaggerated views of Noeggerath, who claimed that eight hundred out of every one thousand men living in large cities suffered from gonorrhea, which they never recovered from, and who, on marrying, sooner or later infected their wives, have done much to perpetuate these ideas.

There is a tendency nowadays to harp upon the longevity of the gonococcus, its Phoenix-like power of resuscitation, and its relentless virulence. This idea, put forth by some syphilographers, has had undue weight upon many gynecologists, who, under its influence, are led to think that the gonococcus in the

male and female never dies, and that it is ever ready to produce pelvic mischief. Dr. Taylor said he has seen many young women who have suffered from uterine and pelvic disease after marriage, whose trouble was induced by instrumental manipulation at the hands of energetic young men, possessed of an ambition to be known as gynecologists. Minor surgery is certainly the cause of many cases of uterine and pelvic disease. In estimating the importance of gonorrheal infection, as a cause of female trouble, we must individualize rather than generalize.

DR. PALMER said it has been stated, and correctly so, that in these cases of diseased tubes, of long standing, and containing large quantities of stagnant pus, the latter very frequently fails to show the presence of gonococci. On making a section of the structure of the tube itself, however, the gonococci will be found living in the stroma. It possesses a tendency to burrow underneath the surface. In one case of mono-cryptorchidism coming under his observation there was a gonorrheal infection of the incarcerated testicle, which became so painful that it had to be removed at the height of the inflammation. The gonococci were found in the intimate structures of this organ, which was of course rudimentary.

DR. GLENN expressed the opinion that the gonococcus, unless it becomes imbedded in the mucous membrane, is not a difficult micro-organism to kill.

DR. BRANSFORD LEWIS, of St. Louis, said the experiments of Wertheim have clearly shown the penetrative power of the gonococci.

(To be continued.)

Recent Literature.

The Pocket Materia Medica and Therapeutics. A Résumé of the Action and Doses of all Official and Non-Official Drugs now in Common Use. By C. HENRI LEONARD, A.M., M.D., Professor of the Medical and Surgical Diseases of Women and of Clinical Gynecology, Detroit College of Medicine, etc. Second edition, revised and enlarged. Detroit, Mich.: The Illustrated Medical Journal Co. 1895.

In the preface of this book the author states, "while it is impossible to have a work upon this subject wholly original, the author does claim originality in the arrangement of the matter and its method of treatment." The arrangement of the drugs described is an alphabetical one and whatever originality is exhibited in the method of treatment is not worthy of commendation. The accounts of the crude drugs are too brief to be of much value; and under the head of "uses" is given merely a list of the diseases in which the drugs may be administered.

The Year-Book of Treatment for 1895. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co. 1895.

This yearly visitor now appears for the eleventh time. The brief abstracts from current medical literature of which it is made up differ widely in value; but few practitioners can look it through without finding among its manifold suggestions some practical and useful ones.

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SYPHILIS AS DESCRIBED AND TREATED BY THE CHINESE.

ACCORDING to Mar'hadour,¹ physician of the Marine, who claims extensive acquaintance with Chinese medicine, syphilis in all its essential features was known and described by the Chinese medical writers 2,637 years B. C. Hoang-Ty wrote of the pox and its connection with the initial chancre in terms which in plainness and accuracy are not surpassed in any of the modern works. Not only this, but he understood and taught the mercurial treatment of this disease. This, if true, is another illustration of the proverb that "the thing which is now hath been, and there is nothing new under the sun."

Tim là Thiên Phao is the name of the acute malignant form "which bursts forth suddenly with violence, is febrile, rapid in its development, with the characters of a generalized infection at the onset." This form, "rare among us," is still "very common in Tonkin." The Annamite (Chinese) physicians class the accidents of syphilis as primary and tardy (secondary), and describe accurately the larvated visceral forms, and the strict relations between syphilis and certain nervous affections. Mercury is vigorously given in cerebral syphilis. Hereditary syphilis was known to the old writers, and the treatment was not materially different from that of the present day. Mercury is the basis of the Annamite treatment, and has been used "from fabulously remote periods." The pill form is much in vogue; pills of metallic mercury, of cinnabar, of the red oxide. Mercury is not the only metal employed; in the grave forms it is associated with arsenious oxide, with sulphate of copper, and in the cerebral forms with zinc. The mercury in the pills is combined with and masked by various aromatic resins, musk, camphor, etc. A favorite pill, which may be compared to the famous pill of Barberousse, consists of metallic mercury, with musk, camphor, canella, pine resin, and alum. Fumigations are used in the grave forms. The

formula of these fumigations is as follows (only the ingredients being given): metallic mercury, red oxide of mercury, cinnabar, camphor, and nitrate of potash. The whole, reduced to fine powder, is rolled in a paper in the form of a cigarette, and four centimetres of this paper are burned per day. The patient is placed under a sheet forming a tent and absorbs the medicinal vapors by the lungs and skin. We have seen more than one imitation of this kind of treatment the past twenty-five years. To prevent salivation, the Annamite patient before going into the tent fills his mouth with water which he holds there during the entire fumigation, breathing through his nose. When the treatment is by mercurial pills, frictions of mercurial ointment are used at the same time.

In the cutaneous accidents in ulcerous wounds and gummata, an emplastrum resembling the *emplastrum Vigo* is employed; it consists of red oxide of mercury, pine resin, ferruginous argile, fish scales and oil.

Gum guaiacum was formerly used among the Chinese as among Europeans as a specific in syphilis.

The iodides are given in syphilis in their natural combinations. The Annamite pharmacopœia prescribes the *Hai-Dai*, a species of ulva, the *Hai-tao*, a fucus, and a laminaria; with these are associated the bones of the cuttle-fish, and indigo. The whole, reduced to powder, is taken in an aromatic infusion with bitter orange peel. This is really a treatment by the iodides in their combinations in nature.

The writer in the *Bulletin* intimates that the mercurial treatment of syphilis was borrowed from the Chinese by the Arabs and first introduced by them into Europe.

He gives an account of the treatment of syphilis among the rich. A hen is fed for several days on rice-pellets containing red oxide of mercury, ferruginous argile, and metallic mercury. The fowl is then killed, and a broth is made of its flesh and eaten by the patient. The bones, the entrails and the feathers are placed on burning coals and burned; the patient breathes the fumes. . . . The mercury fixes itself in the tissues before being eliminated; it sojourns there under the form of chlorides and of peptonates, and has been found in the liver and other viscera. According to certain European authors, the metal has been found in a pure state in the bones: "*Dissecto cadavere, circa juncturas, guttula tremula hydrargyri inuenta sunt*" (Tisitanus). This method bears some resemblance to that of Roussin, who caused hens to ingest salts of iodine and bromine that they might lay medicinal eggs.

From the above account, it will be seen that there is some reason for considering the Annamites as the inventors of the peptonates of mercury!

On reading Mar'hadour's article, we are reminded of the fact that Jourdan, Rosenbaum, and Cazenove some years ago wrote learnedly to prove that syphilis existed not only before the fifteenth century, but among the Greeks and Romans, and if we do not find any specific doctrinal statement to this effect in the

¹ Bulletin général de Thérapeutique, September 30, 1895, p. 287.

classic writings, we do find mention of nearly all of the multiple symptoms which characterize this disease in its different stages from the primary chancre and the bubo to the secondary and tertiary (cutaneous, mucous, osseous and other) lesions. Hence, it is argued, the disease existed, though it was not understood and classified: "*De nominibus non est curandum cum res ipsa nota fuit.*"

Edmond Dupuy has recently written a book to the same purport, in which he has amassed in one bulky volume all those expurgated portions of the later classical writers which do not appear in ordinary copies, the result being an *omnium gatherum* of filth. Despite all these learned efforts, it does not yet appear that syphilis was known in antiquity to any branches of the great Aryan family as it was known to the Chinese, if we may believe the writer in the *Bulletin de Thérapeutique* from whom we have quoted.

THYROIDISMUS.

It is now two years since attention was called in English medical journals to certain unpleasant symptoms which often occurred after a course of thyroid feeding; to these symptoms—the principal of which were palpitation, headache, dizziness, nausea, vomiting, conditions of excitement followed by collapse, etc.,—the term thyroidismus has been applied.

Dr. Otto Lanz publishes¹ an account of interesting experimental studies which he has carried out with regard to this subject.

Lanz's attention was attracted to the study of these cases by the suggestive observation which he made, both in Kocher's clinic and in private practice, that the glycerine extract of the thyroid gland furnished by a certain English drug firm did not produce the symptoms, while a severe grade of thyroidismus, so called, was produced by the administration, even for a day or two, of four grammes of the English thyroid tablets.

He concluded, therefore, that the thyroidismus was a specific result of the administration of thyroidin, and that the glycerine extract by its method of preparation was deprived of these properties, or that, on the other hand, the English tablets were not made up from entirely fresh thyroids, and that therefore the thyroidismus was not so much a specific result of the administration of the thyroid gland, as an intoxication from the absorption of products of decomposition. He was led to favor this latter view by the observation that fresh thyroid gland exposed to the air underwent decomposition much more rapidly than ordinary meat, in fact within twenty-four hours gave off a strong odor of decomposition. From these considerations he was led to infer that after all, thyroidismus might be nothing more nor less than a kind of "sausage poisoning."

On experimental trial of the question, mice being

the animals employed, it was found that mice fed on thyroid tablets (Merck's and the English preparations) died with symptoms of thyroid intoxication, before the total amount taken had amounted to one gramme, while mice fed on fresh thyroids survived often until fifty grammes had been taken. These experiments serve at least to show that ptomaine poisoning probably often plays an important part in the production of thyroidismus; but since the symptoms and death of the animals finally resulted from the administration of fresh thyroids, the whole symptom complex cannot be referred to this cause. The condition called thyroidismus is a complex of symptoms due to the ingestion of thyroid gland (true thyroidismus) and of poisoning from the absorption of products of decomposition. The glycerine extract of fresh thyroids did not produce the symptoms with the same rapidity and severity as the thyroid tablets, but corresponded in its effects to the fresh thyroids.

A corresponding result followed a clinical comparison of the methods of administering thyroids to goitrous patients in Kocher's clinic, namely, that the thyroid tablets produced intoxication symptoms with much greater rapidity and severity than the glycerine-extract or fresh thyroids.

Further interesting experimental evidence is given in the paper, showing that in dogs and guinea-pigs, the administration of thyroids produces atrophy of the thyroid gland, and that the toxic principle, the thyroidismus, can apparently be transmitted either through the placental circulation or the milk from the mother to the young. This was shown in the case of female guinea-pigs who gave birth to litters while undergoing thyroid feeding. The young were apparently normal at birth, but failed to develop as fast as other guinea-pigs of the same age, were thinner than the control animals, and showed stiffness of the hinder extremities.

Lanz sums up his paper as follows:

- (1) Thyroidismus is due to two component causes:
 - (a) a poisoning from the absorption of putrid material,
 - (b) a specific effect of the thyroid gland *per se*.
- (2) The latter effect, the true thyroidismus, or as it is better named, hyperthyrosis, varies in intensity according to the dose and method of preparation of the thyroid material, and according to the species and resisting power of the animal experimented upon.
- (3) The toxic principle which produces thyroidismus is capable of communication either by the placental circulation or the milk from a mother to her young.

ON THE TRANSMISSION OF SCARLATINA BY THE INTERMEDIATION OF A LETTER.

GRASSET,¹ relates a case of scarlatina transmitted by letter. The patient was a little girl aged nine years, living with her grandmother, some distance from her paternal home. No case of scarlatina had been before noted for many years in that locality.

¹ Deutsche med. Woch., September 12, 1895.

¹ Annales d'Hygiène Publique, August, 1895.

The little girl during the period of desquamation wrote a letter to her parents, and as the peeling was abundant, she enclosed several of the epidermic scales in the letter. The letter after having been read by the father and mother was handled by the little brother, aged two years, who, six days and a half to seven days afterwards came down with scarlet fever.

This case resembles that recorded by Sanné. A woman and her daughter inhabiting Bretagne received from Germany a letter in which the writer announced that she had just had scarlet fever, and that she was desquamating so profusely that in writing she had been obliged to shake the paper several times to remove the scales which had fallen upon it. Several days afterward the mother and daughter were taken down with the scarlet fever; the mother succumbed, and the daughter got well.

The transmission of scarlet fever by books is also possible, and this intermediary of contagion must always be borne in mind in speculating as to the mode of origin of obscure cases. Dr. Fox (on the authority of *La Semaine Médicale*, 1889, page 94), having observed three cases of scarlet fever in a house, was led to suspect a book loaned from a public library as being the medium of contagion. An investigation showed that this book had been loaned a little while before to a family in which there had been a case of scarlet fever, and had been read during convalescence by the sick person.

MEDICAL NOTES.

PICRIC ACID FOR BURNS.—It is stated that at the Hôpital de la Charité in Paris the usual treatment of burns has been superseded by the use of picric acid as a lotion, in aqueous solution of about five grammes to the ounce. Its virtues are said to have been accidentally discovered by a medical student, and the application not only affords immediate relief from pain but hastens the healing very much.

THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.—Welch (*Bulletin of the Johns Hopkins Hospital*, vol. vi, Nos. 52, 53, p. 97) has collected from all accessible sources 7,166 cases of diphtheria treated with the antitoxin, showing a mortality of 17.3 per cent., as compared with an estimated mortality of 42.1 in cases treated previously or simultaneously without the antitoxin. In 648 cases treated with the antitoxin in which tracheotomy was performed the mortality was 39.8 per cent.; in 342 in which intubation was practised the mortality was 28.9 per cent.; in 26 in which intubation was followed by tracheotomy the mortality was 53.8 per cent.; in 211 cases in which it is not stated whether tracheotomy or intubation was practised the mortality was 40.2 per cent. The estimated mortality in cases treated simultaneously or previously without the antitoxin was 64.5 per cent. after tracheotomy and 62.4 per cent. after intubation.

A DEATH FROM MURPHY'S BUTTON.—At a recent meeting of the New York Surgical Society, Dr. Abbe

presented a specimen from a case of strangulated hernia, in which five inches of gangrenous bowel had been resected, and an anastomosis effected by Murphy's button. The patient died forty-eight hours after the operation, and it was found at a second operation performed shortly before his death that the weight of the button had caused it to gravitate to the bottom of the pelvis, and caused a sharp kink at the site of the anastomosis. Dr. Rushmore thought that the gut must have been paralyzed by the obstruction or the muscular coat would have been able to force the contents through the lumen of the button and straighten out the kink.

CONTRACTION OF THE LUMEN OF THE INTESTINE AFTER ANASTOMOSIS BY MURPHY'S BUTTON.—Parkhill, of Denver, Col., reports in the *Medical News* of October 12th, a case in which entero-colostomy was performed for the exclusion of a cecum and ascending colon which were riddled with fecal fistulæ as a result of appendicitis, the largest size Murphy button being employed. Three months later an operation was done for the excision of the diseased cecum, at which the finger was passed into the colon, and the opening at the site of the anastomosis was found to be so small as to barely admit the tip of the index finger as far as the base of the nail. The circumference of the finger at that point was two inches, while that of the button which had been employed was three and a quarter inches. This is believed to be the first time the amount of contraction of the lumen after the anastomosis by Murphy's button, has been measured on the living subject, and the question whether such contraction will continue, is an interesting one. The writer says that contraction or no contraction the anastomosis by the Murphy button was the correct procedure in this case, as the patient's condition precluded any more time-consuming method. This case was undoubtedly one of that class to which, according to the opinion expressed in our editorial of October 3d, the use of the Murphy button should be restricted, namely, "those cases in which it is necessary to hasten in order that the patient may survive the shock of the operation."

NEW ANATOMY LAW IN WISCONSIN.—Section 1,437, of chapter 58, of the annotated statutes of Wisconsin, was amended by the last legislature so that every public officer having charge of the body of any deceased person, required to be buried at the public expense, not merely "may," but "shall without charge," deliver such body to that member or agent of the State or any county medical society, or of any legally organized medical college who shall first present to him an order therefor, signed by the president or secretary thereof, "stating" that such body will be used only for the promotion of anatomic science within the State, and that the remains shall be afterward decently buried without public charge. But, as heretofore, no body of any person who in his last sickness requests to be buried, or of any stranger or traveller who shall have suddenly died, shall be so disposed of.

And no person so having charge of any such body, it is added, shall sell or deliver the same to any one to be used for scientific or any other purposes outside of the State of Wisconsin. Any officer or other person violating any of the provisions of this act shall be liable to the person, society or corporation aggrieved in the sum of \$50 damages, to be recovered in an action therefor.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, October 16, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 92, scarlet fever 38, measles 1, typhoid fever 45.

BOARD OF HEALTH OF PORTLAND, ME.—The following rules and regulations have been adopted by the Portland, Me., Board of Health for the disinfection of houses wherein persons have been quarantined for infectious diseases.

(1) Wherever diphtheria or scarlet fever is found in a family, no child or other member of the household shall leave the premises except by special permit of the Board of Health.

(2) All clothing used by the patient during sickness should be put into a box, nailed up, taken away and burned in the box.

(3) The clothing of the attendant, bed-linen, towels, blankets, handkerchiefs, used during sickness, should, before removal from the room, be placed in a tub or pail containing one pound of chloride of lime to four gallons of water, and allowed to remain therein two or three hours, then taken to the wash room and boiled for two hours.

(4) The mattress should be burned or thoroughly sponged in solution A.

(5) All pillows should be burned.

(6) If the carpet is left on the floor of the sick room, it should be burned or sponged with solution A.

(7) The bedstead, furniture, woodwork and floor should be washed with solution A.

(8) All pictures in the room, papered or tinted walls, should be rubbed thoroughly with bread, and the walls when painted should be washed with solution A.

(9) All other rooms of the house, closets and contents, should be thoroughly dusted and cleansed and then fumigated, by first making the air moist with steam and then burning one sulphur candle in each room.

(10) Before any members of the family quarantined will be allowed to go in public, they must take a bath and thoroughly wash their hair.

NOMINATION OF DR. JULIAN A. MEAD.—Dr. Julian A. Mead, of Watertown, has been nominated by Governor Greenhalge for the position of Member of the State Board of Health of Massachusetts.

THE LYMAN PRIZE.—Notice has been sent to prospective competitors that essays offered in competition for the Lyman Prize for this year must be in the hands of the Secretary of the City Hospital Club, Dr. Paul Thorndike, 80 Marlborough Street, Boston, before January 15, 1896.

THE PERKINS INSTITUTION FOR THE BLIND.—According to the report of the trustees of the Perkins Institution and Massachusetts School for the Blind, which was read at the annual meeting of the corporation yesterday afternoon, there are 155 pupils in the school and 64 in the kindergarten, an increase of seven in the one case and five in the other, over the

number for last year. There are 14 workmen in the shop, and 13 blind teachers in all departments. The present post-graduate course of instruction stops about three years short of that given in the Latin School, and in other schools preparatory for college. Steps have been taken to carry instruction further, and eventually to cover, first, the requirements for admission to the best American colleges; second, further instruction in the higher branches of music; third, commercial laws and the subjects taught in the business colleges.

BEQUESTS TO CHARITABLE INSTITUTIONS.—By the will of the late Colonel William Leverett Chase, of Brookline, on the death of certain legatees the sum of \$10,000 is left to the Massachusetts General Hospital. In a codicil, executed July 20, 1895, the testator bequeathes \$5,000 to the president and fellows of Harvard College to establish a scholarship in the Medical School, to be known as the C. B. Porter scholarship, and to the Massachusetts General Hospital, \$5,000 to establish a free bed, to be known as the C. B. Porter free bed.

DECREASE IN MORTALITY IN BOSTON.—The returns of the Boston Board of Health for the month of September, 1895, show, in comparison with last year, a marked increase in the number of cases reported, and at the same time a marked decrease in the mortality. The figures with regard to diphtheria are especially striking. During the month 345 cases of diphtheria were reported, but out of this large number there were but 51 deaths, an average of about 15 per cent. For the corresponding month of last year there were only 250 cases reported, but out of that number 71, or about 30 per cent., died. The decrease is believed to be due to two causes: first, the early notification of cases by the physicians who inspect the school children; second, the use of antitoxin. The excellent facilities for treatment afforded by the new contagious hospital may also have played a part. One of the inspectors recently found in a certain school within a few days five children suffering from diphtheria. The privy vaults at the school were found in an unhealthy condition, and the school board notified that if the matter was not attended to the school would be closed. During the month there were 226 cases of typhoid fever reported, as against 196 for the corresponding month of a year ago, an increase of 30, but the deaths for the first named month were but 28, as against 30 for September of last year. The increase in typhoid fever is coincident with the low condition of many sources of water-supply, due to the drought. Owing to the extremely hot weather during the last of the month the infant mortality rose to a marked degree, as evidenced by the fact that there were 131 deaths from cholera infantum, as compared with 89 for the preceding year.

NEW YORK.

A DEATH FROM NITROUS OXIDE.—Mrs. Flora Joseph, forty-two years of age, died on October 5th, under the influence of nitrous oxide gas in a dentist's

chair in East 86th Street. Artificial respiration, the hypodermic use of whiskey and strychnia, and other appropriate measures were promptly resorted to, but without result.

"FRONT" AND "REAR" MORTALITY.—An examination of the mortality in the tenement districts of the city shows a marked difference between the death-rate of the front and that of the rear houses. According to figures recently published, the Thirteenth Ward presents a "front" mortality of only 20.76 per thousand annually, while the rate is 25.75 in the rear houses. In the Seventeenth Ward there is a difference of about 20 per cent. in front and rear deaths per thousand; while in the First Ward it runs up to over 100 per cent. (29.03 per thousand in the front and 61.97 in the rear). The difference in the death-rate among children under five years of age is even more marked. In the Thirteenth Ward it is 25 per cent., and in the Ninth about 40, while in the First Ward the mortality is 109.58 front to 208.54 rear.

THE FIRST BOTANIC GARDEN IN NEW YORK.—In connection with the great botanic garden about being established in Bronx Park it is of interest to recall that the first botanic garden in New York was founded in 1801 by Dr. Hosack, who was one of the leading promoters of science of his time. A writer in the current number of the *Popular Science Monthly* states that the Elgin Botanic Garden, which Dr. Hosack established at his own individual expense, was situated about three miles from the city, occupying land on what is now Fifth Avenue, extending from 47th to 51st Streets. The grounds were skilfully laid out and planted with some of the most rare and beautiful forest trees, while an extensive and ornamental conservatory was erected for the cultivation of tropical and green-house plants, as well as those devoted to medical purposes, more especially those of our own country. At one time there were under cultivation nearly fifteen hundred species of American plants, besides a considerable number of rare and valuable exotics. The State afterward purchased the garden from Dr. Hosack, but, like many other public works unconnected with politics, it was suffered to go to ruin.

TETANUS CURED BY ANTITOXIN.—Dr. Gibier, of the Pasteur Institute, has received word that a second cure of tetanus has been effected by the antitoxin furnished by the Institute. The case was under the care of Dr. J. F. Dyer, of Ottawa, Ill.

DEATH OF DR. POHLE.—Dr. J. G. Pohle died on October 7th of Bright's disease and pneumonia. He was born in Berlin, Germany, in 1829, but came to this country when quite young. As a medical student he was a pupil of the late Dr. Chilton, who was one of the leading practitioners of the city at the time, and resided at the corner of Broadway and Broome Street. He afterwards married a daughter of Dr. Chilton and eventually succeeded to his practice. A

number of years ago, however, he retired from practice and devoted himself to general scientific pursuits. He was State Geologist between 1860 and 1870. He was an inventor of much repute, and of late years had given his attention largely to mining interests in the West.

Miscellany.

BOSTON DISPENSARY.

The statistics of this institution for the year ending September 30, 1895, are as follows:

The number of new patients treated at the Central Office is 27,702, classified as follows:

Medical Department. — Men, 3,248; women, 5,550; children, 3,925; total, 12,723.

Surgical Department. — Men, 2,037; women, 1,445; children, 849; total, 4,331.

Department for Diseases of the Skin. — Men, 707; women, 533; children, 336; total, 1,576.

Department for Diseases of the Nervous System. — Men, 582; women, 672; children, 72; total, 1,326.

Department for Diseases of the Throat and Nose. — Men, 758; women, 1,003; children, 687; total, 2,448.

Department for Diseases of Women. — Women, 1,093.

Department for Diseases of the Eye. — Men, 260; women, 464; children, 421; total, 1,145.

Department for Diseases of the Ear. — Men, 223; women, 216; children, 217; total, 656.

Department for Diseases of the Genito-Urinary System. — Men, 1,353; women, 40; children, 1; total, 1,394.

Department for Diseases of the Rectum. — Men, 94; women, 55; children, 5; total, 154.

Orthopedic Department. — Men, 59; women, 69; children, 56; total, 184.

Dental Department. — Men, 172; women, 194; children, 306; total, 672.

The number of visits made by patients, old and new, is 68,218, classified as follows:

Medical, 23,857; surgical, 44,361; total, 68,218.

The number of patients treated in the Districts is 14,885, including 342 cases of midwifery, classified as follows:

Men, 2,474; women, 5,653; children, 6,758; total, 14,885.

The results of treatment are as follows:

Discharged, cured or relieved.	13,583
Removed to hospitals	1,050
Died	246
Remaining under treatment	92

14,971

Under treatment at last annual report

86

14,885

The number of visits made by the district physicians

24,535

The number of patients treated at the Central Office and in the districts is

42,587

The number of cases of midwifery attended during the year

342

The number of cases of midwifery attended since July, 1856

7,635

Whole number of patients since October, 1796

1,291,317

Whole number of patients since July, 1856

1,172,514

Average daily attendance at the Central Office

224

Largest number present any one day, March 11th

345

Smallest number present any one day, December 27th

61

Number of recipes put up at the Central Office

70,516

Number of house recipes

58,340

Number of district recipes

12,176

Largest number put up in one day, February 18th

377

Smallest number put up in one day, December 27th

72

The list of medical officers for the ensuing year is as follows:

Surgeons.—Drs. E. O. Otis, F. M. Briggs, A. Thorne-dike, R. E. Darrah.

Physicians.—Drs. R. Disbrow, T. M. Rotch, H. Williams, E. M. Buckingham, J. S. Howe, W. F. Temple, H.

Jackson, R. W. Greenleaf, S. Breck, G. A. Sargent, E. L. Twombly, W. E. Fay, W. H. Prescott, J. J. Thomas, A. S. Knight, H. D. Arnold, B. Tenney, F. R. Tower.

Department for Diseases of the Skin.—Drs. F. B. Greenough, Abner Post.

Department for Diseases of the Nervous System.—Drs. Frederic Coggeshall, W. R. Woodbury.

Department for Diseases of the Throat and Nose.—Drs. John W. Farlow, F. C. Cobb, W. S. Boardman, W. E. Chenery.

Department for Diseases of Women.—Drs. J. B. Swift, R. A. Kingman, G. Haven, M. Storer.

Department for Diseases of the Eye.—Drs. F. E. Draper, E. L. Parks.

Department for Diseases of the Ear.—Drs. W. Preble, E. E. Doble. Assistant, Dr. J. Hicks.

Department for Diseases of Genito-Urinary System.—Drs. G. W. Allen, C. M. Whitney, J. B. Blake, F. G. Balch.

Department for Diseases of the Rectum.—Dr. W. J. Otis. Assistant, Dr. J. C. Stedman.

Obstetric Department.—Dr. C. M. Green. Assistants, Drs. E. Reynolds, C. W. Townsend.

Orthopedic Department.—Drs. E. S. Pease, E. H. Nichols.

Pathologist.—Dr. E. M. Greene.

Dentist.—A. H. Fisher, D.M.D.

Dr. C. E. Fillebrown, in charge Roxbury Central Office.

District Physicians.—Drs. G. M. Muttart, N. C. Haskell, W. L. Edwards, E. C. Stowell, H. A. Lothrop, J. W. Bartol, W. F. Gay, A. A. Wheeler, J. S. Phelps, C. M. Smith, J. W. Dewis.

Apothecary.—George Lachambre. Assistant, E. C. Dodge.

W. H. H. HASTINGS, Superintendent.

THE FIRST CRY.

OLSHAUSEN¹ opposes the position of Ahlfeldt, who claimed that certain movements which can be felt within the uteri of pregnant women were produced by feeble respiratory movements on the part of the child, and that the inspiration which we call the first of a new-born child is not really the first, but the first deep inspiratory movement. Olshausen holds that the movements felt by Ahlfeldt were the aortic pulsations transmitted through the uterus to the abdominal wall. He also opposes the view taken by Schwartz that the cause of the first inspiration is dependent upon the interruption of the placental circulation, and on the basis of numerous observations has come to the conclusion that apnea alone does not determine the first respiratory movement, but that in head presentations its cause lies in the great compression to which the thorax is subjected during the passage through the vagina, and its sudden release at the moment the breech is born. In this manner the end of parturition brings with it, under normal conditions, a naturally produced movement of artificial respiration. In breech presentations and Cæsarean sections this "artificial respiration" will not be present, and for this reason children coming into the world under these conditions are apt to lie in an apneic condition for some time before normal respiration is established.

This sudden release of pressure might well account for the recognized danger in breech presentations, of respiratory movements taking place upon the escape of the body, and before the head is released from the vagina, which in some cases have caused death from inhalation pneumonia.

¹ Berliner klin. Woch., 1894, No. 48.

AN AUDIBLE INTRA-UTERINE CRY.

DR. WILH. BRÜLL, of Drees, publishes in the *Wiener klin. Wochenschrift*, No. 39, 1895, an account of an obstetric case to which he was called, after two midwives had made unsuccessful efforts at extraction, and labor had been in progress forty-eight hours. On entering the room he heard distinct cries proceeding from the uterus of the patient. These cries were loud enough to be heard in adjoining rooms. On examination a breech presentation was found, and in order to bring down a foot a hook was employed, the application of which caused a sharp cry from the fetus. The child was born asphyxiated, but revived under artificial respiration, and a dead twin fetus was then extracted. The mother and child did well.

Inasmuch as certain colleagues of Dr. Brüll were unkind enough to suggest that he and the midwives had mistaken the rumbling of gas in the mother's bowels for the cries of the fetus, he publishes the account of the case, and a statement of the conditions under which it is possible for an audible intra-uterine cry to be uttered. These are (1) interruption of the placental circulation, (2) entrance of air into the uterine cavity, (3) absence of amniotic fluid, or at least its partitioning off in such a way as not to enter the air-passages of the fetus. There can be little doubt that there was excellent opportunity for the coincidence of these conditions in this case, the efforts of the midwives having undoubtedly afforded ample opportunity for the entrance of air.

Attention is called to the fact that a case of this sort might give rise to medico-legal complications. In case the intra-uterine cries had been heard in adjoining rooms and the child were subsequently still-born, a strong suspicion of child murder might arise. In the case under consideration the child's life was saved only by rapid extraction and artificial respiration.

This case of Dr. Brüll's would seem to confirm the view of Ahlfeldt, in contra-distinction to that of Olshausen which is given in the preceding article on "The First Cry," in that it proves the possibility of intra-uterine respiratory movements, at least under favorable conditions.

Correspondence.

REVIVAL OF THE INDEX MEDICUS.

1627 WALNUT ST., PHILADELPHIA, Oct. 14, 1895.

MR. EDITOR.—Last June a movement was started in Philadelphia to endeavor to revive the *Index Medicus* by the formation of a local committee to solicit subscriptions. The members of this committee have endeavored to obtain subscriptions from their professional friends at the rate of \$25 per year for five years. A proposition was made by us to prominent men in New York and Boston that similar committees should be organized in those cities. I do not know whether formal organizations have taken place in New York and Boston. We in Philadelphia have been at work ever since June, and have been able to send to the editors of the *Index Medicus* thirty-seven subscriptions at \$25. Nearly all of these subscribers have agreed to continue their subscriptions for five successive years. Perhaps the printing of this short account of our work will give encouragement to those in other parts of the country who are endeavoring to revive interest in a publication which the American medical profession must not allow to die.

Yours very truly,


JOHN B. ROBERTS.

Sec'y Committee on reviving *Index Medicus*.

METEOROLOGICAL RECORD,

For the week ending October 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...29	30.04	58	61	54	71	82	76	E.	S.E.	18	13	C.	O.	.15
M...30	29.74	56	64	49	83	60	72	N.W.	W.	4	16	F.	C.	
T...1	30.24	50	57	42	60	52	56	W.	S.W.	14	9	C.	C.	
W...2	30.22	57	70	44	56	60	58	W.	S.W.	7	11	C.	C.	
T...3	30.17	58	70	47	68	64	66	W.	N.E.	7	1	C.	F.	
F...4	30.22	53	58	48	83	81	82	N.E.	N.E.	10	10	F.	O.	
S...5	29.97	52	60	45	86	78	82	N.	N.E.	14	7	O.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat- ening; S., snow. † Indicates trace of rainfall.  Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 5, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.		Percentage of deaths from						
		Deaths under five years.	Deaths under five years.	Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.		
New York	1,704,566	704	302	18.48	14.42	9.94	.98	4.48		
Chicago	1,227,382	495	223	26.40	9.60	14.20	2.60	8.60		
Philadelphia	1,163,864	337	—	19.43	10.44	8.80	4.35	7.54		
Brooklyn	1,100,000	374	201	24.70	9.10	13.00	.78	6.76		
St. Louis	560,000	—	—	—	—	—	—	—		
Boston	494,065	220	101	20.60	12.15	9.90	2.70	5.85		
Baltimore	496,315	182	70	18.15	14.30	8.25	3.30	5.50		
Cincinnati	353,970	99	38	11.00	11.00	6.00	4.00	—		
Cleveland	325,000	—	—	—	—	—	—	—		
Washington	285,000	114	52	24.64	7.92	9.96	10.56	2.97		
Pittsburg	272,000	100	21	28.00	10.00	15.00	5.00	4.00		
Milwaukee	265,000	—	—	—	—	—	—	—		
Nashville	87,754	25	13	20.00	32.00	12.00	4.00	—		
Charleston	65,165	30	17	13.33	16.66	13.33	—	—		
Portland	40,000	—	—	—	—	—	—	—		
Worcester	98,687	40	20	37.50	2.50	32.50	—	2.50		
Fall River	88,020	43	24	46.60	6.99	41.94	4.66	—		
Lowell	84,359	39	22	25.60	5.12	17.92	5.12	2.66		
Cambridge	81,519	24	12	25.00	20.80	25.00	—	—		
Lynn	62,355	—	—	—	—	—	—	—		
New Bedford	55,254	19	6	5.26	15.78	5.26	—	—		
Springfield	51,534	11	2	9.09	27.27	—	—	9.09		
Lawrence	52,153	26	—	11.55	11.55	7.70	—	—		
Holyoke	40,149	—	—	—	—	—	—	—		
Salem	34,437	10	4	10.00	20.00	10.00	—	—		
Brocton	33,157	8	3	25.00	—	12.50	—	—		
Haverhill	30,185	5	1	—	20.00	—	—	—		
Malden	29,706	10	6	20.00	20.00	—	—	—		
Chelsea	31,295	5	1	—	20.00	—	—	—		
Fitchburg	26,394	10	4	30.00	10.00	10.00	10.00	10.00		
Newton	27,622	14	5	35.70	—	14.28	—	14.28		
Gloucester	27,003	13	3	—	—	—	—	—		
Taunton	20,877	6	0	—	—	—	—	—		
Waltham	20,712	6	2	16.66	16.66	—	—	—		
Quincy	20,447	—	—	—	—	—	—	—		
Pittsfield	18,578	4	2	—	50.00	—	—	—		
Everett	16,738	5	0	—	20.00	—	—	—		
Northampton	14,554	3	3	40.00	—	—	—	—		
Newburyport	10,920	—	—	—	—	—	—	—		
Amesbury	—	—	—	—	—	—	—	—		

Deaths reported 3,086; under five years of age 1,196; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 675, consumption 358, acute lung diseases 260, diarrheal diseases 352, diphtheria and croup 173, typhoid fever 80, whooping-cough 30, measles 11, scarlet fever 9, cerebro-spinal meningitis 9, malarial fever 8, erysipelas 3.

From whooping-cough Brooklyn 9, New York 7, Chicago and Boston 4 each, Philadelphia 3, Washington, Cincinnati and Worcester 1 each. From measles New York 5, Brooklyn 3, Philadelphia, Boston and Pittsburgh 1 each. From scarlet fever Pittsburgh 3, New York 2, Philadelphia, Boston, Washington and Nashville 1 each. From cerebro-spinal meningitis New York 5, Baltimore, Lawrence, Brockton and Quincy 1 each. From malarial fever Brooklyn 4, New York 2, Baltimore and Boston 1 each. From erysipelas New York, Chicago and Phila- delphia 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending September 21st, the death-rate was 19.8. Deaths reported 4,028; acute diseases of the respiratory organs (London) 141, whoop- ing-cough 71, fever 68, diphtheria 65, measles 57, scarlet fever 29, small-pox (London 2, Oldham 1) 3.

The death-rates ranged from 9.1 in Croydon to 32.9 in Sun- derland; Birmingham 20.2, Bradford 21.7, Brighton 21.2, Bristol 16.0, Gateshead 28.3, Hull 31.8, Leeds 22.0, Leicester 19.4, Liverpool 26.6, London 16.0, Manchester 25.7, Newcastle-on-Tyne 19.9, Nottingham 21.2, Portsmouth 22.1, Sheffield 24.5.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending September 29th, the death-rate was 21.0. Deaths reported 4,269; acute diseases of the respiratory organs (London) 173, diarrhea 604, diphtheria 81, whooping-cough 69, measles 50, fever 57, scarlet fever 50, small-pox (London) 2.

The death-rates ranged from 14.7 in Huddersfield to 30.5 in Gateshead; Birmingham 21.2, Bradford 19.6, Cardiff 20.8, Derby 18.7, Leeds, 20.8, Leicester 16.1, Liverpool 28.6, London 18.2, Manchester 29.9, Newcastle-on-Tyne 22.2, Nottingham 24.6, Portsmouth 16.1, Sheffield 24.3, Sunderland 29.5. West Ham 19.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 4, 1895, TO OCTOBER 10, 1895.

PROMOTIONS.

MAJOR WILLIAM E. WATERS, surgeon, to be deputy surgeon- general with rank of Lieut.-Colonel, October 1, 1895, *vice* BILL- INGS, retired.

CAPTAIN LOUIS S. TESSON, assistant surgeon, to be surgeon with the rank of Major, September 26, 1895, *vice* MATTHEWS, retired.

CAPTAIN EDWIN F. GARDNER, assistant surgeon, to be sur- geon with the rank of Major, October 1, 1895, *vice* WATERS, promoted.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, October 21st, at 8 o'clock.

Dr. Walter Channing will present a paper on the "Importance of the Frequent Observation of the Temperature in the Diagno- sis of Chronic Tuberculosis of different Localization." Drs. R. H. Fitz, A. T. Cabot, F. C. Shattuck, E. G. Cutler and A. L. Mason will take part in the discussion.

Dr. M. H. Richardson will report a "Case of Fibroid Tumor of the Uterus, complicated with Stone in the Bladder: Opera- tion; Recovery."

JAMES G. MUMFORD, M.D., *Secretary*.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be delivered on October 24th, at 8 P. M., at the Medical School by PROF. WM. T. SEDGWICK. Subject: "The Work of the State Board of Health." The profession are invited.

BOOKS AND PAMPHLETS RECEIVED.

The Osteopathic Fad. By A. J. Steele, M.D., St. Louis, Mo. Reprint. 1895.

Practical Urinalysis and Urinary Diagnosis; a Manual for the Use of Physicians, Surgeons and Students. By Charles W. Purdy, M.D., Queen's University, Fellow of the Royal College of Physicians and Surgeons, Kingston; Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School. Author of "Bright's Disease and Allied Affections of the Kidneys"; also of "Diabetes, its Causes, Symptoms and Treatment." Second edition, with numerous illustrations, in- cluding photo-engravings and colored plates. Philadelphia: The F. A. Davis Co. 1895.

A Text-Book on Nervous Diseases. By American Authors. Edited by F. X. Dercum, M.D., Clinical Professor of Diseases of the Nervous System in the Jefferson Medical College, Phila- delphia. List of contributors: N. E. Brill, M.D.; Chas. W. Burr, M.D.; Joseph Collins, M.D.; Charles L. Dana, M.D.; F. X. Dercum, M.D.; Geo. E. de Schweinitz, M.D.; E. D. Fisher, M.D.; Landon Carter Gray, M.D.; C. A. Herter, M.D.; George W. Jacoby, M.D.; William W. Keen, M.D.; Philip Coombs Knapp, M.D.; James Hendrie Lloyd, M.D.; Charles K. Mills, M.D.; S. Weir Mitchell, M.D.; Charles A. Oliver, M.D.; William Osler, M.D.; Frederick Peterson, M.D.; Morton Prince, M.D.; Wharton Sinkler, M.D.; M. Allen Starr, M.D.; James C. Wilson, M.D. Philadelphia: Lea Brothers & Co. 1895.

Original Articles.

THE POST-MORTEM SIGNS OF DROWNING.¹

BY G. DE N. HOUGH, M.D., NEW BEDFORD, MASS.

DROWNING is death in consequence of cutting off the access of air to the respiratory passages by any fluid.

Only enough to cover the nostrils and mouth is needed. I found a case reported where a drunken man was drowned in the water contained in the print of a horse's hoof in the mud, and many cases are known of persons being drowned in a gutter or brook-let where the water was not deep enough to cover the ears of a person lying on his face.

By no means all who die in consequence of falling into the water are drowned. Some persons are removed from the water alive, and die after a time from such things as: spasm of the glottis, pneumonia (due to the injury sustained by the lungs from the water that has penetrated them), cholera (a case reported in England of a boy submerged in infected water), or suddenly without apparent cause (supposed to be due to the arrest of interstitial nutrition during the time respiration was suspended). We have, besides these, a certain number of cases in which the death may be due to shock, syncope, paralysis of the heart, tetanic spasm of voluntary muscles and perhaps of the heart itself, inhibition of respiratory movements, cerebral hemorrhage, congestion or concussion, or an epileptic seizure. Such cases cannot be considered as cases of drowning, properly speaking; and while their study is of extreme interest, I must at present pass them over for lack of time.

It must be remembered, however, that often one or more of these disturbances play an accessory part in cases of true drowning; and it is to them, in fresh bodies, that the principal difficulties of the post-mortem diagnosis of drowning are due. The part that they play was formerly considered much more important than at present. The more recent investigators find that by far the largest part of the cases of death in the water are due to asphyxia; and the rôle of syncope, cerebral congestion, neuro-paralysis, etc., seems to be growing less and less important. For example, Dr. S. Coull Mackenzie² reports 305 cases of drowning: of these, six were so far advanced in putrefaction that the cause of death could not be determined. Of the 299 remaining, one died of syncope, one of apoplexy and asphyxia, 297 of asphyxia. Other recent writers estimate the proportion of deaths from pure asphyxia at from 80 to 90 per cent. In 50 cases, I have seen but one due to anything but asphyxia. This was a man with mitral valvular disease; no signs of asphyxia were present. I presumed that he died of syncope or sudden paralysis of the heart. In true drowning the cause of death is asphyxia.

When a body is found in the water it is natural to infer that death was caused by drowning. This may, however, be an error; and it is our duty to find positive proofs of the mode of death if such proofs really exist.

There is no pathognomonic sign of drowning; yet in most cases the diagnosis is possible, provided the examination be made before putrefaction is too far advanced.

It is impossible to set any exact limit in time for

this obliteration of signs but, roughly, it requires about fifteen or twenty days in winter and from three to eight days in summer. The character of the liquid medium, the presence or absence of currents, the richness of the medium in those bacteria that liquify gelatine and albuminous substances, all affect the rapidity of putrefaction, and hence the varying length of time during which the signs will persist. Of course, the principal element (as is shown by the figures just given) is the temperature.

I wish to make a special point of the necessity of making our examinations in these cases as soon as possible after the body is taken from the water. Once out of the water putrefaction advances with tremendous speed, and in warm weather a couple of hours will sometimes suffice to render our autopsy worthless.

The special signs of drowning will be less marked the more largely the concomitant or accessory causes of death enter into the case, so that in a large series of cases we find all grades of development of these signs. Again, the signs will vary somewhat according to the rapidity of the death and the number of times the person rose to the surface. If our autopsy for any reason yields negative results, it is well to set forth in our report the reasons therefor, and especially to state that in spite of the absence of characteristic signs of drowning the person may have come to his death in consequence of falling into the water.

In examining a drowned body there are three sets of phenomena that attract our attention: (1) those due merely to the body's lying in the water; (2) those met with in asphyxia from any cause; (3) those found specially in the drowned.

Our conclusion is based on a considerable number of facts. No one of these facts is of itself sufficient. All taken together make the correctness of our conclusion almost positive.

External Examination.—Rigor mortis is of value only in determining the time that has elapsed since death. Parts are involved in the same order as after other modes of death. It usually sets in early because the body cools rapidly, and as in other violent deaths may be instantaneous. Its duration depends partly, at least, upon the temperature to which the body is exposed both before and after removal from the water. The higher the temperature the more rapidly it disappears. Barlerin observed it beginning in the lower jaw after only two or three hours; Belohradsky found it complete and strong in one case after nineteen hours; Dsirne observed it still existing once after six and once after seven days.

Suggillations are found, as usual, on the most dependent parts, which, in floating bodies, are usually the head and thorax. They are probably not formed prior to four hours after death, and reach their maximum in twelve to fifteen hours. Their abundance depends on the amount and fluidity of the blood. From their situation we may infer the attitude in which the body cooled. Their color is often bright red or rosy-red. This color depends in part upon the effect on the blood of the oxygen dissolved in the water which soaks into the skin, in part upon the fluid condition of the blood, and in part upon the effect of cold upon the body. Such spots were observed by Dsirne abundantly in a case which came to autopsy twelve hours after death, and in small number in a case seven days after death. They were present in 40 out of 48 cases that were not too putrefied to show

¹ Read at the Annual Meeting of the Massachusetts Medical-Legal Society, June 11, 1895.

² Medico-legal Experience in Calcutta. Edin., 1891.

them. Similar spots are seen after poisoning by prussic acid, by charcoal-gas, by illuminating-gas, and in any body whose blood is fluid if it lies long enough in the water.

As far as my reading has extended, all authors (save two) agree that the course of putrefaction in bodies that are floating in water differs in a characteristic manner from that in other bodies. This characteristic difference consists in the fact that, while in other bodies putrefactive change first shows itself on the abdomen and progresses both toward the head and toward the feet, in water bodies it begins at the head and progresses gradually toward the lower extremities. The abdomen, indeed, shows the changes so much later than the head and neck, that, if a water body be divided into two parts by a transverse incision at about the level of the second lumbar vertebra and the two parts be viewed separately, one could hardly convince himself that they were derived from the same body. According to Belohradsky and Kornfeld, this peculiar progression is not constant. The case mentioned by Harris was not a body that putrefied while floating. Kornfeld says that the changes of putrefaction often follow this same order in cases of death from heart disease. In consequence of putrefaction there is in water bodies a tremendous development of gas in the subcutaneous connective tissue. We do not find this to the same degree in other bodies, except perhaps in cases of emphysematous gangrene of rattlesnake bites.

There is nothing peculiar about the pallor of a drowned body. As Casper says, preconceived notions and the personal equation enter prominently into this question. Rosy patches, due to injection of the vessels, are often seen on the inner surfaces of the thighs and anterior part of the chest of fresh bodies. They are due to the effect of cold. If a body presenting such patches be put in a refrigerator, they become generalized. The same color is often seen on a body immersed post-mortem and then put in a refrigerator. Tourraine and Bédié saw the same red color appear suddenly on the thorax, abdomen and back of some soldiers bathing in cold water.

The skin of any water body will be saturated with water. When on the autopsy table, the rapid evaporation of this water may cause the skin to feel comparatively cold when one touches it. This is not an important sign, and its appreciation, like that of the pallor of the drowned, depends largely on "preconceived ideas and the personal equation."

Cutis Anserina.— Leaving out of consideration young children, in whom it is uncommon, and newborn infants, in whom it never occurs, cutis anserina is almost always present in drowned bodies unless they have been so long in the water that the epidermis has become separated. Usually, it is recognizable for from eight to eleven days after death. It is usually best marked on the anterior surfaces of the extremities, and is most distinct in very hairy persons. It depends partly upon mental shock, and partly upon the sudden plunge into a cold medium. Anatomically it is caused by contraction of the arrectores pili, their relaxation being prevented by rigor mortis. It occurs not only after drowning but also after all sorts of violent deaths, and sometimes during life, and can be produced on a dead body by throwing it, while still warm, into cold water. A condition of skin not distinguishable from this is said by Casper to be very common among the lower classes in Berlin, as a permanent appearance.

Retraction of the penis, scrotum and nipple are phenomena, which like cutis anserina, are produced by contraction of certain smooth muscle-fibres of the skin and subcutaneous connective tissue, the contraction being caused by mental shock or by the sudden effect of the plunge into cold water. They are very common but not invariable signs, and, of course, disappear as the gases of putrefaction develop in the subcutaneous tissue.

Condition of the Epidermis.— The epidermis of any body that lies in the water undergoes certain changes from imbibition; it first becomes whitish and opaque, then swollen and wrinkled, and then gradually separates from the true skin. This process occurs earliest where the epidermis is thickest, and hence, first of all, on the soles of the feet, if they are naked; otherwise, first on the palms of the hands. These parts show distinct change usually in six or eight hours. Dsirne observed distinct bleaching and wrinkling in two hours and in four hours; he found it absent in one case after six hours, in two cases after twenty-four hours, and in one case after eleven days. Next after the hands and feet these changes are usually noticeable at the knees and elbows. In a month the epidermis is almost entirely detached.

The whitish, opaque, swollen and wrinkled appearance of the hands and feet may be produced by prolonged soaking during life, and in the case of the feet may be due to profuse perspiration. One observer alleges that if a body is put into water after death the mode of separation of the epidermis on the hands and feet is not like that seen in the bodies of the drowned. He says that in the former the epidermis becomes cracked and fissured, and rises up in little shreds, while in the drowned it wrinkles longitudinally and separates almost in a single piece like a glove. These observations lack confirmation.

The bluish, livid color of the underlying tissues showing through the more or less macerated epidermis gives to the hands an appearance strikingly different from that of the rest of the body (except the feet). Hands in this condition are often spoken of as "cholera hands," from their resemblance to those of persons in the cyanotic stage of cholera.

The hair comes off pretty easily after about eight days. That of the head and pubes commonly comes out, roots and all, while the down of the body and all young strong hairs break off at the surface of the epidermis or in the follicles.

The nails become blue or yellowish-red, and are loosened in from seven to fifteen days. They generally fall off (sometimes the epidermis comes off *en masse*, carrying with it the nails) in two or three months.

The eyelids of fresh bodies are usually half open. They become swollen as putrefaction advances, and finally by this change are entirely closed. Sometimes, in children, there are ecchymoses on the lids. The globe of the eye, if the body is fresh, looks like that of a live person, brilliant, smooth and clear. This is what is meant by those authors who speak of the fish-like expression of the eyes of the drowned.

The conjunctivæ are at first usually pale-reddish, with more or less injection in the culs-de-sac; later, corresponding to the cyanosis of the head, they become dark-red, livid, or violet. Ecchymoses of the conjunctiva occur but rarely in adults, much more commonly in children; they are particularly common, ac-

according to Hofmann, in those who are drowned in thick fluids.

The sclerotic is more or less edematous, especially at its inferior part if the body has not been long in the water.

On that part of the cornea not covered by the eyelids there may, in fresh bodies, be seen several (twelve to fifteen) gray phlyctenular elevations of the size of a poppy-seed. These elevations disappear after a time, and this part of the cornea looks bright, and is deprived of its epithelium. That part of the cornea that was covered by the lids is cloudy throughout its whole extent, and its epithelial covering somewhat swollen. These peculiarities of the cornea were observed in every one of twelve fresh bodies of strong young persons drowned while bathing. The observations were made in summer. The author says the changes develop more slowly in winter (Seydel, 1890). Dsirne observed the cloudy condition of the cornea nine times; three times in summer, twice in each other season. It was developed in one case in four hours. Dsirne did not observe the phlyctenulæ.

The pupils are usually dilated, often very unusual. Their diameter is commonly from six to eight millimetres. The iris is often more or less reddish, so that the eye resembles that of an albino.

On the dorsal surface of the nose, there are often erosions due to rubbing against the bottom. This is especially common in men, because, owing to the mode of distribution of their adipose tissue, men usually float face downward, while women float face upward. In the women, therefore, we more frequently than in men find foreign substances and effusions of blood or bloody liquid in the nostrils.

At the nostrils and at the mouth we often find a mass of froth. This is of the same character as that found in the air-passages, from which indeed this comes. It is made up of very small bubbles, is whitish or rosy-red at first, becoming later, in consequence of putrefaction, reddish or brownish. Dr. Draper has well characterized its appearance as like the lather produced by shaving soap. It is not commonly found after a body has been three or four days in the water, and disappears rapidly after removal of the body from the water. It is present in only about 15 to 20 per cent. of the cases of drowning. Sometimes, when not present, it will appear if pressure is made upon the chest. The presence of this froth is of great importance; for it is the only external sign that can be considered of much value from a diagnostic standpoint. True, it is not a pathognomonic sign; nevertheless, we will seldom make an error if we take it for granted that a body, taken from the water, and presenting a mass of fine bubbled, white or rosy froth at the mouth and nostrils, is that of a person who came to his death by drowning.

The lips in recent cases are bluish or cyanosed, and may present erosions or ecchymoses or traces of having been bitten. From putrefaction, they become after a time enormously swollen, blackish and separated, showing the teeth and tongue. At the lips we often find the same froth as at the nostrils. Sometimes it occurs at the lips and not at the nostrils. Foreign substances are sometimes to be observed on the lips or within the mouth.

The position of the tongue is, to be sure, of no diagnostic value, still it is more commonly somewhat pushed forward, and in a certain proportion of cases

is between the teeth, by which it may have been indented, contused, or lacerated, and then it is often swollen. The base of the tongue may show a vascular injection, which may be limited to the tongue or may extend also to the epiglottis.

The Hands.—Excoriations or abrasions of the dorsal surfaces and ends of the fingers have been mentioned by nearly every one who has written on drowning since the time of Ambroise Paré. They have been supposed to indicate a struggle for life, and to be due to rubbing on the bottom during this struggle. Many observers of wide experience have rarely, if ever, met with them. They may, if present, have been produced before immersion, and what looks like excoriations may be merely elevations of the macerated epidermis from the action of the water. Fragments of weeds or other substances are occasionally found clutched in the hands. If the substance or object is peculiar to the water, and especially to the water that is found in the lungs and stomach, this is a sign of great importance both as to the fact of drowning and possibly also as to the locality where drowning took place. Sand, gravel, mud or fragments of plants may be found under the nails. Inasmuch as they may be deposited there after death and may get there during the pulling of the body out of the water, their presence is not of much importance, even if the character of the minute shells, diatoms, etc., contained in them enables us to demonstrate their place of origin.

If, in the body of a very young infant that has been found in the water or in any other liquid, the umbilical cord is mummified, we know that three or four days must have elapsed between the birth and the time the body went into the water. Hence the probability is that the child was not drowned, for it is difficult to believe that a person intending to murder a child would keep it three or four days alive.

In very many cases the fluid in which a person is drowned penetrates the middle ear through the Eustachian tube. The value of the presence of liquid in the middle ear as a sign of drowning depends, of course, largely upon the possibility of its getting there after death. Certain experiments seem to show that in about one case in four, this post-mortem penetration may take place. The question can hardly be considered settled up to the present time.

The best technique for the necessary examination is as follows: Thoroughly cleanse and dry the meatus auditorius externus. Assure yourself by examination with an ear speculum in a good light that the tympanic membrane is intact. Puncture the membrane with a small pipette or hypodermic syringe and remove by aspiration any fluid that may be present in the middle ear. In certain diseased conditions and at certain stages of putrefaction there may be liquid in the middle ear. In order, therefore, to make the most of this sign, it is desirable to identify the liquid withdrawn with that in which drowning took place.

Losses of Substance.—Occasionally the soft parts are more or less extensively eroded by the action of the water, or eaten away by fish or water-animals. Erosion is more apt to occur in parts that were the seats of contusions or lacerations before death; in contradistinction to the marks produced by animals the edges of erosions are softened and poorly defined.

Presence of Vernix Caseosa.—The vernix caseosa is not removed from the body of a child by the action

of quiet water in six weeks. Belohradsky, to whom this observation is due, suggests that if the temperature of the water is high and the current strong, it would very likely come off sooner.

We now pass from the external appearances to those presented by the internal organs:

The brain and its membranes are more commonly anemic than congested. Hypostasis may be mistaken for congestion, and the large amount of blood that (on account of its fluidity) flows from the severed sinuses may similarly deceive us. Congestion is said to be commonest in those who go into the water intoxicated.

I have met with no observations as to the condition of the spinal cord or its membranes after drowning.

On reflecting the skin and muscles from the chest and neck, in the manner usual at an autopsy, Paltauf has several times observed bilateral lacerations of portions of the sterno-cleido mastoidei or of the pectorales majores, with extravasation of blood between the separated ends of the fibres. He considers these due to violent efforts during drowning, or to the rough application of Sylvester's method of artificial respiration, and not at all due to violence by another.

The mucous membrane of the pharynx is sometimes injected or ecchymosed.

The position of the epiglottis is of no importance. Its mucous membrane is occasionally injected, rarely ecchymosed. If the body does not lie long exposed to the air, we will often find the aryepiglottic folds swollen by imbibition of water. At first sight it reminds one of edema from inflammatory disease. The larynx itself may contain froth or foreign substances (mud, bits of water-plants, vomitus, etc.), and its mucous membrane may be congested or even ecchymosed.

Before removing the sternum we may be impressed with the protrusion of the intercostal muscles between the ribs, as in cases of pneumo-thorax. This is due to the increased volume of the lungs, which will be considered later.

Pleuritic adhesions exercise an important effect upon the condition of the lung tissue underlying them.

The presence in the pleural cavities of watery liquid, stained more or less with blood-coloring matter, seems to me of much importance in some cases. To be of any diagnostic value pleurisy must be excluded and putrefaction must be not very far advanced. The amount of this watery fluid is inversely proportional to the amount of moisture in the lungs. I have seen over a quart in each pleural cavity of a body which lay under the ice for a week. The lungs in this case were decidedly dry. Putrefaction had not advanced enough to float the body, to cause the least odor when the body was opened, or any discoloration of the head or face. Authorities differ as to the significance of this fluid, some believing that just as much will transude in cases of death from heart disease with pulmonary edema, or in cases of considerable pulmonary congestion, as after drowning. One would naturally suppose that chemical analysis of the liquid would easily distinguish between transuded drowning fluid and the liquids that might be found in the pleural cavity in the other conditions mentioned.

If in opening the chest any blood-vessels are wounded, the blood (which in drowned bodies is very liquid) is liable to flow into the pleural cavities in considerable quantity. As much as possible this must be prevented.

The pericardium often contains a small amount of

liquid. Subpericardial ecchymoses are of great rarity in the drowned; at all events, unless the drowning fluid be of such a density that the person is rather suffocated than drowned. Pericardial adhesions, by interfering with the action of the heart, may favor rapid death in cases of drowning.

Examination of the coronary arteries and cardiac muscle may account for absence of signs of drowning in bodies taken from the water. Degeneration of the heart muscle (usually dependent upon disease of the coronary arteries) will, of course, render the person more liable to death from syncope or shock if he falls suddenly into the water. From the same standpoint, disease of the valves of the heart is important.

(To be continued.)

A CASE OF CRIMINAL ABORTION WITH PECULIAR FEATURES.¹

BY W. S. BIRGE, M.D., PROVINCETOWN, MASS.

THE paper that I am going to present to you to-day is not a literary article, but simply the history of what has been to me a very interesting case—a case of criminal abortion presenting some peculiar features.

By abortion is commonly understood in medicine the expulsion of the contents of the uterus before the sixth month of pregnancy; between the sixth and ninth months the woman is said to have had premature labor. The law makes no distinction of this kind, but the term abortion is applied to the expulsion of the fetus at any period of pregnancy. Criminal abortion, according to most authorities, is rarely attempted before the third month; it is perhaps most common between the fourth and fifth months, for it is not until such a time that the woman is positive in regard to her pregnancy; after the sixth or seventh month it is again rare for a criminal operation to be performed. In the case I am about to relate, it is supposed that a criminal operation was done at or about the eighth month of pregnancy.

On the morning of April 26, 1894, a laborer passing by what is known as the Mill Pond in the village of W——, saw the body of an infant child floating on the surface of the water. He at once notified his employer, who was deputy sheriff and also undertaker; the remains were removed to his office, and I was notified.

On viewing the body, the following facts were presented: It was that of a male child of fairly good size, but with the appearance of having been born at or about the eighth month; the skin was well filled out; the length of the body was fifteen inches; the nails were firm, but not reaching to finger-tips; the membræ papillares had disappeared; the hair was well developed; the skin was of a greenish color in places showing that putrefaction had commenced. Attached to the child was a piece of the umbilical cord, some eleven inches in length, which had the appearance of having been forcibly torn apart.

An autopsy being deemed necessary, the proper authority was obtained and a full examination was made.

On opening the thorax, the lungs were first examined; crepitation was obtained upon pressure and they were found to be fully inflated, markedly so, for every

¹ Read at the annual meeting of the Massachusetts Medico-Legal Society, June 11, 1895.

portion showed great buoyancy when submitted to the hydrostatic test. They were not inflated with gas caused by putrefaction, for they were in a very good state of preservation. My experience has been that the lungs are slower than other organs of the body in undergoing putrefactive changes. The heart, lungs, and in fact all the organs, were almost entirely bloodless; the foramen ovale was partially closed. Meconium was found in small amount in the large intestine. One testicle had descended into the scrotum, the other was in the inguinal canal. The abdominal cavity was somewhat distended with gas.

From the foregoing we arrive at these conclusions:

(1) The child was born alive and must have lived some little time, for the lungs to have been so thoroughly inflated.

(2) From the bloodless appearance of the body hemorrhage must have ensued from the cord sufficient to cause death, although contrary to the general rule, and what we might expect when the cord was forcibly ruptured or torn apart at such a distance from the child's abdomen.

In a house, the yard of which bordered on the pond where the child's body was found, lived a young woman of eighteen with her parents. She moved in a society rather superior to that occupied by them, although they were eminently respectable people. A short time previous a rumor was in circulation that the girl was pregnant. She was keeping the company of a young man in an adjoining town. As they were frequently seen together, this tended to strengthen the impression. A fortnight before finding the body she had been confined to the house for nearly a week with a severe cold, so her mother informed a neighbor; however, she was soon out again apparently as well as ever, although some ventured the remark that her shape had changed. As I say, this was only a vague rumor, and had only excited slight comment; and if the finding of the body had not turned our attention directly to it, it would have been forgotten.

Before concluding my report, I visited the house in company with the deputy sheriff. The family consisted of the father, mother, three small children, the young lady in question and an old grandmother. Upon being interviewed, the young girl, who was very much frightened, burst into tears and told the following story:

She had been keeping company with a young man for some time, and had had illicit intercourse with him quite frequently, as she had also with two or three other male friends; finally, through her indiscretion, she became pregnant. She tried to prevail upon this particular young man to marry her, but he kept putting her off from time to time until, finally, he refused to marry her, but said he would take her where she could have an abortion performed and so get out of the trouble that way.

Fifteen days previous to the autopsy she went with him to the office of a physician in a neighboring town who, she said, had agreed to perform the operation for twenty-five dollars.

Her companion remained in the waiting-room while she retired with the doctor to his private office, where she remained nearly an hour; during which time he made an examination of her person, using various things which she did not understand the use of and could not describe, as she did not see them; finally,

he passed something into the vagina which he told her was a boro-glyceride suppository; and to retain it in position, he put up a tampon of cotton which she was to remove by means of the attached string, at the end of the twenty-four hours. He also gave her three vials; one contained tablets to be taken one after each meal; another, a liquid, of which she was to take ten drops in water between meals and at bedtime; the third, tablets to be dissolved in water and used for an injection. The following evening, not experiencing any effect from the treatment received or the medicine taken, in company with her young man she again visited the doctor's office; this time the young man had some words with the doctor in regard to paying the bill; the latter became very angry, swore at them and ordered them to leave his office.

The next day she returned to her home, and the day after was taken with severe pains in the back and bowels, with flowing. She always suffered pain at her monthly periods, and told her mother and grandmother that she was unwell. She occupied a lounge in the sitting-room the greater part of the day, and the old grandmother put hot plates to her bowels, gave her "pain-killer" and hot drinks, hoping to relieve her. Just before tea-time she arose, went to her room and lay down on the bed. In about half an hour, while the family were at tea, she gave birth to a child, the placenta soon following. Getting up, she rolled up the child and afterbirth in an old petticoat and secreted them under the bed, where they remained until the next evening.

The following day, she arose at noon and dressed herself; that evening, when she could do so unobserved, she took the child, together with the afterbirth and some soiled clothing, out into the orchard and buried the same in a hole in the ground. Two days later, hearing her father speak of plowing up the orchard, and fearing that he would discover the child, she went that night and dug up the remains, and putting them into a six-quart pail with some stones on top, carried them to the pond and threw them in.

The girl said that no one in the house was aware of her condition, and that none of her family, not even the old grandmother, knew or suspected that she had given birth to a child.

Cases of concealed birth are not a great rarity, but they usually occur under different circumstances. It does seem somewhat improbable that a young girl could become pregnant, go to the eighth month, and then be taken sick and give birth to a child, with mother and grandmother (the latter a midwife for years) in an adjoining room and they not know of it; and then, allowing that such a thing could occur, to still further carry out the deception by secreting the product of her conception in her room for twenty-four hours or more; then to bury the same; and, finally, two nights later, to dig it up and consign it to a watery grave—all this seems almost incredible.

The mother seemed positively amazed when confronted with the facts, but stoutly denied any previous knowledge of the case; the old grandmother likewise professed her ignorance; and as the girl's story confirmed theirs, there seemed to be no other alternative than to accept it as true until something further developed to give a different tone to the picture.

At the hearing, held a few days later, the girl told the same straightforward story without varying a particle. Her young man, although previously deny-

ing all knowledge of the affair, on being put upon the stand confessed the whole. His story in regard to visiting the doctor's office agreed with hers perfectly. The amount of money he promised to pay the doctor was twenty-five dollars. At the first visit he paid two dollars; on the following evening when they called, he offered the doctor half the amount promised, and agreed to pay him the remainder when a satisfactory result was obtained. This incensed the doctor very much, he demanding the whole. One word led to another, until finally he ordered them both from the office. The doctor, on being sworn, said that the couple came to his office as stated; that nothing was said about an abortion; that he made a vaginal examination, found a very filthy condition, profuse leucorrheal discharge, pruritus of vulva and anus, aggravated by a multitude of seat-worms. He said he did not know at that time that she was pregnant. He washed out the vagina, put in a boro-glyceride suppository followed by a tampon of absorbent cotton to hold it in place. He gave her a vial of permanganate of potash tablets to use in an injection once a day, a vial of Wyeth's tablets of iron, arsenic and strychnia, to take one after meals; and a vial of homeopathic tincture of nux vomica to take ten drops in water, between meals. He said he asked and received two dollars for treatment and medicine.

The second time they came, he was asked to perform an abortion, some talk was had in reference to it, the young man offering him twenty-five dollars in cash, which he refused. They had some words over it, both giving vent to their feelings; he finally ordered them from his office. He had nothing to do with performing an abortion, and did not know except from their own story that she was in the family way.

At the conclusion of the hearing the court, deeming the evidence sufficient, bound the doctor over to the grand jury in the sum of five thousand dollars, on the charge of criminal abortion. The young man, as accessory before the act, was bound over in the same amount. The young lady, as she had turned State's evidence, was allowed to go on her own recognizance, no charge at that time being preferred against her.

I cite this case as one of more than usual interest. It is very seldom that even the professional abortionist will perform an operation upon a woman at such an advanced period of pregnancy as in this case. The young woman, it would seem, could have no object in evading the truth in regard to the circumstances attending her confinement, unless it was to shield the mother or grandmother, who might have aided her at that time or afterwards have disposed of the child. She said she supposed the child was dead when born as it never made any out-cry or noise of any kind.

The physician was indicted by the grand jury for the crime of inducing an abortion, the young man as accessory before the act; the young woman went on her own recognizance. If she had also been indicted, the question would have undoubtedly arisen later, Was she guilty of infanticide or simply of concealment of a birth? The common law holds that a woman is not legally responsible for an omission causing the death of her child when she is alone and has no one to assist her in or during her confinement; but in this case, in submitting to a criminal operation, she signified her consent to the destruction of her unborn child, and at the time of birth she could easily have had the assistance needed by calling the mother or grandmother

from the adjoining room or summoning one of the two physicians who were within five minutes' walk of the house.

In the discussion which follows the reading of this article I trust it will be strongly urged that a more determined action be taken by all regularly-registered physicians and especially by the medical examiners of the Commonwealth, to bring to justice these so-called physicians who are engaged in this nefarious business.

CARCINOMA OF THE CARDIAC END OF THE STOMACH.

BY ALBERT N. BLODGETT, M.D., BOSTON.

(Concluded from No. 16, p. 392.)

THE diagnosis of cancer of the cardiac orifice of the stomach or its immediate vicinity may present certain difficulties which do not so obscure the determination of cancer in other and more common locations in this viscus. The situation of the cardiac end of the stomach is, under ordinary circumstances, partially or entirely beneath the overhanging border of the ribs, and the tension of the upper abdominal wall would generally tend to render the exact determination of position of any pathological process in this region more or less uncertain. The anatomical relations of the various parts in the immediate vicinity of this end of the stomach is so intricate, that the differentiation of the organs may not be always easy. The contiguity of the cardiac end of the stomach, or of the lower end of the esophagus with structures important to life — such as the pneumogastric nerve, the aorta, the pancreas, spleen, the sympathetic nerve, and to a less degree with the solar plexus — would, no doubt, often make it difficult or perhaps impossible to define the nature or extent of the disease, the symptoms of which might direct attention to the invaded structures more than to the seat of the original disease. The diagnosis would be strengthened by the possibility of exclusion of any affection of the neighboring organs or structures, and the elimination of other conditions of the stomach which necessarily pass under review in the study of so rare a disease as the one under consideration. There would probably be more or less hardening of the deeper tissues, in most cases, with at times a well-defined tumor in the region of the cardia, which could not be accounted for by the implication of any other organ in the abdomen. Should the disease extend upward so as to embrace the esophagus to a greater or less degree in the process, there would be, in addition to the symptoms of the stomach, those of implication of this tube, consisting of more or less constriction of its calibre, with the resulting interference with swallowing. The location of these could be probably established by the use of the esophageal tube on which the distance from the incisor teeth to the constriction could be ascertained, and the location of the upper border of the constriction be thus determined. Other causes of interference with swallowing might relate to some disease of the neighboring parts, such as aneurism of the thoracic aorta, which would probably be indicated by sufficiently evident signs peculiar to this lesion. Malignant disease, or inflammatory conditions of the anterior or posterior mediastinum, or its contained glands, tuberculosis, enlargement or malposition of the heart, the existence of effusion or other path-

ological product in either chest cavity or the pericardium, would also deserve consideration.

The diagnosis between carcinoma of the stomach and ulcer of the stomach may be sometimes a matter of doubt for a time, but the progress of the two maladies is so diverse that a distinction would soon be possible in most cases. The possible relation of cancer of the stomach to ulcer of this organ has often been suspected, but has not yet been satisfactorily proved; but the relation of ulcer of the stomach and cancer of the cardia may well be doubted, and a confusion between the two diseases in this location would appear impossible.

In cardiac cancer, vomiting is apt to occur very soon after taking food. If the food is unchanged in character and of alkaline reaction, it has never entered the stomach at all. Dysphagia is often also present.

Vomiting and other symptoms of stenosis may disappear through breaking down of a tumor and the removal of obstructing masses. The cardia is not accessible to palpation, as it is under the margin of the ribs, and also beneath the left lobe of the liver. Tumors of the cardia cannot be detected at all, and many others only when very large, or when there is displacement of the surface affected, or malposition of the entire organ. Tumors of the pylorus often transmit the pulsations of the aorta. Cancer of the stomach may also be simulated by hard fecal masses in the colon. In one case seen by the writer a dense mass of firm tissue was detected extending from the margin of the ribs to the region of the cardiac orifice of the stomach, which resembled an enlargement of the cardiac end of this viscus, but was later found to be the end of a sinus which had extended from the border of the left scapula downward around the chest, and had penetrated the abdominal cavity, where it had become attached to and had perforated the wall of the transverse colon, thus forming a channel from a large abscess beneath the scapula, the contents of which were discharged from the rectum.

Osler (page 377) states that cancer of the cardia may be associated with wasting of the organ and reduction of its size. The esophagus above the obstruction may be greatly dilated. Perforation may occur into the colon, small bowel, pleura, lung or pericardium. Edema and anasarca may occur as a result of the anemia due to cachexia. In one case reported by Osler, a portion of the left lobe of the liver was found in the stomach, having entered that viscus through a large perforation of the gastric wall, from cancerous ulceration near the cardia.

Hilton Fagge, in his work (Vol 1, page 316), states that, "cancer of the cardia is not always detected by the most careful examination during the early stages of the disease." In a case under his care "the primary stricture was latent, and the first symptoms were those of paraplegia, caused by secondary development of cancer in the vertebræ. . . . The cases which are reported as cancer of the esophagus are often not correctly described; the disease is very rare, and its detection not easy. Moreover, in every one of the four or five cases that have at different times been recorded under the name of 'cancer of the cardia,' in the reports of post-mortem examinations during twenty years, there is room for supposing that the disease began either in the esophagus or in the lesser curvature of the stomach."

RELATIVE FREQUENCY.

Prof. W. H. Welch believes that from the recorded statistics the location of the several varieties of cancer of the stomach is about as follows: At the pylorus, 60.8 per cent.; at the lesser curvature, 11.4 per cent.; at the cardia, 8 per cent.; on the posterior wall, 6.2 per cent.; in the whole or greater part of the stomach, 4.7 per cent.; multiple, 3.5 per cent.; greater curvature, 2.6 per cent.; anterior wall, 2.3 per cent.; in the fundus, 1.5 per cent. Out of 55 cases of cancer of the stomach reported by Prof. William Pepper the disease was seated at the cardiac orifice eight times, or 14.5 per cent. Ewald gives the ratio as 10.11 per cent., and Luton as 7.87 per cent.

PATHOLOGY.

The pathology of carcinoma of the cardia is the same as that of other varieties of this disease, that is, it consists of an inordinate development of the epithelial structures of the part in which it is located, or of that of some epithelial surface from which the diseased tissues have been brought to the part affected in the way of metastasis, or by contiguity, or other means. The history of the disease in its primary or subsequent location is essentially the same, and is comprised in the inordinate development of the epithelial cells, which soon exceeds the natural boundaries of this tissue; and instead of only covering the surface, it dips in large masses into the deeper tissues and forms nodules or lumps of epithelial cells, supported by connective tissue in greater or less amount as a stroma. At times the amount of connective tissue is so large that the cancerous nodule is dense and firm, and in some cases it would seem that the connective tissue by its power of contraction may so compress and strangle the proliferated cells, that they may necrose and be rendered harmless for many years, or during the life of the patient. I have seen cases in which I think this may have occurred.

The most common form of gastric carcinoma is one in which there is a massive development of epithelial cells, so that in some cases the connective tissue may be only preserved in the form of a reticulum, or stroma of attenuated form. This may be quite vascular, and thus the entire growth be soft, moist, and easily inclined to bleed. There is also an early tendency to ulceration of the diseased structures, which soon present a more or less deep excavation at the seat of the disease. This does not tend to heal, but constantly extends. The increased hyperplasia of the epithelium is followed by necrosis of the new-formed tissue.

In cylindrical structures the calibre of the organ affected may be seriously diminished by the proliferation of the growth into its lumen, and at times the patency of the canal may be entirely obliterated by the disease, or a stricture of the tube may occur from the circular extension of the cancerous hyperplasia. This is what is thought to have occurred in the case reported in this paper, in which complete closure of the passage from the esophagus into the stomach was produced by the growth, but in which after an interval of a few days fluids, and later soft solids, could be again swallowed.

The above feature in the progress of this case was one of the most interesting facts in the phenomena of the disease. If the correctness of the statement concerning closure of the cardiac orifice of the stomach

be questioned, it can only be stated that the most careful examination was made both by Dr. Lovett and the writer, upon this point. Of the increasing resistance, and the larger size of the growth at the time of the previous visit there can be no question; and the power of swallowing was then suspended; but after about forty-eight hours of much distress in the region of the cardiac orifice, the patient experienced a sense of relief, and the ability to swallow was regained. At the same time a profuse diarrhea of colliquitive character occurred with stools of offensive or "putrid" nature, which continued in more or less profuse amount until death. At the next visit, the patient was able to take liquid food without discomfort, and the mass in the region of the cardia was found to be much softer, less sensitive, and, moreover, the patient distinctly felt the substances swallowed pass into the stomach. Dr. Lovett and the writer both examined the patient with much care, and were equally satisfied that the tumor had diminished in size and hardness, and that the constriction at the cardiac end of the stomach had been relieved by the ulceration of the internal surface of the growth. The frequent and profuse stools of putrefactive character would also to a certain extent corroborate this view. Complete occlusion of the cardiac orifice did not again occur during the patient's life.

The course of carcinoma in the cardiac region of the stomach is accompanied and followed by the same general symptoms and phenomena as when located in other parts of the body. One of the frequent features attending its progress is the infection of the lymphatic glands of the vicinity — in the mediastinum, the lumbar plexus, those of the groin, of the axillary region, etc. The two latter groups of glands were infiltrated and enlarged during the later stages of the disease in our patient. Cases are reported in which the disease had invaded the bronchi, the pleura, and one in which it extended backward and eroded the vertebræ, causing the clinical symptoms of caries and acute inflammatory disease of the spinal cord, while the existence of cancer of the cardia was not suspected. One of the most serious attendants of cancer in the cardiac region of the stomach is found in the occlusion of the lumen of the esophagus either from the projection of the cancerous masses into its canal, or from the constriction of its walls due to invasion of the pathological process. The patient then experiences the dangers of inanition, and may succumb to the pangs of starvation before the pathological growth would of itself prove fatal. Under these distressing circumstances the food although swallowed, is returned at once into the mouth unchanged, thus presenting a valuable diagnostic indication of the nature of the disease, if any doubt had previously existed. At times, blood may appear in the rejected food, or the histological elements of the malignant growth may be detected by the microscope. In diminished calibre of the cardiac orifice, even to entire closure of its lumen, there is sometimes subsequent restoration of the power of deglutition, with relief to the symptoms of starvation, owing to the ulceration of the constricting carcinomatous tissues, with the re-establishment of communication between the esophagus and the stomach.

The chief features of interest in connection with this individual case, relate to the diagnosis of malignant disease in the region of the cardiac orifice of the stomach, and the treatment appropriate to its relief. Measures

to this end would naturally fall into two general classes, namely, those having for their aim the removal of the pathological growth by surgical measures; and those calculated only to relieve the distress of the patient, to facilitate the nutrition and thus lengthen life; though having no direct tendency to cure the disease. The choice between these methods will probably not often be within the discretion of the medical attendant, as the patient can seldom be persuaded to submit to so serious an operative measure as an attempt to remove the disease, at a time when alone this operation would seem justifiable or feasible. The attempt to remove a cancer of the cardiac end of the stomach at any other than an early period of the disease would hardly be encouraged by a careful practitioner.

The only remaining procedure which could be employed with any prospect of relief to the patient, is some operative interference having for its object the introduction of nutriment into the stomach by other than the natural passage. The effort to accomplish this object has given rise to the various operations for gastrostomy, many of which have been discarded on account of difficulty of execution, or unavoidable tendency to a fatal termination. The later operations, however, by which an immediate opening into the cavity of the stomach allows the introduction of food into its cavity soon after the operation, seem to offer better results. Such an operation would undoubtedly be justifiable, and should be recommended whenever the stenosis of the cardia becomes sufficiently developed to cause notable difficulty in the ingestion of food.

In the history of the present patient, the failure to carry out some operative measure for palliative relief at a season when this might seem to have been indicated, is not justly chargeable to the medical attendant nor to the consultant.

Of the actual treatment of cancer of the cardiac orifice of the stomach, unfortunately there is not much to be reported. In almost no region of the body is malignant disease more hopelessly removed from measures of radical treatment adapted to malignancy than in that which is the seat of this affection. Owing to the nature and progress of the malady, there is very little hope of benefit from purely medicinal methods of management. Any operative procedure is accompanied by the gravest prospects for even temporary relief, and a permanent cure must be exceedingly rare. The most which could be reasonably expected from surgical interference would be a temporary alleviation of the distressing symptoms caused by the difficulty of swallowing food, the pain accompanying its ingestion, and the irritation of the diseased area from the passing of the food-masses over its surface. The use of bougies is reported to have been of service for a time in some cases, but the relief has never been of more than temporary character. The closure of the lumen of the cardia from the proliferation of the diseased tissue has at times been followed by the ulceration of the occluding growth, and the restoration of the connection between the esophagus and the stomach, with renewed ability of swallowing. This phenomenon was observed in the case reported in this paper.

The treatment advocated by the few who have alluded to this disease, and its management, so far as known, consists almost exclusively of measures for the alleviation of the distress of the patient by surgical means. Thus Pepper says, "In the light of the fact that purely medicinal treatment affords no promise

whatever, we must wait with hope for further experience in operative procedures (Vol. III, page 731). Hilton Fagge states that "the treatment of stricture of the esophagus [cardia?] is purely mechanical, and consists in the use of appropriate dilators or bougies. The utmost care and gentleness are essential, or fatal perforation may ensue. The most valuable indication of stricture is the return of food into the mouth, without change, and the surgeon should consider as probable causes of this: first, thoracic aneurism; second, cancer of the esophagus; third, all other probable causes of obstruction in the tube."

Several methods of surgical interference have been advocated for the relief of cancer of the cardia, and Levy⁹ describes an operation he has recently devised, with the help of Fehleisen, for resection of the boundary between the esophagus and stomach. Such an operation, he holds, is rendered justifiable in cases of malignant disease by the success that has attended resection of the pyloric end and of a large portion of the anterior walls of the stomach. The indications for such treatment are regarded as more urgent in cancerous stenosis at the cardiac end than for a like condition at the pylorus. In the latter the patient may be relieved by establishing a communication between the stomach and small intestine, or by forming a gastric fistula; whilst in the former, if the disease be allowed to take its course, nothing can be done to alleviate the consequences of its rapid and extensive growth.

"There are, however, anatomical difficulties in uniting the cardiac end, which at first sight would seem very serious. It might be necessary to divide both vagi nerves, and the connection of this portion of the stomach with other important structures is very extensive and close." In considering the difficulties, the author points out "that the fibres of the vagi as they pass into the abdomen with the esophagus may be divided without any danger to life, and states that by investigation on the human cadaver and on dogs he has proved the possibilities of isolating the cardiac end of the stomach to such an extent that it may be cut away and the divided end of the esophagus be stitched to the margins of the gastric wound. In the operation here proposed, a rectangular incision is made through the abdominal wall, one limb running in the middle line from the ensiform appendix to the umbilicus, the other carried from the lower end of this through the whole breadth of the rectus muscle on the right (?) side. The left half of the smaller omentum is separated from the stomach and the left gastro-epiploica coronary artery and vein are divided between two ligatures. After separation of the cardiac end of the stomach from the structures behind, the lower part of the esophagus is isolated by dividing the serous membrane round this tube with scissors, exposing the anterior part of the esophageal foramen in the diaphragm, and tying all visible vessels, mostly branches of the phrenic arteries, at this part. At this stage there is a risk of wounding the pleura. The intestine being carefully protected by gauze, the posterior wall of the esophagus beyond the disease is stitched to a healthy portion of the stomach, and then the cardiac end of the stomach is divided by a succession of strokes, the cut edges of the anterior and posterior walls being stitched together at each stroke of the knife or scissors beyond the orifice left for the attachment of the esophagus. This tube is now divided in a similar way, each portion as it is cut

being stitched to the opening in the stomach. If the esophagus be not fixed before it is completely divided, it will retract and disappear above the diaphragm. The sutures are not carried parallel with the long axis of the esophagus, but obliquely through its coats."

In reviewing the case described in this paper, it is not apparent that any operation would have materially contributed to the relief of the patient after the re-establishment of swallowing, or have essentially prolonged his life. The performance of the operation devised and described by Levy, but of the execution of which I can find no record, would without doubt have secured one desirable result, namely, the autopsy of the patient, while the disease was still in a comparatively early stage of hyperplastic development. Whether any palliative or radical operation would have been of material benefit, to the patient, at any period after coming under medical observation, may well be questioned; but there is a possibility that very early operation might have offered the means of extirpation of the malignant disease. It may, however, well be doubted if the majority of patients would listen to the suggestion of a serious, and quite possibly a fatal operation, at a time when the disease is the source of little pain or inconvenience, and the apprehension of the patient has not been aroused by the development of any serious subjective symptoms.

REMARKS ON THE OPERATIVE TREATMENT OF STRICTURES OF THE DEEP URETHRA.¹

BY PAUL THORNDIKE, M.D.

WHATEVER may be our belief as to the curability of organic stricture of the male urethra, and whatever may be our prejudice for or against the operation of division in any of its forms, or of internal urethrotomy as applied to strictures of the deep urethra, it is probably true that the bulk of surgical opinion to-day is in favor of cutting from without such cases of stricture of the deep urethra as cannot be properly cared for by careful and gradual dilatation with graduated instruments. That the latter cases, that is, those which are treated by gradual dilatation, form a much larger class in the practice of some surgeons than in that of others goes without saying. Still, it must be true that a very large percentage of cases of deep stricture need operative interference of a kind more immediately efficacious than that which can be given by any form of gradual dilatation. Very many of these cases need a cutting operation from without.

It is not the writer's purpose to enter into any discussion of the merits and demerits of the various other operative procedures, such as divisions or internal urethrotomies, at the surgeon's command; or to consider the class of cases adapted for one or the other of these different operations. That has been done many times over. Suffice it to say, that many of these cases of deep stricture need a cutting operation from without; and whether they form a large or a small number in the practice of any one of us, is not the point under consideration. It is of these cases that the writer wishes to say a few words, taking it for granted that an external urethrotomy has been decided upon. It is of the technique of the procedure itself that he wishes to speak.

¹ Read at the Annual Meeting of the American Association of Genito-Urinary Surgeons, at Niagara Falls, N. Y., May, 1895.

⁹ *Centralblatt für Chirurgie*, No. 31, 1894.

By an external urethrotomy is meant not merely nicking a hole in the urethra behind the obstructed portion and so draining the bladder without interfering with the strictured portion of the urethra. This was the procedure known as the boutonnière operation of which Cock's operation was a modification.

An external urethrotomy properly performed not only drains the bladder, but attempts the cure of, or the betterment of, the strictured area itself by dividing the stricture. To accomplish this end, the operation is always one of exactness and precision, and frequently one of great technical difficulty. Any procedure which will assist in limiting the technical difficulty of the operation and in shortening the length of time required for its performance would seem to be worthy of our consideration unless there are contraindications for its use.

The procedure for which your consideration is asked is the operation of internal urethrotomy performed with the Maisonneuve instrument and followed *at once* by a perineal section. It was first suggested to the writer by Dr. M. F. Gavin of the City Hospital in Boston, and is now a procedure in common use in that hospital for cases of deep stricture presenting difficulties to the ordinary external operation.

The filiform bougie is passed through the stricture, the Maisonneuve guide is then screwed on, passed down through the stricture, and the stricture cut with the knife in the usual way. The knives should be made large enough so that the stricture can be cut to any calibre desired. Then the instrument is removed, a good-sized, grooved staff can be readily introduced and the perineal opening made in an instant with ease and precision. If the groove in the Maisonneuve guide be made on its convexity, the cut will be made on the floor of the urethra and thereby obviate the necessity of cutting the urethra both on the floor and on the roof.

Hemorrhage and sepsis are the two great dangers to be feared after internal cutting operations on deep strictures, and it would probably be hard to find many surgeons who would advocate such operations in the deep urethra. The combined operation has frequently been suggested as a means of doing away with these risks, and Mr. Reginald Harrison of London has written much upon it. This combination of procedures is called to your notice in a brief way, not as an operation which is new or worthy of universal adoption, but merely as an aid in certain cases which without it might prove very difficult of performance. The writer's experience with it is limited, but he has seen enough of it to be convinced of its great assistance in the cases where it can be properly used. It can be done in all cases of deep stricture when the introduction of a filiform bougie is possible, and in the writer's belief, should be done in many of them. It is then applicable to a large class of cases, saves much time in difficult operations, and greatly increases the precision of work, as the metal guide can be readily seen showing through the already opened urethra when the perineal incision is made. The advantages of perfect drainage are, of course, apparent; and by extending the perineal incision backward so as to give room for drainage behind the cut stricture, complete rest and cleanliness of the stricture itself can be maintained.

The great ease and rapidity of the operation and the perfect drainage which it provides can only be ade-

quately appreciated when the procedure is tried and contrasted with the difficulty and slowness of many of the operations of external perineal urethrotomy with which all of us are familiar.

Reports of Societies.

THE AMERICAN ASSOCIATION OF GENTTO-URINARY SURGEONS.

NINTH ANNUAL MEETING, NIAGARA FALLS, MAY 28 AND 29, 1895.

(Concluded from No. 16, p. 401.)

IODOFORM OINTMENT INJECTIONS IN THE TREATMENT OF SUPPURATIVE ADENITIS OF THE GROIN.

DR. JAMES R. HAYDEN, of New York, read a paper on this subject, and described the following method of treating buboes which he has found very satisfactory: The operative field having been shaven and rendered surgically clean, a few drops of a four-per-cent. solution of cocaine are injected beneath the skin where the puncture is to be made. The pus is then evacuated and thoroughly squeezed out through a small puncture. The abscess cavity is then injected with pure peroxide of hydrogen until the fluid returns practically clear. It is then washed out with a 1 to 5,000 bichloride solution and injected with a ten-per-cent. iodoform ointment. Then a cold bichloride dressing is applied, with the idea of congealing the ointment. The patient should be kept quiet for forty-eight hours, although it is not necessary that he be confined to bed. The dressings are removed on the third or fourth day.

DR. W. K. OTIS said that while in many instances the method of treating buboes described by Dr. Hayden is the best, he has usually found that a single injection is not sufficient. Sometimes balsam of Peru is more efficacious.

DR. POST said that by merely evacuating the buboes through an aspirator, without injecting iodoform ointment or anything else, we may occasionally effect a cure. After evacuation, a firm spica bandage should be applied. No single method is applicable to all cases.

DR. TAYLOR said he employs the Fontan-Scott Helm method of treating buboes with almost uniformly good results. Since adopting the plan of washing out the abscess cavity with peroxide of hydrogen, better results have been obtained than heretofore. The fact should be borne in mind that with syphilitic adenopathies we sometimes get a slight periglandular infiltration which is apt to give rise to the sensation of fluctuation.

DR. LEWIS said that if enucleation is performed sufficiently early, when the skin is not very much involved, we can sometimes get almost primary union. In one instance he succeeded in getting primary union on both sides. He has employed the injection method of treatment with varying success.

DR. JAMES BELL, of Montreal, said that in his experience, the cases suitable for the injection method of treatment are comparatively rare. When there are broken-down glands or peri-glandular ulceration, the injection method is quite unsuitable. Enucleation is not difficult, and the only objections to it are that it requires the use of an anesthetic and leaves a scar.

The greater portion of the wound can usually be sutured.

THE INFILTRATION METHOD OF LOCAL ANESTHESIA IN GENITO-URINARY SURGERY.

DR. BRANSFORD LEWIS, of St. Louis, read a paper on this subject. He stated that in July, 1894, Dr. Schleich, at the German Congress of Surgeons, detailed a new method of producing local anesthesia by the use of intra-cutaneous injections of various drugs. Later, in a monograph entitled "Schmerzlose Operationen," the author treated the subject more extensively, and gave the results of its use in some 3,000 operations, minor and major. The principle of the method consists in injecting intra-cutaneously certain solutions and dissipating the sensibility of the peripheral nerves by the pressure of the infiltrated fluid, by the anemia which it causes, and by the comparatively low temperature at which it is injected. The effects are produced by the fluid itself, rather than by any particular drug which it may contain. The drugs used are of only incidental importance.

In his various surgical procedures, Dr. Schleich found the three following solutions, of graded strength, to answer all purposes.

SOLUTION No. 1.

Cocain. muriat.	. . . . .	3 gr.
Morph. muriat.	. . . . .	1-3 gr.
Natr. chlor.	. . . . .	3 gr.
Aq. dest. ad	. . . . .	3 oz.
M. Sterilise. Adde sol. ac. carb. (5%) 3 gttts.		

The other two solutions are practically the same, the only differences being that in solution No. 2 the amount of cocaine used is reduced to one and one-half grains, while in solution No. 3 only one-sixth of a grain of cocaine is employed and one-twelfth of a grain of morphine.

DR. BRYSON referred to a case (reported in the *New York Medical Journal*, April 27, 1895) in which he performed complete castration for prostatic overgrowth under cocaine anesthesia. The patient did not feel the slightest pain. Of late, in operating about the bladder, especially in old men, he has been inclined to use cocaine anesthesia in preference to chloroform or ether. He has had no experience with the solutions mentioned by Dr. Lewis. He has employed very dilute cocaine solutions, and the results obtained did not impress him very favorably. He would prefer to use cocaine in those cases where it is possible to first strangulate the parts by a ligature, and so make sure that too much of the drug will not enter the general circulation too rapidly.

DR. CHISMORE said he has twice performed perineal section under the use of very weak solutions of cocaine. In one of the cases, the patient stated he felt no pain whatever. The second patient complained very much of pain when the deeper tissues were handled.

DR. LEWIS, in closing the discussion, said that in the method described the cocaine is only added to produce an immediate and not a permanent effect. We can employ this method in operating on the deeper tissues and in regions which cannot be strangulated by a ligature. Schleich has employed it in performing nephrectomy.

REMARKS ON THE SEMINAL VESICLES,

by DR. EUGENE FULLER, of New York.

These remarks were illustrated by numerous photo-

graphs of dissections made by the author, which tended to clear up various anatomical points which have hitherto remained in doubt. The exact relation which the prostate bears to the seminal vesicles was shown, and from this relationship inferences relative to the mechanism of ejaculation were drawn. One of the most interesting photographs was that showing the interior of a seminal vesicle, together with its ejaculatory duct. This photograph showed that the cavity of the ampulla of Henle is shut off from that of the vesicle by a valve-like opening, and that the former is very small in comparison with that of the vesicle. By these anatomical demonstrations, Dr. Fuller showed that his process of stripping the vesicles was capable of accomplishment, and that the material stripped out came from the vesicle, and not from the ampulla. The author stated that the photographs, together with a full description, will shortly be reproduced in a book which he is preparing on the subject.

THREE CASES OF EPITHELIOMA OF THE PENIS.

DR. W. N. WISHARD, of Indianapolis, reported these cases, and exhibited a number of photographs illustrating the manner in which each was dealt with. In two of the cases the amputation was made close to the scrotum. In the other, the corpora cavernosa and testes were removed entirely, a small scrotal pouch being left in the event of any subsequent necessity for plastic work. The mucous membrane of the urethra was stitched to the margin of the skin. In all of these cases the disease had advanced far back towards the scrotum at the time of the operation, and in neither of them were the inguinal glands involved. The first case was operated on eight years ago; recurrence took place a year and one-half later at the point of amputation and the patient soon afterwards died. The second case was operated on over four years ago, and the third case six months ago; in neither of these are there any signs of recurrence.

DR. BRYSON referred to a case of epithelioma of the testes coming under his observation, in which the abdominal glands became infected while the inguinal glands were not at all involved, although the scrotum had become infected some months previous to the patient's death.

DR. TAYLOR said that cancer of the penis usually centres itself in the inguinal ganglia, and even if the glands do not appear to be enlarged, they should be taken out, as they are often distinctly cancerous.

DR. CHISMORE referred to a case of epithelioma of the penis reported by him last year in which he removed only about one-third of the glands penis and a few months later the glands in the right groin, which had become involved. About fifteen months after the amputation of the penis one of the glands in the left groin became involved and was removed; the wound never healed, and with the greatest rapidity there sprang from that incision a large, cauliflower-like growth which attained the size of a small cabbage. The patient recently died. There were no signs of recurrence in the right groin or at the point of amputation.

DR. LEWIS said the lines of infection in cases of cancer of the testes and of the penis are essentially different. In the former, the direction of infection is in the iliac glands, while in cancer of the penis the glandular infection is always in the groin. He con-

sidered it desirable, when the penis is removed, to remove the testes also; otherwise the stump of the penis rubbing against the clothing is apt to produce a certain amount of erethism, which increases the blood-supply to the parts and may possibly act as a factor in the recurrence of the disease.

DR. WISHARD, in closing the discussion, said he was in favor of removing the testes in these cases.

SECOND DAY.—WEDNESDAY.

DR. JOHN P. BRYSON, of St. Louis, read a paper on

A TABULATED REPORT OF 27 OPERATIONS FOR PROSTATOMYECTOMY BY THE SUPRAPUBIC ROUTE, WITH REMARKS,

and in connection therewith he presented a table giving the details of each case. The author stated that this series was commenced when this method of attacking the prostate was still in its infancy, and the technique far from complete. The ages of the patients ranged from fifty to seventy-eight years. The mortality for the entire series (27 cases) was a little over 25 per cent., but this does not represent the true death-rate of the operation. Three cases should be excluded from the mortality list, one of which died from hemorrhage from sarcomatous disease of the prostate, and two from pyelonephrosis. Eliminating these three, there were 24 cases with four deaths, a mortality of 16.6 per cent. A radical cure was obtained in 13 of the cases, evidenced by the absence of residual urine, good rest at night, and a practical cure of the cystitis. In two cases, no benefit whatever appeared to have resulted; these patients were aged, respectively, seventy-two and seventy-eight years, were far advanced in senile degeneration, and were operated on mainly in the hope of relieving the most distressing symptoms of "prostatism," namely, frequent and painful urination and inability to get rest or sleep either night or day. The rectal bag of Peterson was used in every case, and in only one instance was there any symptom of irritation to be attributed to it. In nine cases a median perineal incision was combined with the suprapubic opening for the purpose of assisting in removing submucous and intramural masses or to secure proper drainage, or for both purposes. In the earlier operations an attempt was made to close the supra-vesical wound with sutures, later on to abridge the incision by the same means, with the hope of hastening the closure of the wound; these efforts were unsuccessful in every instance.

SIX SUCCESSFUL AND SUCCESSIVE CASES OF PROSTATOMYECTOMY.

DR. EUGENE FULLER, of New York, read a paper on this subject, the important feature of which was the presentation of a method of operation in these cases by means of which the prostatic obstruction is enucleated. An ordinary suprapubic cystotomy is first performed; then an incision is made through the floor of bladder; this incision extends from the lower margin of the vesical opening of the urethra backwards for about an inch and one-half, and is made with rough, serrated-edged scissors, in order to avoid hemorrhage. The forefinger of one hand is then introduced through this cut, while the fist of the other exercises counter-pressure upon the perineum, in order to bring the growth well within the reach of the fore-

finger. By manipulation, the obstruction can gradually be enucleated, the hypertrophy coming away in one or several pieces. After the enucleation, a perineal incision is made for dependent drainage, the inner end of the drainage-tube entering the bladder through the lower vesical incision made for the enucleation. The suprapubic vesical and abdominal incision is then tightly sutured, with the exception of a small space for a drainage-tube. The reader said that he had never experienced trouble from hemorrhage, either primary or secondary, by this method of enucleation, and felt safe in closing the suprapubic cut. By this method Dr. Fuller claimed the mortality is reduced, and excellent results obtained. He detailed six successful and successive cases operated upon during the past year.

DR. BRYSON reported

A CASE OF COMPLETE CASTRATION FOR PROSTATIC OVERGROWTH: OBSERVATION FOR FOUR MONTHS.

The patient was a man seventy-four years old, who showed evidence of beginning "prostatism" at the age of fifty-six, the symptoms of which gradually increased in severity. When he came under observation there were six ounces of residual urine, with marked diurnal and nocturnal frequency. A cystitis and mild pyelonephritis developed. Two separate attempts to enter upon catheter life failed, on account of the great difficulty to enter the bladder and the recurrence of cystitis. Dilatation of the heart and pulmonary emphysema supervened. All the unfavorable symptoms increasing, complete castration was performed four months ago. It was immediately followed by demonstrable results. There was a marked and satisfactory diminution in the size of the enlarged prostate, without, however, any change in the frequency of urination, day or night, and with but a slight decrease in the amount of residual urine. The pyuria and pyelonephritis remained practically the same as before the operation. In short, the double orchidectomy has caused an almost complete atrophy of the prostate gland, without effecting any change in a chronically inflamed and degenerated bladder, and without curing or even benefiting a chronic pyelonephritis from extension.

THE RESULTS OF TREATMENT OF HYPERTROPHY OF THE PROSTATE.

DR. J. WILLIAM WHITE, of Philadelphia, read a paper on this subject, in which he gave the following conclusions:

(1) The function of the testes, like that of the ovaries, is twofold: the reproduction of the species, and the development and preservation of the secondary sexual characteristics of the individual. The need for the exercise of the latter function ceases when full adult life is reached, but it is possible that the activity of the testes and ovaries, in this respect, does not disappear coincidentally, and that hypertrophies in closely allied organs, like the prostate and the uterus, are the result of this misdirected energy. This hypothesis would increase the analogy between the fibro-myomata of the uterus and the adeno-fibromata of the prostate, which, from a clinical standpoint, is already very striking, and is further strengthened by the almost identical results of castration in the two conditions.

(2) The theoretical observations which have been

urged against the operation of double castration have been fully negated by clinical experience, which shows that in a very large proportion of cases (thus far, in approximately 87.2 per cent.) rapid atrophy of the prostatic enlargement follows the operation; disappearance or great lessening in degree of long-standing cystitis (52 per cent.), more or less return of vesical contractility (66 per cent.), an amelioration of the most troublesome symptoms (83 per cent.), and a return to local conditions, not very far removed from normal (46.4 per cent.), may be expected in a considerable number of cases.

(3) The deaths have been 20 in 111 cases, a percentage of 18; but of these there seem to be 13 that may fairly be excluded in an attempt to ascertain the legitimate mortality in patients operated upon under surgically favorable conditions, that is, before the actual onset of uremia, or before the kidneys have become disorganized by the two factors rarely absent in advanced cases—backward pressure and infection. This would leave a mortality of 7.1 per cent., which will probably be decreased as advancing knowledge permits of a better selection of cases. It is important to know that even the desperate cases, which make up this series of deaths (15 or 75 per cent.), showed improvement of symptoms or shrinkage of the prostate before they died.

(4) A comparison with other operative procedures seems to justify the statement that, apart from the sentimental objections of aged persons, on the one hand, and the real, entirely natural and very strong repugnance to the operation felt by younger patients, castration offers a better prospect of permanent return to nearly normal conditions than does any other method of treatment. The relatively greater degree of improvement in successful cases should be considered, as well as the mortality, in comparing the operation with the various forms of prostatotomy and prostatectomy; so too, should the absence of any risk of permanent fistulæ, perineal or suprapubic, and the ease and quickness with which the operation can be performed.

(5) The evidence as to unilateral castration is at present contradictory, but there can be no doubt that in some cases it is followed by unilateral atrophy of the prostate, and in two cases, at least, it has resulted in very marked improvement of symptoms. It is worth further investigation.

(6) My experiments on dogs have shown in nearly every case in which the vas deferens was tied and divided on both sides, that without much change in the testicles, there was beginning atrophy and considerable loss of weight of the prostate. These experiments need repetition and confirmation, as the absence of corresponding testicular change seems to make the results somewhat anomalous. It is possible that the inclusion or severance of small but important nerves may account for the effect on the prostate.

(7) Ligation of the vascular constituents of the cord or of the whole cord, produces atrophy of the prostate, but in my experiments, only after first causing disorganization of the testes.

DR. E. C. BURNETT, of St. Louis, reported

A CASE OF EARLY OBSTRUCTION OF THE EJACULATORY DUCTS.

The patient was a man aged thirty-five years; single; general health good. At the age of five he

was operated on for stone in the bladder, the left lateral lithotomy operation being performed. The patient stated that his testicles almost always pained him for a day or so after sexual indulgence. Sexually, he claimed that he was perfectly normal, excepting that he had never had an emission of semen. The external genitals were large and well developed. Upon the introduction of an endoscope into the urethra, the prostatic portion of the canal was found to be extraordinarily short, and the veru montanum was so small as to be barely discernable from the surrounding tissue. Palpation per rectum for the seminal vesicles disclosed the fact that they were not appreciable to the touch, and that the prostate was barely definable. The latter was much smaller than that of a boy of ten or twelve years of age.

During one of his examinations, Dr. Burnett noticed the scar upon the left side of the perineum, and upon inquiry as to its cause was informed of the lithotomy operation performed thirty years before. In this incident in the patient's early history lies the solution of the question as to the cause of his aspermatisms. Obviously, in the performance of that operation, the ejaculatory ducts were torn across, becoming permanently occluded, and through the occlusion of these ducts there followed arrest of development of the prostate gland and seminal vesicles. The author stated that obstruction of the ejaculatory ducts is given as one of the causes of atrophy of the seminal vesicles; he could find no reference, however, to any such influence over the prostate.

DR. HAYDEN reported a case of double castration for hypertrophy of the prostate in which there was marked relief of all the symptoms and the patient's general condition greatly improved.

DR. ARTHUR T. CABOT, of Boston, said he is inclined to believe that the early good effects following the operation of castration for hypertrophied prostate are largely or partly due to the diminution in the blood-supply to the prostate. The relief is too sudden to be entirely accounted for by the process suggested by Dr. White. Dr. Cabot then called attention to the possible secondary effects of this operation on the nervous system. In a certain number of the cases included in Dr. White's list, acute mania followed the operation, and the question comes up whether secondary nervous effects, such as premature senility, may develop later on. The speaker then reported a case in which he performed double castration and litholapaxy at one sitting; the patient was a man aged seventy-five years and in a rather shaky mental condition before the operation. Immediately after the operation he became decidedly maniacal. He was seen by a number of alienists, who expressed the opinion that his mental condition had nothing to do with the loss of his testes. As he failed to improve, however, it was decided to try injections of testiculin. The improvement following its use was very marked. He at once became calmer and more reasonable. Before his mental condition was entirely restored to the normal, the injections were stopped because of the pain they gave rise to, but the improvement continued. It simply seemed as if the injections started him off in the right direction. The speaker said he did not know whether any conclusions could be drawn from this case. It emphasizes, however, the importance of our knowing more about the possible remote effects of the operation on the nervous system before we are

will to displace other operations by this modern one, which certainly has the great merit of being without danger, so far as its performance is concerned.

DR. EDWARD MARTIN, of Philadelphia, said he has seen a number of Dr. White's patients upon whom castration was performed, and could confirm his statements regarding them. In one case in which he did the operation himself the result was very satisfactory. The patient is now comparatively well, and the frequency of urination, which was very pronounced, has disappeared.

DR. JAMES BELL reported five cases of prostatectomy, operated on by the suprapubic route; of these, two died, the fatal result in both instances being apparently due to toxemia. There was no suppression of urine, and at the autopsies nothing was found to account for the deaths. As regards double castration, Dr. Bell said he felt somewhat prejudiced against it. He dislikes the idea of the mutilation which it entails and it is hard to believe that such rapid atrophy of the prostate occurs as has been reported. We must make some allowance for the reports of cases by enthusiasts who are perhaps not as scientific or as skilled observers as is the originator of the operation. Moreover, the very simplicity of the operation renders it fascinating.

DR. W. T. BELFIELD, of Chicago, said that Dr. Bryson's paper showed the improvement that can be brought about in the technique of prostatectomy by extended experience. His results are based on a larger number of cases than have been reported by any other single operator, and they give us a fair idea of the position of prostatectomy to-day. Dr. Fuller's cases are even more remarkable, in that there is an entire absence of mortality. He did not quite understand how the operative technique pursued by Dr. Fuller differed from that heretofore employed by others, and was therefore unable to say whether that was an important factor in the brilliant results obtained. In some of his cases he has certainly removed very large prostatic masses, although probably no larger than were removed by Dr. White in the cases reported three or four years ago.

As regards the value of castration in prostatic hypertrophy, it evidently fails in many instances. The speaker said he would be unwilling to perform it until he has had his finger in the prostatic urethra. He has seen three cases in which the operation was urged where stone was found in the bladder. The operation is done so easily that it is much more apt to be abused than is one which requires a greater degree of skill. The note of warning which he recently uttered against the indiscriminate performance of the operation was provoked by the publication of a case where the facts plainly showed that it had been performed without due consideration.

DR. CHISHMORE said he was glad to see a more favorable outlook for operative measures on the prostate. As regards double castration, the facts that are fast accumulating in connection with the subject will soon bring out the proper value of the operation.

DR. E. E. KING, of Toronto, said he has thus far performed the operation of double castration in two cases, both of which proved fatal. In neither case, however, was death attributable to the operation itself. The first patient died of pneumonia on the fifth day, and at the autopsy it was shown that the prostate was reduced to fully one-half its former size; both the

glandular and stromal elements showed distinct evidence of shrinking. In the second case death occurred on the thirteenth day and at the post-mortem a pyelonephrosis was revealed. These two cases, the speaker said, cannot properly be included in Dr. White's mortality list.

DR. GLENN said that in cases of chronic hypertrophy of the prostate the testes are of no value, and he saw no reason why double castration should not be performed. Prostatectomy is a very serious operation. The speaker expressed the opinion that from a physiological standpoint, the prostate ought to decrease in size with old age and diminution of the sexual propensity, and he thought that prostatic hypertrophy is largely the result of early gonorrheal infection. He has performed double castration in one case. The patient was in very poor condition, and his death, which occurred several days later, could not be attributed to the operation.

DR. W. K. OTIS said he has been creditably informed that prostatic hypertrophy does not exist in Japan.

DR. PALMER said the etiology of the condition is obscure. It is said to be found most in those who neglect to urinate when the desire comes on.

DR. BANGS said his recent criticism of double castration for hypertrophied prostate was not directed against Dr. White, but against those who were unnecessarily and indiscriminately performing the operation. He was glad to welcome any addition to American surgery, and when a brilliant and distinguished member of our own Association presents a new measure, it is important that no discredit should be brought upon it at the outset. Fair and candid discussions, such as we have listened to to-day, will bring out the true value of the operation.

DRS. BRYSON, FULLER, BURNETT and WHITE then closed the discussion of this subject.

DR. PAUL THORNDIKE, of Boston, read a paper on

THE OPERATIVE TREATMENT OF STRICTURES OF THE DEEP URETHRA.¹

DR. PALMER said he still continues to treat his cases of deep urethral stricture by means of internal urethrotomy, and thus far has had no reason to change his method. He expressed the opinion that the dangers of cutting in the deep urethra without a perineal opening have been exaggerated. In performing the internal operation, it is necessary to observe the most careful asepsis. The hemorrhage is sometimes severe but can usually be readily controlled.

DR. W. K. OTIS said he did not agree with the statement made by Dr. Palmer that the dangers incident to cutting in the deep urethra have been exaggerated. He has seen almost fatal hemorrhage follow a deep internal urethrotomy, and he no longer employs that method when the stricture is below five and one-half inches. With a perineal opening the bleeding can be readily controlled.

DR. ARTHUR T. CABOT, of Boston, described

A CASE OF CANCER OF THE URETHRA.²

DR. FULLER stated that he reported a case of cancer of the urethra some months ago. An autopsy was refused, and it was impossible to ascertain just where the disease began.

¹ See page 417 of the Journal.

² See page 320 of the Journal.

DR. BRYSON said he has seen two cases where the disease evidently began in the fossa navicularis.

NEW INSTRUMENTS.

DR. W. K. OTIS exhibited the model of an instrument which consisted essentially of a small telescope attached to the urethroscope. By means of this instrument the urethroscopic field is enlarged and a better view obtained.

DR. BRANSFORD LEWIS exhibited a circumcision tractor and clamp.

DR. W. F. GLENN exhibited an instrument, consisting of a small roller attached to a long handle, which he devised for the purpose of milking the prostate and seminal vesicles per rectum. He also exhibited a circumcision forceps.

DR. GEORGE CHISMORE, of San Francisco, reported a case of

TRAUMATIC RUPTURE OF THE URETHRA: RESTORATION AFTER THIRTY-SIX YEARS.

The patient was forty-two years old, a brewer by occupation. At the age of six years, in order to avoid constantly wetting the bed at night, for which he had often been punished, he tied a string about the penis near the scrotum. The constriction thus produced entirely severed the urethra and corpus spongiosum, and divided fully one-half of the corpora cavernosa, so that on bending the penis upwards the severed ends of the urethra were over an inch apart. Two attempts were made in Germany to restore the urethra by a plastic operation, but both failed. Several months ago he came under Dr. Chismore's observation, who first made a perineal section, through which the urine was allowed to flow, and then denuded the tissues of the old wound, precisely as in done in attempting to close an old, torn perineum. The two ends of the urethra were then cut off squarely, a staff introduced, and then the severed portions of the corpora cavernosa were closely drawn together by means of a deep line of buried catgut sutures. Accurate approximation of the under surface of the urethra was obtained by these catgut sutures. No attempt was made to suture the upper or deeper half of the urethra, owing to the difficulty of accurately adjusting the stitches. The corpus spongiosum was closely sutured and the integument then brought together.

On the second day after the operation the man had an attack of delirium tremens. On the thirteenth day the catheter was removed and the perineal incision permitted to close. The man now passes his urine entirely through the normal urethra, the severed ends of which have united so closely that the introduction of a bulbous sound fails to reveal the line of union. Since the operation the man has had two erections, without pain.

In connection with the above case, Dr. Chismore exhibited a number of photographs to illustrate the technique of the operation.

The following officers were elected for the ensuing year: President, Dr. Claudius H. Mastin, of Mobile, Ala.; Vice-President, Dr. Francis S. Watson, of Boston; Secretary, Dr. W. K. Otis, of New York.

It was decided to hold the next meeting of the Association at Atlantic City, N. J.

A PENSION of £200 a year has been granted to the widow of the late Professor Huxley.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.

F. W. DRAPER, M.D., SECRETARY.

THE Annual Meeting of the Society was held at 19 Boylston Place, Boston, June 11, 1895, twenty-four members present and the President, DR. Z. B. ADAMS, in the chair.

THE PRESIDENT reported, for the Executive Committee, that in conformity with the committee's urgent request the attorney-general had transmitted to each medical examiner a communication officially "suggesting that he shall not consent to be employed in criminal cases excepting upon the request of prosecuting officers."

THE Treasurer, DR. PAINE, reported a balance of \$108.01 in the Society's treasury.

THE following were elected as the officers of the Society for the ensuing year: President, Dr. S. W. Abbott; Vice-President, Dr. B. H. Hartwell; Corresponding Secretary, Dr. J. A. Mead; Recording Secretary, Dr. F. W. Draper; Treasurer, Dr. A. E. Paine.

DR. G. DEN. HOUGH, of New Bedford, read a paper entitled

THE POST-MORTEM SIGNS OF DROWNING.¹

DR. SMITH, of Portland: It seems to me the subject has been more than exhaustively covered, and as a work of reference it cannot fail to be of essential service to the members of this Society and any one else who may have access to it for that purpose. I was particularly struck with an allusion which the reader made to the importance of placing a true estimate upon wounds upon the body. To me this has often proved a source of considerable annoyance and some apprehension. As most of you know, in the State of Maine we have no law controlling autopsies upon the dead bodies found in suspicious circumstances. Most of the autopsies are made at the discretion of the coroner — probably, all things considered, one of the worst things to further the ends of justice that could be advised. I have on several occasions been a good deal puzzled by marks on the body, some of which I have not found mentioned in works treating upon this subject. Of course, in a general way we should endeavor to account for wounds and for bruises or other lesions of the surface in the ordinary way, judging somewhat by the amount of discoloration, the particular portion of the body affected by these marks, bearing in mind the limitations made by immersion in the water, by the peculiar circumstances under which they are found; but it often becomes an exceedingly nice point, especially in cases of bodies found drowned when it may be suspected that the individual was intoxicated when he went into the water. Sometimes it is not only difficult, but absolutely impossible, to say whether an injury was received when the body fell from a bridge or wharf into the water, or whether it was received after death from drowning yet while the body was still warm. A year or two ago I met with a form of mark upon the body which I had not seen before, which was easily explained after a little investigation. I was called by a coroner to make an autopsy upon a body found floating in the dock, and from every evidence it was probable that the body had not been immersed more than ten or twelve hours.

¹ See page 409 of the Journal.

Information came to me at the time I was called that violence was suspected, because there was evidence on the face and side of the head of marks. I found the body in pretty fresh condition, with an area of discoloration upon the left side of the head just below the zygoma, and the temple and cheek and side of the neck finely spattered as though the skin had been perforated by powder-grains and the body had been superficially washed. I looked it over, examined it carefully, got out two or three of the grains, rubbed them in my fingers and they gave a pretty black mark. I took a sponge and carefully scrubbed the skin, and found the site of every one of these little black marks was a cleanly cut and chiselled wound, and microscopical examination of the material removed from the incisions showed it to be earthy matter, clearly the mud of the dock in which the body had been floating, and the little marks in the skin had been made by the edge of the little barnacles where the body had been washed back and forth and the head struck against the piling, and the marks were as beautifully done as though done with an instrument. The physician first called to see the case allowed his lack of judgment to get the better of him, and gave the coroner points on the powder-marks—and to the inexperienced eye they did seem to be such. Perhaps that is extraneous to the discussion. I introduce this as bearing in an interesting way upon the variety of marks that may be found. That impressed upon me the necessity for avoiding hasty judgments in cases of this kind, particularly where our actions and the circumstances of the case are likely to be the subject of public discussion in the papers.

I wish to express the great pleasure I have experienced in listening to the paper.

DR. W. S. BIRGE, of Provincetown, presented a paper on

A CASE OF CRIMINAL ABORTION WITH PECULIAR FEATURES.²

DR. QUIMBY: I was very much interested in the paper. I once had an experience in which the body of an infant was found concealed in an ash-heap in the rear of a house. On looking into the matter it was learned that the servant girl had been complaining of being unwell with the "summer complaint." This girl arose in the night, and was gone out in the yard an hour or so. The mistress of the house heard her as she came in and asked what the trouble was. She replied that she had diarrhea and had been out to the closet. The case came to trial before the grand jury. The cord was six or seven inches long. The child had evidently bled to death. The mother was allowed to escape on the ruling of the court that there was no evidence to show whether the child might have bled to death before fully born or not. She said she became unconscious, and while she lay there the cord was broken. There was no penalty beyond the matter of concealing the birth of the child.

DR. HOUGH: I should like to ask what the condition of the lungs was in the case that Dr. Quimby reported. If the lungs were fully inflated it would seem as if the child was entirely born before it died.

DR. QUIMBY: The lungs were inflated with air. They asked if the child could not have breathed when partially born, and I could not say; and on that technicality the girl escaped. I thought she ruptured the

cord and allowed the child to bleed to death, but could not say so.

DR. ADAMS: As to the possibility of concealment of pregnancy, I recall that almost the first puerperal case I was called to was that of a young woman who, her mother told me and I had every reason to believe it, carried a child to full term and it was born without their having for a moment suspected she was pregnant; and the child weighed about nine or ten pounds. She was a woman of ordinary size. So that it is not such an incredible thing as might at first appear that a woman should live among her relatives and carry a child to full term and not be suspected.

DR. HARTWELL: I should like to emphasize the President's statement with a case I had. A woman from the city came into the country seeking employment. She got employment in a family occupying a high position. Her condition was not suspected. After she had been there two or three weeks she felt unwell one morning, and said to the people that she had been to the water-closet several times during the night with an attack of diarrhea. They did not think it strange until the husband discovered the after-birth in the privy, recognized it as such, and the wife also said it could be nothing else. She accused the girl then and there, and she acknowledged that she had been pregnant and had borne a child, and told where it was. It was found with distinct marks of strangulation. She stated that the child was mature, weighed nine or ten pounds, that she came there with the purpose of getting rid of it, and that she choked it to death. These people employed the girl without suspecting pregnancy, and did not suspect it after the child had been born. The woman was arrested, but escaped from the officer and was never found.

DR. HOITT: I think this matter of criminal abortion should be taken up by the Society at some future meeting and discussed. I think it is a serious question to take into consideration. Within the last two months in my city, we have had two cases of the kind where children have been thrown away in this same way. I may mention a case where a lady came to town for the purpose of having an operation performed, and made application to one physician who refused, went to another who performed the operation, he making the subsequent calls. She and the family becoming somewhat dissatisfied with the treatment, a rival physician was called in who at once exposed the thing to the friends who had not been made acquainted with the facts, she being in a dangerous condition, as he thought. Believing herself at the point of death, she confessed. The judge requested me to go in company with the Clerk of the Courts and take her ante-mortem statement, which I did. She confessed that she went to his office with the express purpose of getting rid of a child, and not for the benefit of her health as he afterwards claimed in court. Finally, she recovered. The State did not work up the case one particle, and the accused was discharged. There was positive proof of guilt. There have been several such cases in the city of Marlborough in the last year, and I think it is a matter that should be looked into. Men are going boldly into this business, not only in Marlborough but in Boston, and I think it is our duty to expose these matters in order to stop this criminal work. In the case referred to, the ante-mortem statement was not introduced into the trial, as the woman lived.

² See page 412 of the Journal.

DR. HOUGH: I have been informed by a legal authority that it makes no difference whether the person recovers or dies after the making of an ante-mortem statement, believing that he is going to die. It holds, and a case was stated to me where a person's ante-mortem statement was used in court to contradict the statement made after the person recovered.

DR. HARTWELL: I think the doctor is right in relation to the ante-mortem statement. I have heard eminent legal authorities say it makes no difference whether the person lives or dies, that a statement made with the fear of impending death was of the nature of a statement under oath and had that same effect before the courts. I think the courts are not wholly to blame in the matter of prosecutions. A case once occurred in which I officiated. A physician was convicted of manslaughter. The court never sentenced him and he went free out of the courtroom. I do not remember whether there was an ante-mortem statement which the court would accept as being of the nature of a statement made under oath or not, but it was a most estimable young lady of the city of Marlborough, and she made certain statements which aided very materially in his conviction. But the sentence was never given.

DR. HOITT: For the information of this Society I will say that that case came up and was put over from term to term, and a petition was circulated requesting the judge, on account of the age and good behavior of the defendant in years past, to be lenient in his decision. The physician is now dead.

DR. HARRIS: There is no doubt that criminal abortion, certainly in Boston, is very prevalent. I don't think I exaggerate when I say that not a few are performing three or four criminal abortions every day and oftentimes for the modest fee of ten dollars. The reason that these people are not convicted lies first in the great immunity from danger of this operation. It ordinarily means a short indisposition, and most of them get off with their lives and then they do not tell. Another reason why they fail of conviction is because, while we, as medical examiners, know what steps to pursue, we are not in attendance, and the physicians in attendance do not know or do not take the proper measures to secure the conviction of the individual who performs the operation. The registered physicians of Massachusetts ought to know that in each of these cases they would further the ends of justice by obtaining this ante-mortem statement and also the conditions under which it must be obtained, that is, there must be collateral proof that the woman believes she is going to die, otherwise the testimony is of no avail. As citizens, it seems to me it is our duty to inform the physician in attendance what steps to take in order that these people may be convicted.

In regard to this matter of the ante-mortem statement, the gentleman is right in saying that a statement made in the belief of impending death can be used to contradict a witness if put on the stand. I do not believe it can be used if the witness is alive and testifies herself. If she testifies and contradicts that statement, it can be used. I would say, further, that two cases have come under my observation where women servants (in one case six weeks and in the other two months before delivery) had not been suspected of being pregnant by the people in the house. In one case the woman was found with a child on the floor of the kitchen, where it was concealed through

the instrumentality of the milkman; and in the other case, both woman and child were found dead, the woman having had a post-partum hemorrhage. So that the concealment of pregnancy under those circumstances is a tolerably easy matter.

DR. PINKHAM: One registered physician in Boston is well known in our community as a skilful abortionist who performs operations according to the demands of antiseptic treatment, and she also refers her patients for after-treatment to some regular physician. It is not uncommon to have patients come to the office to be treated for some uterine disease, and say that they have had so many abortions produced and some of them quite recently. The fact I wish to emphasize is, that that physician secured registration and is on the same standing as ourselves as regards the practice of medicine in the State of Massachusetts.

DR. HOUGH: I happened a few years ago to come across a case of concealed pregnancy where a girl living with her father and mother came to term. She told her people she had cramps in the stomach and they sent for a physician, who came and found what the trouble was. The girl asked him to shut the door, which he did. He delivered the child, rapped it up in a shawl, passed it out of the window to the father, and the child is alive to-day. The matter of ante-mortem statement is one I have had some question about in a case of abortion within a week. The attending physician in this case took legal advice about the ante-mortem statement so as to be sure he had it straight. He consulted one of the best lawyers in New Bedford, and followed his instructions, but he did not get an ante-mortem statement that any court would allow to go in. He was not able to show that the girl believed she was going to die. That is the whole point.

DR. BIRGE: I would like to ask if the physician performing the abortion in a case of that kind is responsible for the death of the child, or is it the mother?

DR. PINKHAM: I should think they were both responsible.

DR. HARRIS: It seems to me, in the case reported, the child was born alive. Then the mother was responsible if any one. In certain conditions the law would hold the mother not responsible. If the child is born dead the physician is morally responsible, but can only be prosecuted under the law of criminal abortions, not under the law against infanticide.

DR. PINKHAM showed a specimen illustrating

AN UNUSUAL CRANIAL FRACTURE.

The lesion was produced by a blow from a small bottle thrown at the deceased in a quarrel and striking the side of the head above the zygoma. The man lived about five hours, and the autopsy found a small, depressed fracture of the temporal bone, within which was a large extra-dural clot, compressing the brain.

DR. HOUGH stated that he was engaged in making observations upon the function of larvæ and other insect life in promoting putrefaction and in helping, by a study of their stage of growth and their variety, to determine the interval since the death of the person in whose body they are found. He asked the Society's co-operation in the work.

DR. HARRIS called attention to the lack of uniformity in the returns made annually by the medical examiners to the Secretary of the Commonwealth, under the requirements of the statutes.

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TOTAL EXTIRPATION OF THE EPIGLOTTIS BY SUB-HYOIDEAN PHARYNGOTOMY.

ROSENBAUM, in an interesting article in a foreign medical journal,¹ has collected all the cases on record (some thirty in number) of infra-hyoidean pharyngotomy for extirpation of the epiglottis. This operation was first performed by Prat in 1859, and was spoken of with favor by von Langenbeck twenty years ago. The following case, reported by Rosenbaum, will be of interest as giving a fairly typical description of the operation, and as showing how comfortably a man can live without his epiglottis.

February 17, 1892, there entered the private clinic of M. Israel a man aged sixty-four years with a cauliflower-carcinomatous outgrowth from the epiglottis, of three years' standing, and which had invaded the right lateral glosso-epiglottic fold. February 18th, tracheotomy was performed; and three days later, the tumor was extirpated by the sub-hyoidean method. The ordinary canula having been replaced by the sponge canula of Hahn, a transverse incision was made immediately below the os hyoides. The muscles attached to the hyoid bone were cut near this bone, only the lateral portion of the thyro-hyoid muscles being left intact. When the undivided fibres of these muscles were separated on each side, the superior laryngeal artery and nerve were brought to view; care was taken not to injure them. The median thyro-hyoidean ligament was then divided transversely close to the hyoid bone, then the glosso-epiglottic fold was cut. The epiglottis was then drawn well into the wound and completely extirpated.

With the epiglottis, a portion of the glosso-epiglottic folds was removed. A sound was placed in the esophagus, by the nares, and left; then the pharynx was closed from the side of the wound by sutures of the mucous membrane. The operation was finished by partial suture of the muscles and of the skin. In the cavity of the pharynx thus completely closed a

tampon was introduced, to which was attached a thread hanging out of the mouth.

The results of the operation were favorable. The first day the patient was very restless, and ejected the pharyngeal tampon during efforts at vomiting. The canula in the trachea was removed at the end of three days, and the sound in the esophagus three days later. For six weeks the patient was fed by the stomach-tube, which was introduced several times a day. At the end of three weeks, however, he could swallow solid food without great difficulty; and when finally the use of the stomach-tube was discontinued, deglutition had become almost normal. Some months later the development of carcinomatous glands made an operation for their removal necessary; but there was no further pharyngeal trouble, and at the present time, more than two years after the operation, the patient remains in good health.

The importance of a previous tracheotomy—two or three days before the operation—is insisted on by Rosenbaum, who also gives plain directions as to the care which should be taken to avoid wounding the superior laryngeal nerve, for section of this nerve would be a formidable accident.

According to Rosenbaum, there have thus far been published only three cases of total extirpation of the epiglottis—those of Burow, Schulten, and Krönlein. The success of Israel's operation from a functional point of view, has brought into prominence the fact that the epiglottis is not indispensable to the normal act of deglutition, which is sufficiently ensured by the reflex closure of the glottis and the movement which at the moment of deglutition carries the larynx upward and forward under the base of the tongue.

MEDICAL NOTES.

A "SYPHILIDOLOGICAL CONGRESS" will, it is announced, be held at St. Petersburg in November, 1896.

THE BRITISH MEDICAL ASSOCIATION.—The attendance at the July meeting of the British Medical Association was 6,000.

THE PASTEUR INSTITUTE.—It is thought that Dr. Duclaux will be appointed director and Dr. Roux sub-director of the Pasteur Institute.

IN MEMORY OF PASTEUR.—In honor of M. Pasteur the Paris Municipal Council have decided to give his name to the Boulevard de Vaugirard, which adjoins the Pasteur Institute.

A HELMHOLTZ TABLET.—A memorial tablet in honor of Professor Helmholtz has been affixed to the house, No. 8 Haditzstrasse, at Potsdam, where he was born in 1821.

THE GRAEFE MEDAL.—Dr. Leber, Professor of Ophthalmology in the University of Heidelberg, has been awarded the Graefe Medal by the Ophthalmological Congress recently held at Heidelberg.

¹ Arch. f. klin. Chir., xlix, 4; Semaine Médicale, 1895, p. 420.

PROFESSOR ADAMKIEWICZ HONORED.—Professor Adamkiewicz, of Vienna, has been elected correspondent of the Paris Academy of Medicine in recognition of his researches on the nature and treatment of cancer.

THE GRACE TESTIMONIAL.—The shilling subscription, started by the *London Daily Telegraph*, for a testimonial to Dr. W. G. Grace, the great English cricketer, has amounted to the substantial sum of \$25,000.

THE AMERICAN PUBLIC HEALTH ASSOCIATION have elected Dr. Eduardo Liceaga, of Mexico, Mex., President of the Association for the ensuing year. It has been decided to hold the next meeting in Buffalo, N. Y.

A DEATH FROM ANTHRAX.—A death from anthrax occurred last week at Guy's Hospital, London. The patient was a foreman at a horse-hair factory who prior to his illness had to examine a large cargo of horse hair from Russia.

A NEW LABORATORY FOR THE UNIVERSITY OF MINNESOTA.—A new \$40,000 laboratory building for the departments of bacteriology, histology and pharmacy in the medical college of the University of Minnesota is in process of construction.

APPOINTMENTS AT JOHNS HOPKINS UNIVERSITY.—Dr. W. W. Russell has been appointed Associate in Gynecology, and Dr. Thomas S. Cullen Instructor in Gynecological Pathology, in the Johns Hopkins University, Baltimore. Dr. Otto Ramsay has gone to Freiburg for a year to study gynecological pathology under Professor E. Ziegler.

THE "INDEX MEDICUS."—At a recent meeting of The Philadelphia County Medical Society, a resolution was adopted that the Society subscribe for two copies of the *Index Medicus*. The Boston Society for Medical Improvement has subscribed for four copies, and the Boston Medical Library Association for two. There are still forty-six subscriptions needed to ensure the continuance of this publication.

"CLIMATE AND HEALTH."—The first number of a periodical bearing this name and published by the United States Weather Bureau, under the editorship of its Chief, Prof. Willis L. Morse, has appeared, and contains a valuable summary of statistics for the four weeks ending July 27, 1895, illustrated by excellently printed maps. The journal will undoubtedly furnish desirable and authoritative information on the subject to which it is devoted.

OVER-EXERTION FATAL TO BOTH PHYSICIAN AND PATIENT.—It is reported in the *Medical Press and Circular* that a Dr. Morley, of Leeds, England, recently rode a bicycle six miles to visit a patient. During the visit he was taken suddenly ill, and died almost immediately. At the inquest the coroner's jury reported that he had died from failure of the heart's action brought on by over-exertion. His pa-

tient, who was a lady, also died a few hours afterward from the effects of the violent shock she had received.

"TOXINES ATTACK TUMORS."—The above is the alliterative effort of the head-line artist of a New York daily. It is the heading adopted for the report at the discussion at the New York State Medical Association on the treatment of malignant growths by the erysipelas and prodigious toxines. The success of the treatment was probably not sufficient for "Prodigious Paralyzes Neoplasms," which would perhaps have erroneously implied that the treatment was uniformly successful. The moderation and respect for facts shown in the choice of this head-line are worthy of commendation.

A MEDICAL HERO.—The latest addition to the roll of gallant actions performed by medical men is that of Dr. Charles Toller of Ilfracombe, who, during the recent heavy gale which raged on the west coast of England and at the imminent risk of his life, was lowered by means of a rope down a cliff on the Lee Bay Rocks, which are 150 feet in height, in order to apply restoratives to an apparently drowned sailor. Strenuous efforts were made by Dr. Toller to restore animation, and the patient partially rallied, but expired a few minutes before being landed at Ilfracombe in the lifeboat which had been sent to the rescue. Dr. Toller remained three hours in his perilous position at the foot of the cliff before the condition of the tide allowed of his patient and himself being taken off in a lifeboat.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, October 23, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 79, scarlet fever 28, measles 5, typhoid fever 43.

A BEQUEST TO THE MASSACHUSETTS GENERAL HOSPITAL.—By the will of the late Mrs. Susan G. Coolidge, of Cambridge, a large sum of money was left to the Massachusetts General Hospital for the maintenance of free beds.

TYPHOID FEVER IN CONNECTICUT.—The State Board of Health of Connecticut has been notified of an outbreak of typhoid fever which occurred during the recent encampment of the State militia at Bridgeport and limited to a single company. The question of its origin is being investigated, and it will be a matter of interest to find out whether the company in question was provided with water from a different source from the rest of the regiment. Another outbreak which occurred at Danbury and is also under investigation, was confined to the operatives in a single hat factory, twenty-three of whom fell ill. A third outbreak in Danbury affected five members of the same family, and originated from a case contracted at New Medford, and taken sick at Danbury. There

were three cases in another Danbury family, attributed to sewage pollution of a well, which the family refused to cease using in spite of the advice of the health officer.

NEW YORK.

A SUPERNUMERARY KIDNEY.—On October 19th, Dr. Philip E. O'Hanlon, Coroner's Physician, in making an autopsy at the morgue on the body of a newly-born male child, found that three fully developed kidneys were present.

THE UNIVERSITY OF THE CITY OF NEW YORK.—The dedication exercises of the new buildings of the University of the City of New York on University Heights, beyond the Harlem, took place on October 19th under the most favorable auspices.

DIPHTHERIA IN HUDSON CITY.—The Jersey City Board of Health has ordered the closing of public school No. 25, in the suburb of Hudson City, on account of the prevalence of diphtheria in the neighborhood of the school. On October 19th five new cases of the disease were reported in Hudson City.

THE LAW RELATING TO SUICIDES. — At a meeting of the New York Society of Medical Jurisprudence held October 4th, Dr. E. C. Spitzka read a paper entitled "A Needed Change in the Law Relating to Suicides." He considered it a mistake to prosecute people who had failed in their attempts to commit suicide, and expressed the opinion that suicide had increased since the present law went into effect.

DEATH OF A SURGEON OF THE CIVIL WAR. — Dr. George A. Mursick died at his home at Nyack on the Hudson on October 17th. He was born in the city of New York in 1834, and was a graduate of the College of Physicians and Surgeons. He served with distinction as a surgeon throughout the Civil War, and was present at many battles. At one period he was in charge of the general hospital at Duval's Bluff, Ark., and towards the close of the war he was made medical purveyor of the Department of Arkansas.

THE SERUM TREATMENT OF TUBERCULOSIS. — Dr. Francesco Carlucci, visiting physician to the Italian Hospital on Second Avenue, having recently received a supply of the serum of Professor Maragliano, of the University of Genoa, for the treatment of incipient tuberculosis, has just commenced a series of experiments with it at the hospital. In addition to treating patients with it he proposes to test the powers of the serum on animals rendered tuberculous by inoculation with the Koch bacillus, and in these experiments he will be assisted by Prof. Vincenzo Gianturco, of the University of Naples, a skilled bacteriologist, who is now in New York on a commission from the Italian Government to examine and report on American hospitals. In order that the best effects might be obtained, the interior of the Italian Hospital was completely renovated before the treatment of cases with the serum was inaugurated.

A SMALL MORTALITY FROM DIPHTHERIA.—The

record of vital statistics for the week ending October 19th, shows the smallest mortality from diphtheria that has been reported in any week for a very long period. There were only 12 deaths from this cause, while previously the weekly mortality from the disease had always exceeded 25. On the other hand, there was an increase in the number of deaths from pneumonia; these amounting to 83, and almost equalling those from phthisis, 89. The deaths from violence were also unusually numerous, 62. The total number of deaths reported in the city, 714, was, however, smaller by 24 than the average mortality for the corresponding weeks of the past five years.

THE ANTITOXIN OF DIPHTHERIA AND THE DEATH-RATE OF NEW YORK CITY.—On October 14th, the president of the Health Department made a report to Mayor Strong in which it was stated that the use of diphtheria antitoxin had reduced the death-rate from diphtheria and croup in the city of New York nearly 44 per cent. The antitoxin, as is well known, is produced in the bacteriological laboratory of the Board of Health under the direction of Dr. Herman M. Biggs. The following table was given, showing the cases of diphtheria and croup, and the mortality therefrom, for the first three-quarters of the years 1891, 1892, 1893 and 1894, as compared with the first three-quarters of the present year:

Year.	Cases.	Deaths.	Per cent.
1891	3,686	1,349	36.59
1892	4,158	1,640	37.04
1893	4,721	1,763	37.34
1894	7,446	2,284	30.67
	20,011	6,936	34.66
1895	7,921	1,643	19.43

The report says: "The reduction in the mortality-rate for the first, second and third quarters of 1895, as compared with average death-rate for corresponding periods of previous four years, has been 43.94 per cent. If the death-rate from diphtheria and croup during the first, second and third quarters of 1891-94 had been the same as in 1895, there would have been 3,048 fewer deaths in that period. The large reduction in the mortality-rate from diphtheria and croup for the first three-quarters of 1895 is attributed mainly by the medical officers of this department to the introduction and use of diphtheria antitoxin, and if this remedy had been generally or universally employed, the reduction in the mortality-rate would doubtless have been larger." With the report was submitted a chart showing the death-rate from diphtheria and croup for each period of four weeks during the year ending and the year beginning October 7, 1894.

PHILADELPHIA.

PROF. J. M. DACOSTA has returned from Europe with greatly improved health.

RECEPTION TO DR. W. H. WELCH.—Dr. William H. Welch of Johns Hopkins University was the guest of the Philadelphia Medical Club, at a reception given in his honor at the Hotel Bellevue, on the 16th inst., which was largely attended by the principal members

of the profession of Philadelphia and of neighboring cities.

DEATH OF DR. JAMES COLLINS.—Dr. James Collins died of heart disease at his home in Philadelphia, on the 7th inst. in the sixty-fifth year of his age. He was a graduate of the University of Pennsylvania, Class of 1860, and afterwards studied medicine in Germany at Göttingen. He entered the army in 1861 as surgeon of a Pennsylvania regiment, and was in Libby Prison for nearly a year. Subsequently he had charge of a hospital at City Point, Va. He was a member of the Pension Surgeons' Examining Board, and for thirteen years was one of the surgical staff of the German Hospital of Philadelphia. He presided as chairman *pro tem* at the meeting of the County Medical Society a week before his death.

DOINGS OF THE MEDICAL SOCIETIES.—The medical societies have begun their winter's work with vigor. At the College of Physicians, October 2d, Dr. Charles P. Noble read a report of a case of dermoid tumor of both ovaries, complicated by a growth of true bone in the pelvic soft parts, but having no connection with the tumors. Microscopic sections were presented showing the presence of bone in the new growth. There was no evidence of the presence of rheumatoid arthritis in the case, or other abnormalities. The specimens were also exhibited at the Academy of Surgery, October 7th. Dr. Oscar H. Allis reported a case of gastro-enterostomy for malignant pyloric disease; Murphy's button was used and, sixteen months later, was found at the autopsy in the cavity of the stomach. It had given rise to no especial symptoms during this period, and it was supposed that it had been voided and lost. He also reported a case of carcinoma of the upper part of the rectum, with exploratory opening in the left inguinal region; also a case of hydrocele associated with enlarged prostate, with operation by removal of entire tunica vaginalis and testicle. Dr. W. Joseph Hearn reported a case of obstinate fecal fistula with operation. Dr. Richard H. Harte exhibited a portable operating-table, of hard-wood frame and basket-work of split cane, in three sections; it folded in compact shape and was not heavy, although quite strong enough for ordinary surgical purposes. By an ingenious arrangement Trendelenburg's posture was secured. At the Philadelphia County Medical Society, October 9th, Dr. Thomas J. Mayo read a paper on the local application of cold in acute pneumonia. This was a collective investigation upon the use of the ice-bag in lobar and other forms of acute pulmonary inflammation, the total number of cases being 195, of all ages, with a mortality-rate of 3.58 per cent. It was claimed to be shown by the statistics that the ice applications relieve pain and cough, reduce temperature, ameliorate the disease and shorten its duration, advance the day of crisis, and decidedly lessen the usual death-rate. Strychnine, morphine (as required to relieve restlessness or cough), digitalis and brandy

(if needed for the circulation) with a milk diet or easily assimilated food, were recommended to be used in conjunction with the local treatment of ice. Dr. W. V. Ball reported a case of cocaine poisoning, in which an adult woman swallowed a solution containing twenty-two and one-half grains of cocaine. Toxic symptoms promptly ensued, with dryness of mouth and throat, dilated pupils, talkative and maniacal delirium, with a feeling of well-being, and she actively resisting attempts at medication. She was treated by morphine and stimulants and revived in about four hours. During the latter part of treatment she complained of muscular pains and of weakness in lower extremities.

Miscellany.

THE RECENT EVOLUTION OF SURGERY.¹

THE *British Medical Journal*, in criticising certain points in Mr. Pearce Gould's excellent oration on this subject before the Medical Society, recently published in book-form, rightly says that he is wrong in treating of evolution in surgery as entirely a recent affair. The following passage in this criticism is worthy of quotation:

"There is no such thing as recent evolution, any more than recent space or recent gravitation. And he does not do justice to the great surgeons who lived in the days before antiseptic surgery. He would apply to Lister that fine high-flying saying of Pope's:

"Nature and Nature's works lay hid in night—
God said, 'Let Newton be,' and there was light."

"But not even to honor Lister should he speak lightly of those who preceded him, the *fortes* who *vixere ante Agamemnona*. He thinks that their 'brilliance' was a poor sort of thing that we have done well to leave behind us, but it is really a lost art, and a little more of it would not be a bad thing in these days when everybody operates, whether Nature meant him to do so or not. Nor did our forefathers sacrifice a limb by amputation without regret and abhorrence as deep and strong as those which move the surgeon of to-day; and in general their aims and ideals were more like ours than Mr. Gould implies; when we consider the stupendous difficulties of their task we can only admire their work."

TUBERCULIN VS. THE MICROSCOPE IN IOWA.²

THE State Board of Health of Iowa was requested by the health-officer of the city of Ottumwa to make a bacteriologic examination of the milk-supply of that city, with a view of ascertaining whether any tubercle-bacilli could be found in the milk. The bacteriologist of the board accordingly examined 563 samples, and found the bacilli present in quite a number of the specimens, so that of 196 cows examined 29 were set aside as tuberculous because of the microscopic test. The secretary of the board was not quite satisfied with the results, and the State veterinarian was called in to apply the tuberculin test. The animals

¹ The Recent Evolution of Surgery. By A. Pearce Gould, M.S., F.R.C.S. London: Kegan Paul. 1895. (12mo. pp. 68.)

² Medical News.

declared tuberculous by the bacteriologist failed to react to tuberculin, and in a herd of 22 cattle, 21 of which had been pronounced sound, eight responded to the tuberculin-test, and at the autopsy were found markedly affected, two of them having extensive involvement of the udder. The bulletin of the board states that no conflict exists in its department on account of this difference in opinion; the two tests are on trial, and the wish of the board is to judge them honestly.

The Iowa Board of Health must know that neither the microscopic examination of the milk nor the tuberculin-injection of the cows can determine the *absence* of tuberculosis. Only when positive results are obtained can an opinion be given; the failure to find the bacillus is no evidence whatever of the non-existence of tuberculosis.

The presence of tubercle-bacilli in milk is not easy to determine, and the frequency with which they were discovered by the Iowa bacteriologist would lead one to suspect the accuracy of his observation; but granting that they were found, the failure of the animals to react to tuberculin is no indication that these animals are sound, as the tuberculin test is in no manner infallible. The State Board of Health of Iowa should sacrifice the suspected animals and determine beyond a doubt whether tuberculosis is present or not.

Not only in the testing for tuberculosis, but in using other methods of diagnosis, the fact cannot be too often stated that the failure to find a symptom or pathologic condition is no indication of the absence of that symptom or condition.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

THE Fifth Annual Meeting of the American Electro-Therapeutic Association was held in Toronto, Canada, on Tuesday, Wednesday and Thursday, September 3-5, 1895. The first day's session began at ten o'clock on Tuesday morning, the President, Dr. A. Laphorn Smith, of Montreal, introducing Dr. James Thorburn of Toronto, who welcomed the visiting members on behalf of the resident profession. Dr. Charles R. Dickson in an address also welcomed the members. The President then read his address, on "Electro-Therapeutics in General Practice." This was followed by the reading of the Reports of the Committees on Scientific Questions. Then followed the reading of the Papers in their regular order. In the evening the members were invited by the President of the Toronto Street Railway to a ride around the city in his private car. The second day's programme was carried out as announced. The executive session was held in the afternoon, the election resulted in the selection of the following officers, for the year 1895-96, namely: President, Dr. Robert Newman of New York City; Vice-Presidents, Dr. Holford Walker of Toronto, Canada, Dr. D. B. D. Beaver of Reading, Pa.; Treasurer, Dr. R. J. Nunn of Savannah, Ga.; Secretary, Dr. Emil Heuel of New York City; Executive Council, Dr. W. J. Morton of New York City, Dr. G. Betton Massey of Philadelphia, Pa., Dr. W. J. Herdman of Ann Arbor, Mich., Dr. Emil Heuel of New York City, Dr. Wendell C. Phillips of New York City.

In the evening the resident profession, who had

taken a lively interest in the proceedings of the Association, tendered to the members a reception at the Toronto Athletic Club. The Chairman of the Committee of Arrangements, Dr. Charles R. Dickson, had arranged a very fine concert, which was followed by a collation.

The third day was devoted to the transaction of unfinished business. To the labors and influence of Dr. C. R. Dickson, the members enjoyed a very pleasant afternoon at the Toronto Exposition, as the guests of the President of the Exposition, Dr. John J. Wittrow. In the evening, the members were the guests at dinner of the Board of Directors of the Exposition.

The President has appointed the following Committees for the year 1895-96, namely:

Committee on Induction Coils and Alternators: Dr. A. H. Goelet, Chairman; Dr. G. Betton Massey, Mr. A. E. Kennelly. Committee on Meters: Dr. M. A. Cleaves, Chairman; Dr. O. B. Douglass, Mr. W. J. Jenks. Committee on Static Machines and Condensers: Dr. W. J. Morton, Chairman; Dr. W. J. Herdman, Dr. J. H. Kellog. Committee on Constant Generators and Controllers: Dr. W. J. Herdman, Chairman; Dr. Robert Newman, Mr. R. G. Brown. Committee on Electrodes: Dr. C. R. Dickson, Chairman; Dr. Lucy Hall-Brown, Dr. E. C. Riggs. Committee on Electric-Light Apparatus for Diagnosis and Therapy: Dr. J. H. Kellog, Chairman; Dr. E. C. Riggs, Mr. J. J. Carty.

It was decided to hold the next, the Sixth Annual Meeting of this Association, in Boston, Mass., in the latter part of September, 1896.

THERAPEUTIC NOTES.

SAND BATHS IN SCIATICA.—It is reported that at Dr. Oppenheim's sanatorium in Berlin, the effect of baths of sand heated by gas in chronic cases of neuralgia, notably sciatic, and in chronic rheumatism and rheumatoid arthritis has been given extensive trial of late, and that excellent results have been attained. By reason of this addition to the resources for treatment of these diseases in Berlin, the *Deutsche Medicinische Wochenschrift* proposes that Berlin be added to the list of "Bathing Resorts" of Germany.

THE TREATMENT OF ADDISON'S DISEASE BY EXTRACT OF SUPRA-RENAL BODIES.—E. Lloyd Jones in the *British Medical Journal* for August 24, 1895, reports a case of Addison's disease in which recovery, or at any rate marked improvement, took place during a six weeks' treatment by supra-renal tabloids and extract. Mercuric perchloride and iodide, and sodic iodide were given during the latter part of the treatment; but during the last six weeks the stomach would not tolerate these remedies, and the thyroid tabloids were the only medicinal treatment. Under their action the nausea and attacks of fainting gradually passed off, the pigmentation of the skin disappeared; and the improvement in every particular was surprising. Dr. Jones remarks that this is the first reported case of Addison's disease in which the treatment by extract of supra-renal bodies has given a successful result, although this treatment has been recently advocated by Dr. Rolleston, in his Goulstonian lectures on this subject.

Correspondence.

CORK PAVEMENT.

BOSTON, October 14, 1895.

MR. EDITOR:—In view of the importance now being attached to sanitary street pavement, and the number of articles published in the medical journals favoring this branch of internal improvement, it is remarkable that no allusion has thus far been made to the so-called cork pavement. This designation is perhaps a misnomer, for the material consists of granulated cork, mixed with mineral asphalt and other cohesive ingredients compressed into large blocks. Strictly speaking then, these bricks are formed of an amalgam of which cork is, however, the most characteristic and important element. The advantages claimed in behalf of this combination are cleanliness, noiselessness, durability, elasticity, freedom from slipperiness whether wet or dry, and moderate cost. Unlike wood, it is non-absorbent and hence inodorous; it presents the minimum resistance to traction; it is elastic under passing loads, and thus does away with the vibration caused by heavy teaming, one of the most disagreeable features of our narrow, congested streets. The blocks are imbedded in tar, and rest upon a concrete base six inches thick.

It is a curious circumstance that in Boston, New York and many other American cities, the smooth, asphalt pavement is being extensively employed with the notion that it is comparatively noiseless. In Paris, where this substance was first utilized on a large scale for paving, it has been actually condemned and torn up, chiefly on account of its noisiness; for experience proved, that while it lessened the rumble of moving vehicles, it greatly intensified the clatter of horses' feet. Although admirable in many respects, asphalt has been proved by careful and repeated observations in London and Paris to be the most dangerous of all to horses by reason of its slipperiness when wet, and it is conceded to be most difficult and expensive to keep in repair. In Paris all the main thoroughfares, such as the boulevards, Champs Elysées, avenue de l'Opera, and rue de Rivoli, are now laid with wooden blocks laid upon a firm, concrete foundation. In London, too, the noisy Belgian pavement has almost everywhere been discarded for blocks of the hard Australian Jarrah wood; and to the stranger who has not visited this metropolis since these improvements have been instituted, it is a revelation to find the roar of traffic once so dominant now virtually abolished. In this respect, as well as in the street-cleaning, our cities are lamentably and disgracefully backward, and Boston has shown less progress than many Western towns.

It is not unfrequently asserted by those who have successfully blocked attempts to reform our streets, that wooden pavement has been tried here and found unsatisfactory. This statement is a partial truth, which by the suppression of essential facts, has all the effect of a misstatement. It is true that State Street was paved with hexagonal wooden blocks about the year 1844. In 1854, I remember to have watched the laying of wooden pavement in Exchange Street, while at a more recent date Columbus Avenue was treated with five different varieties of wooden blocks, each laid in accordance with a different patent process. Now each of these experiments proved a failure for the simple reason that the essential element in laying this pavement, namely, a firm cement-concrete foundation was omitted. Hence the blocks thus unscientifically treated yielded under heavy pressure and, decaying, soon wore uneven; while no adequate provision was made for their repair.

Cork pavement is not altogether a novelty. It has been tested for four or five years in Melbourne, Sidney and other Australian towns, and also in London and Edinburgh, and the invention has been pronounced in all these localities meritorious.

The two specimens which I examined last autumn in London sufficed to remove the scepticism that I had enter-

tained as to its practicability. One section in a Liverpool street leading to the Great Eastern Railway Station had been in use for nearly two years on a sloping plane, and was subjected to continuous heavy traffic, largely of goods cars. The policeman on duty at this point declared that slipping of horses was here unknown. Learning that some trouble from this roadway had been taken up the previous day for examination, I went to the office of the company where the worn specimens were exhibited by the side of new ones, and was there shown that the thickness of the former had been reduced by wear by less than one-eighth of an inch.

As regards cost, cork is not very expensive because its use has up to the present time been so very limited, being employed chiefly as stoppers to bottles, soles to boots, and life-preservers, and as a floor-covering in the form of linoleum. The supply of this commodity on the other hand, can be indefinitely increased, for the species of oak (*quercus suber*), from which cork is obtained, can be stripped of its outer bark every eight years, and is said to actually thrive under this operation for one hundred and fifty years and upward. Hence it is not to be apprehended that a more extensive demand would greatly enhance its price.

Considering then the rare combination of qualities which cork seems to offer in the line of pavement, and the unequivocal proofs offered of its success elsewhere, it would certainly seem worth while to give it a trial on a section of some one of our streets.

Yours respectfully,

A. H. N.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 12, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from.					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,892,332	732	272	14.84	12.88	6.30	1.54	4.46	
Chicago . . .	1,678,967	414	157	31.20	26.60	19.80	5.04	13.20	
Philadelphia .	1,164,000	—	—	—	—	—	—	7.34	
Brooklyn . .	1,100,000	393	179	19.00	12.25	7.00	1.75	6.75	
St. Louis . . .	660,000	—	—	—	—	—	—	—	
Boston	494,405	214	87	16.45	12.69	8.93	2.40	4.23	
Baltimore . .	496,315	189	72	11.66	11.66	4.77	2.66	1.00	
Cincinnati . .	325,000	86	30	15.38	6.36	4.64	4.64	5.90	
Cleveland . .	325,000	104	—	12.48	8.64	6.66	.96	.92	
Washington .	276,000	126	50	26.60	7.20	7.20	11.20	1.60	
Pittsburg . .	272,000	—	—	—	—	—	—	—	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	36	8	19.46	30.58	8.34	2.78	2.78	
Charleston . .	65,165	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,687	40	16	25.00	12.50	9.00	7.50	7.50	
Fall River . .	88,020	—	—	—	—	—	—	—	
Lowell	84,359	32	8	15.15	15.15	12.52	3.13	—	
Cambridge . .	81,319	37	15	21.60	10.80	—	—	21.60	
Lynn	62,355	—	—	—	—	—	—	—	
New Bedford .	55,254	20	12	15.00	—	10.00	—	8.00	
Springfield .	51,534	19	7	15.78	5.26	5.26	—	—	
Lawrence . .	52,153	—	—	—	—	—	—	—	
Holyoke . . .	40,149	—	—	—	—	—	—	—	
Salem	34,437	14	6	21.22	—	14.28	—	—	
Brockton . .	33,157	—	—	—	—	—	—	—	
Haverhill . .	30,185	13	1	7.69	38.46	7.69	—	—	
Malden	29,706	5	4	20.00	—	20.00	—	—	
Chelsea . . .	31,295	10	3	—	20.00	—	—	—	
Fitchburg . .	26,394	7	3	23.56	14.28	14.28	—	14.28	
Newton	27,422	9	4	22.22	—	22.22	—	—	
Gloucester . .	27,663	—	—	—	—	—	—	—	
Taunton . . .	27,093	9	4	—	—	—	—	—	
Waltham . . .	20,877	2	0	—	50.00	—	—	—	
Quincy	20,712	—	—	—	—	—	—	—	
Pittsfield . .	20,447	—	—	—	—	—	—	—	
Everett	18,878	6	2	16.66	—	16.66	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport .	14,564	8	0	—	12.50	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,609; under five years of age 300; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 488, consumption 350, acute lung diseases 245, diarrheal diseases 193, diphtheria and croup 155, typhoid fever 76, whooping-cough 25, cerebro-spinal meningitis 18, malarial fever 9, scarlet fever 5, measles 4, erysipelas 2, small-pox 1.

From whooping-cough New York 10, Brooklyn 7, Baltimore 4, Boston, Nashville, Worcester and Springfield 1 each. From cerebro spinal meningitis Chicago 8, Washington 7, New York 3. From malarial fever Brooklyn 4, New York 3, Cleveland and Nashville 1 each. From scarlet fever New York 2, Chicago, Baltimore and Salem 1 each. From measles Brooklyn 2, New York and Baltimore 1 each. From erysipelas New York and Brooklyn 1 each. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending October 5th, the death-rate was 19.4. Deaths reported 3,949; acute diseases of the respiratory organs (London) 158, diarrhea 565, diphtheria 71, fever 65, measles 64, whooping-cough 56, scarlet fever 48, small-pox (London and Oldham 1 each) 2.

The death-rates ranged from 13.2 in Croydon to 37.2 in Blackburn; Birmingham 22.0, Bradford 19.8, Bristol 18.5, Gateshead 26.1, Huddersfield 14.2, Leeds 18.1, Leicester 15.6, Liverpool 26.6, London 15.9, Manchester 24.9, Newcastle-on-Tyne 24.9, Nottingham 15.6, Portsmouth 19.1, Sheffield 24.5, West Ham 16.9.

METEOROLOGICAL RECORD.

For the week ending October 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

		Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
		Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.				
S...	6	29.76	54	64	45	81	61	71	N.	W.	13	8	C.	C.	.31	
M...	7	29.50	57	68	46	76	73	74	W.	S.W.	2	10	F.	O.		
T...	8	29.70	56	64	49	88	74	81	S.	N.W.	6	15	O.	C.		
W...	9	30.06	44	49	38	77	65	71	N.W.	N.	12	12	C.	O.		
T...	10	30.35	44	52	35	80	58	69	N.W.	N.W.	12	4	C.	C.	.37	
F...	11	30.34	48	59	38	69	46	58	S.	S.	10	9	O.	F.		
S...	12	29.96	58	67	50	83	94	88	S.	E.	12	16	O.	R.		
																.68

* O., cloudy; C., clear; F., fair; U., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 11, 1895, TO OCTOBER 17, 1895.

Leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department, is granted **FIRST-LIEUT. ISAAC P. WARE**, assistant surgeon.

Leave of absence for one month, to take effect about November 10, 1895, with permission to apply to the adjutant-general of the army for an extension of one month, is granted **FIRST-LIEUT. JOHN S. KULP**, assistant surgeon, U. S. A.

Leave of absence for thirty days is granted **MAJOR B. F. POPE**, surgeon, U. S. A.

CAPTAIN JULIAN M. CABELL, assistant surgeon, ordered to David's Island, N. Y., for duty, in lieu of reporting to the surgeon-general for duty.

MAJOR HENRY M. CRONKHITE, surgeon, having been found incapacitated for active service is retired, to date from September 17, 1895.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING OCTOBER 15, 1895.

MURRAY, R. D., surgeon. Granted leave of absence for thirty days. October 4, 1895.

IRWIN, FAIRFAX, surgeon. Granted leave of absence for thirty days. October 4, 1895.

BANKS, C. E., passed assistant surgeon. Detailed as chairman of Board for physical examination of officers and candidates, Revenue Cutter Service. October 2 and 8, 1895.

BROOKS, S. D., passed assistant surgeon. When relieved from temporary duty at St. Louis, Mo., to rejoin station at Chicago, Ill. October 3, 1895.

WILLIAMS, L. L., passed assistant surgeon. To proceed from Charleston, S. C., to Waynesville, Ga., as inspector. October 2, 1895.

MAGRUDER, G. M., passed assistant surgeon. Upon completion of duties at Camp Jenner, Eagle Pass, Texas, to rejoin station at Galveston, Texas. October 11, 1895.

COBB, J. O., passed assistant surgeon. To proceed to Victoria, B. C., and Vancouver, Wash., on special temporary duty. October 12, 1895.

BROWN, B. W., passed assistant surgeon. Detailed as recorder of Boards for physical examination of officers and candidates, Revenue Cutter Service. October 2 and 8, 1895.

HOUGHTON, E. R., passed assistant surgeon. Granted leave of absence for thirty days from date of being relieved from duty at Vineyard Haven, Mass. October 5, 1895.

PROCHAZKA, EMIL, assistant surgeon. When relieved from temporary duty at Charleston, S. C., to proceed to Cairo, Ill., for temporary duty. October 12, 1895.

THOMAS, A. R., assistant surgeon. Relieved from temporary duty at New Orleans, La., and directed to rejoin station at St. Louis, Mo. October 3, 1895.

GREENE, J. B., assistant surgeon. Relieved from temporary duty at Wilmington, N. C., and directed to proceed to Vineyard Haven, Mass., and assume temporary command of the Service. October 2, 1895.

RESIGNATION.

HOUGHTON, E. R., passed assistant surgeon. Resignation accepted, to take effect upon expiration of leave of absence. October 5, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 19, 1895.

G. S. BEARDSLEY, medical director, and **P. S. WALES**, ordered to duty as members of the Naval Examining and Retiring Board.

J. S. SAYRE, passed assistant surgeon, ordered to treatment at the Philadelphia Naval Hospital.

C. H. T. LOWNDES, passed assistant surgeon, detached from the naval hospital at Mare Island, Cal., and ordered to the Marine Rendezvous, San Francisco, and in attendance on officers in that city.

C. J. DECKER, passed assistant surgeon, detached from the marine rendezvous and special duty in San Francisco and ordered to the naval hospital at Mare Island.

J. C. ROSENBLUTH, appointed assistant surgeon in the Navy, October 14th.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The stated meeting will be held at 19 Boylston Place on Saturday, October 26th, at 8 P. M.

Paper: **Dr. C. A. Porter**, "The Present Status of Brain Surgery."

Discussion: **Dr. Walter Channing**, "Trephining for Insanity." **Dr. Morton Prince**, "Trephining for Epilepsy and Infantile Cerebral Palsy." **Dr. G. L. Walton**, "Trephining for Cerebral Hemorrhage." **Dr. P. C. Knapp**, "Trephining for Tumors and Abscess of the Brain."

Business: Election of a committee of five to prepare a list of candidates for officers of the Society for 1896-97. Reports of committees.

Supper after the meeting.

JOHN G. BLAKE, M.D., President.
H. L. SMITH, M.D., Secretary.

HARVARD MEDICAL SCHOOL. EVENING LECTURES.

The next lecture will be delivered on October 24th, at 8 P. M., by **PROF. F. C. SHATTUCK**. Subject: "Some Points in the Diagnosis and Treatment of Pericarditis." The lecture on October 31st will be by **DR. WM. A. BROOKS, JR.** Subject: "The Influence of Athletics on Health." The profession are invited.

APPOINTMENTS.

DR. FREDERIC PEARL has been appointed assistant physician in the new South Wards at the Boston City Hospital.

DRS. F. H. WILLIAMS and **C. F. WITHERTON** have been appointed visiting physicians to the Boston City Hospital.

BOOKS AND PAMPHLETS RECEIVED.

An Essay on Diphtheria and Its Specific Treatment. By **John Pirnat, M.D.**, Evansville, Ind., U. S. N. A.

The Surgical Technique of Aseptic Wounds. Sanitation in Street Pavement. By **Henry O. Marcy, A.M., M.D., LL.D.**, of Boston, U. S. A. Reprints. 1895.

Original Articles.

CIRCUMSTANCES UNDER WHICH CHLOROFORM IS PREFERABLE TO ETHER AS AN ANESTHETIC.¹

BY GEORGE W. GAY, A.M., M.D.,
Visiting Surgeon to the Boston City Hospital.

It may seem rank heresy for one who was educated at the Harvard Medical School and who has practised surgery under its shadow for a quarter of a century to advocate the use of chloroform as an anesthetic under any circumstances whatever. Those who have been educated, and have practised surgery, in other parts of our country, or in foreign lands, can hardly realize the antipathy which formerly prevailed against chloroform throughout New England, and which exists to a very great degree at the present day. Aside from those gentlemen, who saw service in the late war, where for various and obvious reasons chloroform was the almost universal anesthetic, very few are to be found in that section who use chloroform in preference to ether for ordinary surgical purposes. Should a surgeon in our vicinity meet with a fatal accident under the former agent, he would be placed in an embarrassing position in the eyes of both the profession and the public, and, under ordinary circumstances, would get little sympathy from either. Very likely he would be subjected to some such catechism as the following:

"Doctor, your patient died under chloroform?"

"Yes, sir."

"Were you not aware that chloroform is more dangerous than ether?"

"Yes, sir."

"Then why did you use it?"

In an ether community it would not be sufficient to say, in answer to this last question, that chloroform is pleasanter or cheaper, or acts more quickly or in smaller quantity, or that it is used in England. All these points would avail nothing in comparison with the one question of safety. That is the keystone to the arch, and all other considerations are of secondary importance.

In the Northern, Middle, and Western States of this country ether is the principal agent used in ordinary surgical practice, while in the Southern States chloroform has the preference.² In foreign countries the latter agent is probably the favorite anesthetic in a majority of cases. The fact that practical surgical anesthesia by means of sulphuric ether had its birth and origin in Boston has nothing whatever to do with its popularity in this country. Our community is a conservative one, and in this matter the foundation of its faith and preferences is safety.

It is impossible, nor is it necessary to state in exact terms the relative safety of chloroform and ether. That there is a decided difference between the two drugs in this respect cannot be doubted by any candid observer, and reader of the literature of the subject. It is true that many practitioners of large experience have never met with an accident in the use of chloroform. It is also true that over four hundred deaths from this agent have been placed upon record, and no one can form any correct idea of the number of un-

recorded fatalities. In 1839, Dr. Lawrence Trumbull³ placed the latter at one hundred cases, which cannot be considered an extravagant estimate. No such record is claimed against ether by even its strongest opponents. The fatalities from ether at that time on record amounted to about sixty. Chacever⁴ says that the largest and most reliable statistics indicate that ether is about ten times as safe as chloroform.

Much has been said and written as to the exact method in which death takes place under the influence of these two drugs. The common opinion is, that ether kills by asphyxia, and chloroform by cardiac paralysis. The Hyderabad Commissions, of which Dr. T. Lauder Brunton, and Surgeon-Major Lawrie were members, declared in their report, that chloroform "never causes sudden death from stoppage of the heart." Drs. Wood and Hare claim that chloroform is a cardiac paralyzant. In some cases the influence is most felt upon the respiratory centres, and in others upon the cardiac. "So far as practical medicine is concerned it makes little difference, whether the heart stops just before or just after the respiration."⁵

The accumulated testimony of the past fifty years tends to prove conclusively, that ether kills slowly, chloroform quickly; that ether kills by asphyxia, chloroform by cardiac paralysis; that ether gives plenty of warning, chloroform often none whatever; that ether is safer in healthy and strong people than in the weak and prostrated; but that chloroform is nearly as fatal in the vigorous as in the debilitated. Ether does not demand any special skill in its administration; chloroform does. Proper treatment easily and effectually overcomes the unfavorable symptoms from ether; treatment oftentimes does no good whatever in accidents from chloroform. In short, ether is the safest general anesthetic known; chloroform is not.

In view of these facts the burden of proof in justification of the use of chloroform rests with the operator. Although plenty of authority can be found in favor of the stronger agent, yet the fatalities take place just the same as ever, in spite of all the precautions which it is possible to take. Ringer says there are no conditions of age or health which forbid the use of chloroform as an anesthetic, provided due care be observed in its administration.⁶ The Hyderabad Commissions claim the same immunity from danger. In the writer's opinion, such an assertion cannot be truthfully made of any known anesthetic, not even of sulphuric ether itself, which is the safest of them all.

Those who claim that the fatal results of chloroform are due to want of care and skill in its administration are casting reflections upon such men as Sir James Y. Simpson, the father of chloroform anesthesia, Erichsen, Billroth, Volkmann, Syme, Hunter McGuire, James Wood, Willard Parker, F. H. Hamilton, Alden March, Moses Gunn, W. W. Dawson, and many other skilful and reliable members of our profession.⁷ An agent, which is not safe in the hands of such men, is certainly not the most suitable one to be put into the hands of the rank and file of medical practitioners.

A strong, healthy young man desires to have a fun-

¹ Artificial Anesthesia, 1839.

² Lectures on Surgery, p. 37.

³ Medical News, February 22, 1890.

⁴ Willard and Adler on Anesthetics.

⁵ Therapeutic Gazette, August and September, 1890. Dr. G. Archibole Stockwell, Detroit, Mich.

¹ Read at the Meeting of the American Surgical Association, in New York, May 30, 1895.

² Wood's Reference Handbook of Medical Science.

ger amputated or a felon opened. He breathes a few whiffs of chloroform, and without any warning stops breathing, and is dead. No operation has been done which could have produced any shock. Such accidents have also occurred in the dentist's chair many times. An autopsy is made, and perhaps some slight change in color is found in the pericardium, or capsule of one kidney, or some other variation which, under ordinary circumstances would not have been noticed. That is all that can be found to account for the preventable catastrophe. Do such things occur under ether? If so, they are not put upon record, nor have they been observed in the larger hospitals in this part of the country. It is not quite safe to give ether under all circumstances; but the unfavorable conditions are apparent to any one familiar with anesthetics, and can be provided for or guarded against. There is nothing obscure, or irregular, or fulminating in its action, as in its more powerful rival.

Daily experience with a drug, under all sorts and conditions of circumstances in the care of the sick and wounded for over a quarter of a century without meeting with any serious mishap, gives one more confidence in that agent than all the reports of learned societies or so-called national commissions. There are not a few in our midst who have had just this experience, and they require neither argument nor statistics to convince them beyond the shadow of a doubt of the superiority of ether over chloroform for general anesthetic purposes. And yet, for various reasons the latter agent will doubtless continue to be used by a large number of practitioners in different parts of the world for all time. It is pleasanter to inhale, quicker in its action, more lasting in its effects, less apt to be followed by nausea and vomiting, cheaper, less bulky, and not inflammable. Moreover, the accidents from chloroform are not sufficiently common to create that fear and distrust in the mind of the profession and of the public which demands its abandonment in surgical practice. Personal preference and prejudice, freedom from accidents in the immediate vicinity, and perhaps national pride, are factors which may determine not a few in their choice of an anesthetic.

The truth of this whole matter seems to be, that sulphuric ether, under ordinary conditions, is as safe as can reasonably be expected of any agent which produces such beneficent results; that chloroform is safe in a vast majority of instances, but that fatal accidents do occasionally occur under circumstances in which they were not anticipated, and that these accidents can neither be foreseen, prevented nor remedied; that under rare conditions no known anesthetic is entirely free from danger; that the greater comparative safety of sulphuric ether is slowly being recognized and hence that its use is gradually displacing, to a certain extent, its more potent and more dangerous rival.

The writer submits that this question of the relative safety of the two agents under consideration, ether and chloroform, is decided as firmly and as surely in favor of the former by an intelligent and searching experience of half a century as it is possible to decide any scientific point in the affairs pertaining to human life.

In spite of all that can be said in favor of ether and against chloroform, the fact remains, however, that there are a comparatively few conditions under which the latter is the preferable anesthetic, and it is the main object of this paper to draw attention to these

cases. In a general way it may be said, that all operations liable to be attended with spasm of the glottis, edema of the larynx or lungs, profuse secretion of fluids in the air-passages and tonic contraction of the muscles of respiration, can be done under the influence of chloroform with more safety and satisfaction than under ether. Chloroform does not obstruct respiration to the extent that ether does. It does not irritate the mucous membranes, nor increase the secretion of mucus, nor produce as much spasmodic action of the muscles of the throat and chest, as does ether. For these reasons it is superior, as an anesthetic, in the following diseases and conditions:

All cases requiring tracheotomy and esophagotomy, as membranous croup; laryngitis, acute, chronic, traumatic, specific or tubercular; edema of larynx or glottis; malignant disease of throat and neck; deep cervical cellulitis; deep tumors of neck, as bronchocele; foreign bodies in air-passages; foreign bodies in esophagus; bronchitis in the aged; asthma.

Doubtless this list may be extended by the gentlemen present. I speak principally of those affections in which I have had personal experience. A consideration of its use in obstetrics is omitted for obvious reasons.

Every one knows the difficulty, and oftentimes danger, met with in trying to etherize a child suffering from membranous or diphtheritic croup. The irritation of the drug produces spasm of the muscles of the throat, or a free secretion of mucus, breathing is more or less obstructed, the color becomes livid, the veins distended, and, if strong enough, the child struggles in all the agony of suffocation. Under these circumstances a hasty tracheotomy must be performed with the attendant risk of hemorrhage and strangulation. Chloroform produces few if any of these symptoms. Given carefully, the respiration is not impeded, the child's quiet is not disturbed, and the operation may be completed in a deliberate and careful manner. I have performed a good many tracheotomies under chloroform and have never met with a mishap that could be justly laid to the drug. I can speak confidently and strongly upon this point, and from the best of all teachers, experience.

The same remarks will apply with equal emphasis to all cases of acute or chronic stenosis of the larynx, from whatever cause. Contusions, lacerations and fractures of the larynx are very likely to be followed by dyspnea, which in some instances may require tracheal incision. A few years ago a man in middle life was admitted to the Boston City Hospital, who had injured his throat a week before by his efforts to push down a bone which he supposed had become lodged. He could swallow only liquids and those with great difficulty. The dyspnea was so pronounced that he could not lie down for any length of time, and he exhibited that peculiar restlessness which is so marked a feature in all cases of laryngeal stenosis. An examination by the laryngoscopist revealed an abscess in the region of the epiglottis, attended by extensive induration in the immediate vicinity. Tracheotomy was performed very satisfactorily indeed under partial chloroform anesthesia. The respiration was not disturbed in the least by the drug. Ether would have almost certainly aggravated the dyspnea, thereby complicating the operation and perhaps diminishing his chance for recovery. The patient got well.

Deep cellulitis of the neck, although not a very

common affection, yet is a very serious one, sometimes terminating fatally. It may be dangerous by reason of sepsis, of edema of the glottis and by suffocation from a rupture of the abscess into the throat. I have known of fatal results from all of these causes. The treatment to be effectual must be early and radical and consists in making a free opening into the centre of the diseased tissues. The importance of the structures involved requires that this operation shall be done carefully and deliberately. Pressure upon the recurrent laryngeal nerves and other structures is very apt to produce spasm of the glottis and impeded respiration. This condition of affairs is much aggravated by the irritating effects of sulphuric ether, but not by chloroform. Hence the latter is the better anesthetic for these cases.

A man was under my care a few years ago suffering from an attack of deep and extensive cellulitis of the front and both sides of the neck. Through a misunderstanding he was given ether preparatory to an operation; when partially under its influence the breathing stopped, the face became deeply cyanosed and death from suffocation seemed imminent. This untoward result was averted for the time by an immediate tracheotomy, forcible inflation of the lungs through a catheter thereby expelling the free fluids, and artificial respiration. He gradually failed, and died the next day from shock and exhaustion. Judging from the usual effects of chloroform under these circumstances, it is fair to suppose that the shock of the operation would have been much less under its influence, that tracheotomy might have been avoided and hence that his chances for recovery would have been increased, notwithstanding the profound prostration resulting from the disease itself.

I was recently called to the hospital in the night to see a man just admitted with this affection. The dyspnea was severe, attended by paroxysms that threatened serious consequences. A deep collection of pus was evacuated by the Hilton method, under chloroform, with the greatest satisfaction to both patient and surgeon.

Many years ago I was requested by one of my colleagues, Dr. W. H. Thorndike, to administer ether to an old gentleman preparatory to tracheotomy for malignant disease of the throat at the base of the tongue. The effects of the anesthetic were extremely distressing. However carefully given, however much diluted with air, the vapor produced the most violent spasm of the glottis, rendering respiration entirely impossible. The operation was finally done without any anesthesia, and, as may be supposed, with a good deal of suffering to the patient.

This case forms a striking contrast to that of a woman who was under my care some years later for malignant disease of the deep glands of the neck. Constant and severe dyspnea resulting from pressure, presumably upon the recurrent laryngeal nerves, demanded tracheotomy. The operation was done under chloroform with great ease and with perfect relief to the patient. It would not be difficult to believe that ether would have acted as unfavorably in the latter as in the former case.

Spasm of the glottis, with impeded respiration, is peculiarly liable to occur in patients with foreign bodies in the air-passages or in the esophagus. Operations for their removal generally require time and careful manipulation. They cannot be done hastily, as

can an emergency tracheotomy for stenosis of the larynx, and, therefore, it is essential to use the anesthetic that will cause the least disturbance to the patient. There can be no reasonable doubt that in a majority of cases chloroform is preferable to ether under these circumstances. The writer once removed a bean from the lower end of the trachea by incision, successfully. The child was in collapse at the time of operation, and required but little chloroform to keep her still. She recovered. Ether was given to another child in the hospital many years ago for the purpose of opening the trachea to remove a piece of a match, with a fatal termination. These cases require very gentle handling in every way, and the amount of anesthetic, as well as the kind, is of very great importance.

Chloroform has been used by the writer in three cases of esophagotomy with much satisfaction. In a case of malignant disease, the esophagus was opened on the left side of the neck in the usual way for the purpose of guiding a staff through the pouch above the stricture down into the stomach, upon which to pass a Symond's tube. Later it became necessary to do tracheotomy on this patient. Both operations were performed under chloroform without complication. This agent was used in the case of a man who had swallowed a plate of teeth which had lodged at the lower end of the gullet. It was removed through an incision in the neck, with no difficulty as regards the respiration. I also removed a copper cent from the esophagus of a child three-and-a-half years of age by incision under chloroform. The little girl speedily recovered. The action of the anesthetic in all of these cases was satisfactory in every way, and I have thus far seen no reason for using any other agent under similar circumstances.

The only unfortunate result I have had while using chloroform was that of an old lady suffering a good deal of dyspnea from a large goitre. At her request I made an effort to intube the larynx, leaving the question of extirpation to be decided later on. A little chloroform was inhaled without difficulty, but during my efforts to place the tube she gradually sank away, and died in a few minutes. I am inclined to lay this unfortunate result to her extreme prostration, which was necessarily increased by my manipulations in trying to introduce a tube into a narrow, displaced, tortuous larynx, rather than to the anesthetic. It would have been wiser to have let her alone. This is the only mishap I have ever had with chloroform.

Kocher, of Berne, has recently reported one thousand thyroidectomies for goitre. One death resulted from bronchitis following the administration of ether. There were no deaths from chloroform. He always begins the anesthesia with chloroform, and continues it with ether.⁶

Old people suffering from chronic bronchitis or edema of the air-passages are not good subjects for ether, as the irritation tends to increase the secretion, which occasionally becomes so profuse as to drown the patients in their own fluids. This accident is peculiarly liable to occur in heavy drinkers, in those suffering from chronic urinary disease (as stricture and its sequelæ), and in those profoundly prostrated by any serious affection (as strangulated hernia and malignant diseases). I once lost a patient in this manner when about to operate for a gangrenous inguinal hernia which had been strangulated a week. He took

⁶ Boston Medical and Surgical Journal, May 23, 1895.

the ether well enough at first, but as the operation was about to begin, it was noticed that his respiration was obstructed by mucus, which increased with alarming rapidity even pouring out of his mouth and nose. He died in a few minutes. It is doubtful if chloroform would have had this untoward effect upon the bronchial secretions.

The statement has recently been made by some of the German surgeons,⁹ that while the immediate danger from ether is much less than from chloroform, yet that the remote danger is greater by reason of the emphysema, bronchitis and broncho-pneumonia resulting from the anesthetic. This complication has been noticed too seldom in this vicinity to create suspicion or distrust. Before attributing these events to the drug, it would be well to carefully investigate all of the circumstances attending the patient, before, during, and after the operation. Not a few persons, especially in hospitals, get cold from exposure during this time, and occasionally it terminates fatally. While the accident is probably not as frequent as in the days of the spray, yet the custom of surrounding the patient with wet cloths is not quite free from danger. It is well known that a person gets cold more easily when asleep than while awake, and it is not unreasonable to suppose that the same rule may obtain during the sleep of ether and chloroform. At all events, until these factors are eliminated, it is evidently unwise to attribute these complications to the anesthetic.

Another fact to be borne in mind is the peculiar insensibility of the bronchial mucous membrane of elderly people to the presence of blood and other fluids during an operation, so that no warning is given till too late to be of any avail. Not a few cases of this sort have been saved only by an emergency tracheotomy and artificial respiration. These facts do not necessarily preclude the use of ether in these cases, but they teach us to be extremely careful in its administration.

The inflammable nature of sulphuric ether is always to be borne in mind, but in actual practice there are comparatively few cases in which the drug is contraindicated on this account. The statement has been made, that ignition has taken place at a distance of fifteen feet.¹⁰ It is difficult to understand how such an accident could happen, unless an immense volume of the vapor was allowed to fall from a height upon the flame. In the accident-room at the City Hospital in Boston, most of the night surgery for many years has been done under a six-light chandelier, the inhaler being not over three feet distant. No such accident has ever occurred in that institution. The vapor of ether, being heavier than air, falls more freely than it rises, and hence is not likely to ignite under ordinary circumstances with the flame overhead. I have seen the ether sponge ignited a few times by the actual cautery, but only when it was brought within at least a foot of the inhaler. The only harm resulting was a slight singeing of the eyebrows. These accidents were all preventable, and do not by any means preclude the use of ether as the anesthetic in these cases.

It may be said that chloroform must be more dangerous than ether in the class of cases under consideration, from the fact that these patients are usually weakened and debilitated by the disease, and hence

more susceptible to heart failure. Experience gives little support to this supposition. The most characteristic feature of the danger from chloroform is the fact, that about forty per cent. of the accidents occur in apparently vigorous, healthy people about to undergo some minor operation, as the pulling of a tooth, incision of a felon, etc.,¹¹ and that usually death takes place during the early stages of the anesthesia, oftentimes within a very few minutes, and before complete insensibility is reached. And herein lies the danger of using this agent in minor surgery. This fact should be especially borne in mind by those practitioners who use chloroform in minor operations, but would not think of resorting to it in capital cases.

In conclusion, allow me to submit for your consideration the opinion, that chloroform is a more satisfactory anesthetic than ether for operations liable to be complicated by difficult or suspended respiration; that in those cases it is reasonably safe, and that when carefully administered, it may be confidently recommended to the profession for this particular kind of surgical work.

THE POST-MORTEM SIGNS OF DROWNING.¹

BY G. DEN. HOUGH, M.D., NEW BEDFORD, MASS.

(Concluded from No. 17, p. 412.)

THE heart should be opened *in situ* for the purpose of determining the condition of the blood in its cavities (whether clotted or fluid) as well as the relative amounts of blood in the two sides of the heart, and whether the color of blood differs in the two sides. Usually we find the blood decidedly fluid, free from clots, the right side containing more blood than the left, and, according to Barlerin, of a darker color.

For more than a century almost all authors have agreed that the blood of the drowned is strikingly fluid. Of course, we should not expect to find a strikingly fluid blood in those who merely die in the water but are not actually drowned; nor should we be surprised that advanced conditions of putrefaction bring about such chemical and physical changes that the blood no longer gives one an impression of unusual fluidity.

It has been ascertained that if a person takes sulphuric acid, aqua regia, or other caustic poison, and then completes the suicide by drowning, the blood will be clotted. Other chemical changes due to disease, for example, fever, may put the blood into such a condition that it will clot after drowning. We cannot, therefore, say from the presence of clots that the person was not drowned. On the other hand, we find a fluid condition of the blood after many other kinds of death, for example, hanging, strangulation, and all other modes of asphyxia; poisoning by illuminating gas and by some of the narcotics (especially opium); death by lightning or electricity in other forms; and, according to Paltauf, after any form of violent death. The blood of the drowned differs, however, from these other fluid bloods by its being actually diluted by water absorbed through the lungs during the process of drowning. The amount of water thus absorbed varies very much, according to the duration of the drowning (the amount of liquid that penetrates the

¹ Read at the Annual Meeting of the Massachusetts Medico-Legal Society, June 11, 1895.

⁹ Medical Record, May 25, 1895, p. 672.

¹⁰ Wood's Reference Handbook of Medical Sciences, vol. i, p. 189.

¹¹ Wood's Handbook, p. 190.

lungs), the nature of the drowning fluid, and the condition of the lungs themselves.

This diluted condition of the blood is particularly noticeable in the liver. Some authorities, indeed, claim to be able to determine from the condition of this organ alone that the person from whom it came was drowned. They say that if the liver of such a person be removed and laid upon an inclined plane, the amount of watery blood that oozes from it is so great as to permit the diagnosis to be made, and they compare such a liver to a sponge saturated with water. It is on account of this condition of the blood that wounds made post-mortem on the drowned will bleed so much and for so long a time.

In color the blood is dark cherry-red; in mass it is blackish or quite black. Some writers say it is darker in the right side of the heart and veins than in the left side and aorta.

After death from any sort of asphyxia, the right heart is usually comparatively full of blood. Of course, the extent to which the concomitant causes of death enter into the case will exert a modifying influence upon this sign. Then, again, inasmuch as the heart continues to beat after respiratory movements have ceased, it is possible that the last traces of blood received into the heart may sometimes be expelled. Emptiness of the right heart is, therefore, no proof that drowning was not the cause of death. If putrefaction is far advanced the heart will be found empty.

Hyperemia of the pulmonary artery and of the venæ cavæ are of the same significance and subject to the same conditions as the overloading of the right heart.

The experiments of Paltauf convinced him that the blood in the aorta and left heart was more dilute than that in other parts of the body, and, indeed, that dilution might occur here and not elsewhere. Barlerin, on the other hand, says that the blood in the aorta is thicker and redder than in the veins.

Lungs.—Before removing the lungs from the chest it is strongly advised by some authors that a ligature be tied below the larynx around the trachea to prevent the escape of any liquid contents of the air-passages. Immediately on opening the chest one is commonly struck by the great apparent size of the lungs. They do not collapse. The flat hand cannot, as usual, be laid in the space between the ribs and the surface of the lungs. They are even so distended that the imprints of the ribs are visible on their surface and sometimes they appear to push themselves out as distended intestines do on making a small abdominal incision. The anterior borders of the lungs meet or nearly meet. The heart is nearly or quite covered. The edges of the lobes are rounded. This condition is spoken of as ballooning of the lungs or hyper-voluminosity, and is a very important sign of drowning. It is present in more than 90 per cent. of the cases, provided putrefaction is not far advanced. The cause of this ballooning is that, owing to the penetration of the drowning liquid into the bronchioles and alveoli and thence into the interstitial tissue, the lungs cannot collapse. In some cases, too, there may be enough secretion of mucus in the minute bronchi to obstruct them here and there, and thus assist in preventing the normal collapse. That this increase in size is not due to hyper-distention of the alveoli with air is demonstrated by the facts that the specific gravity of these lungs is greater than normal and that their absolute weight is increased.

There are certain other conditions than drowning which may produce a similar appearance of the lungs. These conditions are: large effusion in the pleural cavities forcing the lungs forward, emphysema, broncho-pneumonia and capillary bronchitis; extreme degrees of acute edema of the lungs; and sometimes poisoning by charcoal or illuminating gas. None of these is likely to offer much difficulty in differentiation.

Distention of the lungs by gas of putrefaction can rarely, if ever, simulate this condition. It is much more common for the distention to disappear as putrefaction advances. It has been shown that the lungs of the drowned putrefy very rapidly as compared with other lungs, being reduced to a pulp at a time when the heart is still in such a condition that the integrity of the valves and the gross structure of the myocardium can be readily recognized. In very cold weather, and especially if the body is under ice, the fluid that distends the lungs may transude into the pleural cavities before putrefaction takes place, and the lungs will then be found collapsed rather than distended. Pleural adhesions, particularly if dense and extensive, will prevent this distention; hence sometimes one lung will be ballooned and the other collapsed. These hyper-voluminous lungs are of a flabby, doughy consistence and pit on pressure. They usually crepitate more or less on pressure or on section.

The color of the surface of the lungs is not uniform. We may say, in general, that on the anterior parts, on the rounded edges and towards the apices, the prevailing color is pale yellowish-red; elsewhere the tint is much darker. The lobulation is usually distinctly marked; and while each lobular area is pretty much of one tint, adjacent lobules may vary considerably, whence arises the marbled appearance of the lungs. The special tint of a lobule depends on the quantity of blood that it contains, and this again depends upon the amount of drowning fluid that has penetrated the lobule in question; the more drowning fluid the less blood and the lighter the color. In the paler lobules, and especially at the anterior edges of the lungs, one can see, through the pleura, distended alveoli, while in other parts and in the grayish-blue or dark reddish-violet lobules the alveoli are smaller and less distinct.

On the surface of the lungs we may also find extravasations of blood. These are of two sorts: (1) Regular subpleural ecchymoses, the so-called Tardieu's spots. These are rare, commoner in children than in adults and in those drowned in thick fluids than in those drowned in water. (2) Larger, paler spots, consisting of a mixture of blood and drowning fluid poured out under the pleura in consequence of the rupture of alveolar walls. These are liable to be confused with patches where the alveoli are merely full of the drowning liquid, and with patches where the pressure of the fingers has forced out a little air that was present in the alveoli, leaving behind the liquid that was there.

Besides the extravasations just mentioned, subpleural patches of emphysema are sometimes observed. This occurs most frequently in children, and is generally found at the edges and on the median surfaces of the lungs.

The contents of the air-tubes consist of froth, liquid, foreign substances that were suspended in the drowning liquid and matter from the stomach.

The froth is produced as follows: During the process of drowning a certain amount of liquid enters the

air-passages. In consequence of the irritation produced by this liquid a little mucus is secreted. The powerful respiratory movements churn up this liquid and mucus with the air in the tubes and produce a fine-bubbled, whitish froth. The amount of this froth depends upon the force, frequency and number of the respiratory movements. It may fill completely the whole bronchial tree, the trachea and larynx, and even appear at the mouth and nose. On the other hand, very little may be formed, and it may be limited to the very small bronchial tubes.

The sooner the body is observed after death the better marked will this sign be. As time goes on, the fine bubbles will unite to larger ones, these in turn will collapse, and so a part of the froth will be converted to liquid. In consequence of the development of the gases of putrefaction and their pressure upon the lungs, the froth will be gradually forced out of the mouth. That which comes at first will be whitish, for it was formed in the larger tubes where there is no effusion of blood; then comes a rosy froth, rosy from the admixture of blood-coloring matter which comes from minute hemorrhagic foci in the very small bronchi; and finally the true froth is all gone, and there exudes from the mouth only a reddish or brownish, dirty, ill-smelling liquid containing perhaps a few bubbles of gas and in no way characteristic.

The real froth lasts in winter from three to five days, in summer not over fifty-five or sixty hours. If a body is removed from the water the froth disappears much more rapidly. In summer as short a time as two hours may suffice for it to disappear.

The great question in regard to this froth is whether it can in any way be distinguished from that which is found in the air-tubes after death from other forms of asphyxia; from poisoning by illuminating gas, by charcoal gas or by narcotics; from epilepsy; or from any disease associated with congestion or edema of the lungs. No unanimity of opinion exists on this question, which as far as I can ascertain has not yet been attacked in the way that one would suppose the most natural, namely, by comparative chemical analysis of the frothy liquids found under these various conditions. One would suppose that the froth of the drowned would contain very much more water than the froth produced under any other conditions.

As to liquids in the bronchi, observation and experiment have proven that the drowning liquid enters the air-passages and reaches even to the alveoli, many of which are filled with it; and further, that it passes between the epithelial cells of the alveoli and of the bronchi and gets into the lymph-spaces and lymph-vessels of the interstitial tissue. The quantity of liquid that thus enters the lungs varies, of course, with the number and force of the respiratory movements during the process of drowning. Chemical analysis has shown that the liquid in the air-passages of the drowned consists almost exclusively of the drowning fluid. With this is mixed a very little mucus, a still less amount of blood and some epithelium, with perhaps mere traces of edema fluid.

The liquid is not always found in the air-tubes of the drowned, for it may pass into the pleural cavity by transudation, it may be forced out of the nose and mouth by the pressure of the gases of putrefaction, and it may flow out after the body is removed from the water if the head is allowed to assume a dependent position.

Moreover, if a body is immersed after death, the liquid will get into the air-tubes. It is a question how far into the tubes the liquid can penetrate after death; certainly sometimes as far as the eighth division of the bronchi, and some writers say even into the alveoli. The latter is doubtful. The more deeply the body is immersed the more deeply it seems the fluid will penetrate.

Foreign substances, such as mud, sand, fragments of water-plants, etc., with the water, may enter into the air-tubes. They may enter after death. The deeper they are found, the less is the probability that their entrance took place post-mortem. How deeply they may go post-mortem is not yet definitely determined.

In the progress of the asphyxia vomiting often takes place. The vomited matter may be drawn into the air-tubes by a violent inspiratory effort. It is said that even after death, the contents of the stomach may get into the air-tubes.

As in any case of suffocation so in drowning, we usually find more or less injection of the mucous membrane of the bronchi and trachea. It varies from a few isolated dendritic patches to a tolerably uniform coloration of the whole mucous membrane. The shade of color is cinnabar red to vermilion, and differs distinctly from the dirty brownish-red of putrefaction. Frequently the injection is limited to the epiglottis and the bifurcation of the trachea, extending a little into the primary bronchi. Slight grades of injection are most distinctly seen between the cartilaginous rings and on the posterior wall of the trachea.

On section of a drowned lung, one is almost always first impressed by the large quantity of frothy liquid that seemingly exudes, spontaneously or on slight pressure, from every point of the cut surface. Careful examination, however, causes one to modify his first impression. If the body is quite fresh the tissue near the root of the lung and the upper lobe are more filled with fluid than other parts, and within any limited area differences in color, moisture and blood contents can be made out between neighboring lobules or groups of lobules, those which contain more moisture and less blood being paler than the others. On the whole, such a parenchyma is pale rather than congested, though here and there patches appear which are comparatively collapsed, dark-colored and loaded with blood.

Many of the alveoli contain liquid; some of them have ruptured and allowed the liquid to be extravasated into the surrounding tissue. The epithelium of many of the alveoli and minute bronchi is swollen by imbibition and often detached from the basement membrane. Some of these cells may have undergone granulo-fatty degeneration.

All parts of the parenchyma are infiltrated with the drowning fluid; but it is a noteworthy fact that if the whole or any part of a lung is adherent, we find the adherent portions comparatively dry. In edema of the lungs we find, on the contrary, if we find any difference between the adherent and non-adherent parts, that the adherent are most saturated with fluid.

Stomach.—There is no doubt that the drowning liquid enters the stomach by swallowing in greater or smaller quantity in most cases. The experiments of Liman, Hofmann, Lesser and others prove that liquid may also enter the stomach after death, carrying with it

any suspended matters. The exact conditions for this have not yet been worked out. Liquid is not always found in the stomach of a drowned body, for it may transude, it may be forced out by the development of gases of putrefaction, and it may flow out in consequence of the position or manipulation of the body after withdrawal from the water. Of course, water may have been swallowed shortly before submersion. This objection can be met by an identification of the liquid found in the stomach with that in which drowning is supposed to have taken place, at least when the supposed drowning liquid is of such a character that a sane person would not drink it. This identification can often be made by chemical and microscopical examination; sometimes the odor of the liquid suffices.

The presence of food in the stomach interferes with the recognition of the presence of the drowning liquid (unless this should happen to be some peculiar fluid) although sometimes it forms a separate clear layer on the surface of the pultaceous food mass.

In the case of a new-born infant we must remember that, while yet in utero, movements of deglutition take place, and that similar movements may occur if the infant be born into a pool of amniotic fluid, blood and mucus as so frequently happens. Hence the presence of these substances in an infant's stomach is of no diagnostic value.

Some of the froth found in the air-passages may come up into the mouth and pharynx, and be swallowed. In such a case we will be likely to find air bubbles in the fluid contained in the stomach. Unless the body is fresh, the stomach free from food and containing a considerable quantity of fluid which can be demonstrated as identical with that in which drowning is supposed to have taken place, we can hardly lay very great stress upon this sign. Under these circumstances the fluid is cloudy from mucus and epithelium.

The mucous membrane of the stomach is usually, in fresh bodies, pale, as if water soaked. If much food is present, the membrane is likely to be rosy-red; sometimes, as in other kinds of asphyxia, it is injected or ecchymosed, as is also that of the intestine. In consequence of putrefaction it acquires a deep violet or brown color which is liable to be mistaken for the result of poison.

Intestine.—Drowning fluid may be found in the small intestine, especially in children. Liman says that this is purely mechanical. This subject has been thoroughly studied by Fagerlund whose conclusions are that: (1) The drowning fluid does not pass from stomach into intestine post-mortem unless very considerable pressure is brought to bear. (2) In a drowned person peristaltic action may carry liquid from the stomach into and along the intestine. This is more easy when the stomach is empty, and more common in prolonged drowning. This sign is then more important apparently than the presence of water in the stomach.

The spleen, kidneys and mesenteric veins are all gorged with blood, as in any case of asphyxia. This engorgement disappears as putrefaction progresses.

The position of the diaphragm and the condition of the urinary bladder are of no importance.

If we now have a particular case under examination, what conclusion can be drawn?

From our examination of the exterior we can say, "This body has been lying in the water," leaving our opinion on the presence of more or less of the following signs:

- (1) Peculiar rose-colored or bright-red suffusions.
- (2) The order in which the parts have been affected by putrefaction.
- (3) Rosy patches on the skin of the inner surfaces of the thighs and front of the thorax.
- (4) *Cutis anserina*.
- (5) Retraction of penis, scrotum and nipple.
- (6) The extent of subcutaneous emphysema.
- (7) The condition of the epidermis, particularly of the hands and feet, knees and elbows.
- (8) The condition of the nails and hair.
- (9) The appearance of the various parts of the eyes: (1) The so-called fish-like expression, (2) the phlyctenular eminences and cloudy appearance of the cornea, (3) the sclerotic edema, (4) the change of color of the iris.
- (10) Abrasions about the bridge of the nose.
- (11) Sand, mud, fragments of water-plants, etc., in the nostrils and mouth.
- (12) Mud, etc., under the nails.
- (13) Fragments of plants, etc., grasped in the hands.
- (14) Erosions of various parts of the body.
- (15) A fine-bubbled froth at the mouth and nose.

To these will perhaps be added after we have made our internal examination:

- (16) Edema of ary-epiglottic folds.
- (17) Fluid in the larger air-tubes (and in this fluid very likely foreign particles may be found suspended).
- (18) Fluid in the stomach.

Now among all these signs there are none that are incompatible with the cause of death being drowning, and a few of them suggest this quite strongly, or at least suggest that the person was alive when he went into the water. These are—

- (1) *Cutis anserina*.
- (2) Retraction of penis, scrotum and nipple.
- (3) Fragments of water-weeds, etc., grasped in the hands.
- (4) Froth at the mouth and nose.

In order to be able to say positively, "This person was drowned," a careful consideration of all the internal organs, and in some cases of extraneous circumstances, must also be made.

(1) It appears to me that the absence of any traces of external violence is a very important matter; and if such traces exist, the determination of whether they were inflicted before or after death, and whether they are sufficient to account for the death.

(2) We must consider the general indications of asphyxia; by which I refer to the congestion of solid viscera, the overloading of the whole venous system, the injections and ecchymoses of mucous membranes, the fluid condition of the blood, and the presence of subpleural and subpericardial ecchymoses. In proportion as more of these are present, so much the more positive will our diagnosis be, for we must remember that drowning pure and simple is but one form of asphyxia.

(3) Evidence of chronic or acute disease must not be neglected, for by the presence of such disease the resisting power of our subject will be diminished, and he will require (if I may use an Irishism) less drowning to kill him, and consequently the signs will be less pronounced. Such disease, moreover, may furnish a motive for suicide.

(4) Finally, we have certain signs more or less special to drowning which, taken in connection with the signs already referred to, make our diagnosis in many cases positive. Some, perhaps all, of these signs, yet require investigation to thoroughly determine the limits to which their value is confined; and I shall take the liberty, even in this assemblage of experts, of calling some attention to this part of the subject.

(1) Bilateral lacerations of the sterno-cleido mastoidei and pectorales majores. These are mentioned by Paltauf only; more observations are needed.

(2) Liquid in the pleural cavities; lesions to which this might be due being absent. Comparative analysis ought to be made of this fluid, of pleural effusions, and of the liquid that collects in the pleural cavities in consequence of putrefaction.

(3) A fine-bubbled, watery, whitish or rosy froth, non-adherent to the walls of the air-passages, in which it is found. Inasmuch as the most eminent authorities are not agreed that this can, by any physical characteristics, be distinguished from the similar froth found in other forms of suffocation and in certain diseases, let us make comparative analyses of all these froths and determine, if we can, any chemical differences that exist between them.

(4) The presence of the drowning fluid in the very small bronchi and the alveoli, with or without suspended foreign substances. The question still at issue here is, How deeply can fluids penetrate into the bronchi after death?

(5) An infiltration of the pulmonary parenchyma with fluid. The presence of pleuritic adhesions will enable us to distinguish this condition from edema in many cases.

(6) Subpleural extravasations of the drowning fluid mixed with a little blood.

(7) Increase in the volume of the lungs, associated with increase of absolute weight, increase of specific gravity and a peculiar doughy consistence.

(8) Demonstration of hemorrhagic foci where the bronchioles enter the alveoli.

(9) Presence of water in the stomach. The very fact that this may enter after death is still contested, and we only know in regard to the conditions necessary for such entrance that it is favored by pressure, for example, by the body being sunk deep in the water.

(10) Water in the intestine. Unless great pressure is brought to bear on the body, water will not pass from the stomach to the intestine. How much pressure is required and the influence exerted by putrefaction upon this pressure, we have yet to learn.

(11) A special and extreme hydremia of the liver. I cannot believe that it accords with the true scientific spirit to ridicule, as some authors do, the statements of Lacassagne on this point. Careful comparison of the condition in this respect, of livers of persons dead of all sorts of violent deaths would be much more to the point.

(12) An actual dilution of the blood with the drowning liquid.

In conclusion, gentlemen, I wish to say that I have refrained from enumerating my sources of information, with the object of shortening the time required for the reading of my paper. I shall be pleased to give any who wish to consult them all the references at my disposal.

Clinical Department.

A CASE OF ABDOMINAL NEPHRECTOMY FOR CYSTIC KIDNEY; RECOVERY.

BY CHARLES A. ATWOOD, M.D., TAUNTON, MASS.

J. R., a tailor, age twenty-seven years, a native of Scotland, received an injury to the right side eight years ago while playing football. He was at once taken to the infirmary at Edinburgh, Scotland; where he remained six weeks suffering from pain in right lumbar region and profuse hematuria. He has been in this country about five years, and has had at irregular intervals attacks of pain and hematuria.

In February, 1894, he complained of loss of appetite and indefinite symptoms, was pale and emaciated, but noticed that his abdomen was much swollen. In this month he was aspirated, and over one gallon of clear, serous, ascitic fluid withdrawn. The fluid was free in the abdominal cavity. There was no pain whatever. Examination of the urine at this time showed it to be large in amount, color pale and contained considerable abnormal blood and pus. After the aspiration he regained strength and was able to take some exercise. The ascites reappeared, but not to as great an extent as before. He felt better. In a few weeks he returned to Scotland and remained until September, 1894.

In the meanwhile all the abdominal enlargements had disappeared. He gained appetite and strength and returned to this country looking fairly well and expressing himself as never having been in as good health in his life.

In May, 1895, the patient first presented himself at my office, complaining of pain and soreness in right flank. He was ordered to his home at once, as trouble with the right kidney was suspected. This advice he did not follow; but on the 17th of May I was called to his house, and found him nearly pulseless and in horrible pain, and that he was passing a large amount of bloody urine. The pain was relieved by hypodermics of morphia.

May 18, 1895. Had to be kept under the influence of morphia all the time. Some sleep. Constant vomiting. Pulse 140, temperature 100°. Has retained no nourishment. Urine contained large amount of blood and pus, reaction acid, slight trace of albumin, which could be all accounted for by the amount of blood. The patient to start with, was extremely thin, weak and emaciated. In fact, I do not think I ever saw a more ill-nourished man in my life.

May 19th. Temperature 101°, pulse 140. Vomited nearly all food. Urine same in appearance. Morphia given for pain.

May 20th to 23d. No great improvement.

May 24th. Pulse 120. Slept some. Urine same. Less pain. Retained some bovine, milk and lime-water.

May 25th. Pulse 120. Slept. Urine same. More comfortable. No vomiting. Physical examination was now made of the abdomen. Flatness occupying the whole upper right quadrant of the abdomen was detected by percussion. This area extended a slight distance on the left side and half a hand's breadth below a horizontal line drawn around the body on a level with the umbilicus. Fluctuation was easily demonstrated.

Patient was ordered liquid diet and the following mixture: Digitalis three drops, strophanthus two drops,

nitro-glycerine one-hundredth of a grain every three hours. From this date to June 6th no great change. June 6th Dr. W. S. Robinson, of Taunton, was called in consultation. The advisability of an operation was considered, but the patient's condition forbade all idea of its immediate execution although it was thought to be the only feasible method of giving him a prospect of permanent relief.

June 7th. Temperature normal, pulse 120. Urine nearly clear in color, but containing some shreds of fibrinous material. Takes liquid nourishment freely and feels better.

June 7th to 20th. Pulse ranged from 110 to 120. Sleeps well. Takes semi-solids and is free from pain. Able to sit up on the 20th and eat solid food. June 20th Dr. W. S. Robinson was again called in consultation. The man's condition was so much improved that he was given his choice of an operation as being his only chance and that a very poor one.

June 24th. His condition has been one of gradual improvement. Patient made up his mind to have operation performed, and I took him to the Morton Hospital. He was barely able to walk with my assistance a few yards from my carriage to the hospital door. Prepared for operation. Temperature 98.6°, pulse 88, respiration 30. Slept well.

June 25th. Temperature 98.6°. Slept fairly well.

June 26th. Temperature normal. Patient was etherized at 10.15 A. M. by Dr. Arthur V. Goss, of Taunton Lunatic Hospital Staff, and much of the success of the operation is due to his care and skill in the administration of the anesthetic. I received much valuable aid from Dr. W. S. Robinson who very materially assisted me during the operation.

The patient being anesthetized a diagonal incision was made a hand's breadth to the outer side of the right rectus abdominalis muscle, extending from the free border of the ribs to the crest of the ilium and measuring seven inches in length. The incision was parallel to the fibres of the internal oblique muscle. The peritoneum was opened in the usual manner when a large cyst presented. The ascending colon was displaced to the median line and the meso-colon dissected through on its outer border. Great difficulty was found in separating the cyst, which was very thin and firmly adherent to the mesentery and small intestines, and it was only by repeated ligating and cutting between ligatures that the intestines could be separated from the sack. It seemed at one time as though the operation would have to be abandoned. At length the adhesions having been completely broken down, the cystic mass was lifted out of the wound. The pedicle of the cyst was made tense and the renal vessels ligated by pedicle silk. The ureter was divided. Its cut ends were ligated with silk and seared with the actual cautery. Its distal end was dropped back into the abdominal cavity. The abdomen was wiped dry with sterile sponges and sewed up tight without drainage. The wound was united by deep silkworm-gut sutures and a superficial silk skin suture. Baked gauze dressing and swathe applied. Operation completed and patient put to bed at 12.30 P. M. He recovered from ether at 1.15 P. M. Evening temperature 99.6°, pulse 120, respiration 17. Slight nausea.

June 27th. Morning temperature 100.6°, pulse 124, respiration 18. At 1 P. M. calomel ordered, one grain every hour till six grains or there is defecation, and followed by citrate of magnesia one ounce every hour

until free defecation, or one bottle has been taken. During the day, however, the pulse went up suddenly to 160 and over, and at times could not be counted. Had nausea and vomiting. Ordered one-thirtieth of a grain of strychnia sulphate in brandy, given hypodermically every hour till pulse came down to 100, or there is evidence of muscular twitching. Digitalis was also given. Urinated eleven ounces.

June 28th. Morning temperature 101.2°, pulse 135. Urine eight ounces. No defecation. Enemata of turpentine, egg and water given with no result. Followed later by high rectal enema with no result. Vomited. Temperature at 4 P. M. 101.2°, pulse 165, respiration 25. The vomiting now became continuous. Gave one-thirtieth of a grain of strychnia every half-hour. Gave champagne by the mouth, one drachm every half-hour. At 11 P. M. no improvement. Twitching of the muscles noticed. Ordered strychnia omitted. Patient very restless. There is no abdominal distention or pain. The patient is in my opinion still suffering from nervous shock. Strychnia does not seem to meet the indications, and does not steady the pulse. I ordered one-quarter of a grain of morphia, with atropia, every three hours if awake and restless. The morphia was given twice. Patient slept nearly all night.

June 29th. Temperature 100°, pulse 122, respiration 18. Magnesia sulphate again tried, but again caused vomiting. High enema given without any result. At 12 M. one drachm of compound liquorice powder was given. 1 P. M. milk and lime-water alternating with beef-juice, one drachm given every hour. At 7 P. M. vomited, and was much nauseated. Omitted nourishment. Was very restless. One-quarter grain morphia given. Slept five hours. Flatus passed by rectum. Urinated eighteen and one-half ounces.

June 30th. Temperature 100°, pulse 124, respiration 14. No nausea. One drachm of peptonized milk and one drachm of champagne given every hour. Slight subsultus of the hands noticed. Pulse at my visit was of good character. No defecation. Had comfortable night.

July 1st. Had nausea, and at 1.30 A. M. vomited. Very restless. Complained of pain in right side. One-quarter of a grain of morphia given with relief. Temperature 101°, pulse 139, respiration 18. No nausea or vomiting during the day. Retained liquids in teaspoonful doses, and champagne one drachm hourly. Had a comfortable night. The urine was examined by the pathologist. Albumin absent; a few hyaline and granular casts found.

July 2d. Morning temperature 98.4°, pulse 135, respiration 20; pulse very weak. Peptonized milk, two drachms, and champagne, two drachms, given every two hours. No nausea, no vomiting.

July 3d. Morning temperature 100°, pulse 140, respiration 18. Nutritive enema consisting of peptonized milk, whiskey and bovine, three ounces given every three hours in addition to other nourishment. Patient was turned on his side. During day a turpentine enema was given, resulting in a large, loose defecation.

July 4th. Temperature 99.2°, pulse 145, respiration 16. Dressing done; superficial stitches removed; wound looked well with the exception of few superficial stitch-abscesses. In afternoon patient had some abdominal pain; nauseated and vomited; nourishment omitted. He was delirious during the night.

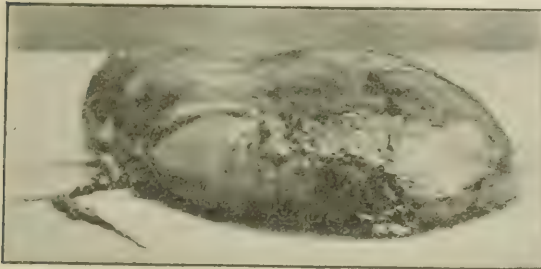
July 5th. Flatus passed by rectum. Fair amount of urine. Pulse averaged about 140.

July 6th. Pulse 140. Slept at intervals. Took peptonized milk and beef-tea, two drachms every two hours; half an ounce of champagne every three hours. Flatus by rectum. Thirty ounces of urine in twenty-four hours.

July 7th. Pulse averaged about 140. Peptonized milk, coffee and malted milk were given in small quantities. Complained of some pain in the side. During night was delirious. Morphia given. Passed comfortable night.

July 8th. Temperature 102.2°, pulse 140, respiration 35. Dressing done. All stitches removed; several stitch-abscesses. Baked gauze dressing applied. No nausea. Given four ounces of liquid nourishment every two hours. Pain in the side. Was delirious at night. No vomiting. One-quarter of a grain of morphia given to quiet him. Had several hours' sleep.

July 9th. Wound looked well. Had large semi-solid defecation. Was very nervous and delirious.



July 10th. Temperature 100.6°, pulse 130, respiration 28. Two defecations. Wound looks well. Some sleep. Six ounces of liquid food given every two to three hours — egg-nog, broths, malted milk, peptonized milk, tea and coffee. Eighteen ounces of urine voided in twenty-four hours.

July 11th. Morning temperature 99.4°, pulse 118. Slept fairly well. Vomited at 2 A. M. Retained a fair amount of liquid nourishment during the day.

July 12th. Temperature 98.6°, pulse 120, respiration 18. Omit rectal feeding for the first time, if there is no vomiting. If pulse is below 120, omit hypodermics of digitalis and strychnia which have been given twice a day. Eight ounces of liquid diet was ordered every two and a half hours. Evening temperature 99.8°, pulse 116.

July 13th. Several copious semi-solids defecations. Slept about six hours. Urine normal in color.

July 14th. Temperature 98.7°, pulse 100. Dressing done. Wound healed. No abdominal tenderness. All nourishment retained.

July 15th. Ate soft toast and dropped eggs in addition to liquid food. Had a good day.

July 16th. Temperature normal. Semi-solids given. Champagne, which has been given at intervals of two or three hours, omitted, and one ounce of sherry wine given four times a day.

July 17th. Allowed steak. Temperature normal. Bowels moved.

July 19th. Measured for abdominal belt. Patient convalescent, and will be discharged from hospital in a few days.

I here append a photograph of the cyst, which was removed June 26, 1895.

The pathologist, Dr. F. A. Hubbard, made the following report: "Case of J. R. Cyst weighing four and one-half pounds, growing from the kidney, which was practically obliterated — only a few trabeculae and a thin wall of kidney tissue was left, in thickness one-half to one-and-one-half centimetres. Contents of cyst: a dark, albuminous fluid, watery and containing a quantity of muco-pus. Diagnosis, cyst of kidney."

I here want to thank in terms of the highest praise the matron, Miss Ella Sears, and all the nurses of the Morton Hospital, for their hearty co-operation and untiring zeal and care in this case.

Medical Progress.

REPORT ON GYNECOLOGY.

BY F. H. DAVENPORT, M.D.

THE CAUSES OF THE NORMAL AND PATHOLOGICAL POSITIONS OF THE UTERUS.

A. MACKENRODT,¹ in this interesting article, gives the results of his investigations as to the cause of the normal and pathological positions of the uterus. He gives the views of a large number of well-known authors and writers, which differ widely, many considering the round and broad ligaments, others the peritoneum, others the harmonious working of the retractors of the uterus and the round and vesico-uterine ligaments as the cause of the normal position. Still others deny that the ligaments have any influence in holding the normal uterus, and only come into play when pathologically affected. Emmet considers the pelvic connective tissue an important factor, and Ziegenspeck and Winckel are of the opinion that the pelvic vessels play an important rôle.

Mackenrodt from observation on the living subject and direct experiment has come to the conclusion that the round ligaments have nothing to do with holding the uterus forward, nor have the broad ligaments as far as they are inserted into the sides of the body of the uterus.

The cause of the antevesio flexion of the fetal uterus depends upon the fact that it is crowded into the pelvis, that the long, firm neck is tightly held in the pelvic structures, while the free body is exposed to the abdominal pressure, which mainly comes upon the posterior wall.

With the beginning of the extra-uterine life other influences come into play. The varying conditions of bladder and rectum, respiration and other causes of intra-abdominal pressure are at work. Again, the pelvis becomes more roomy and the corpus uteri grows out of proportion to the cervix. While the uterine body admits of considerable motion, the cervix is held firmly in the position in which it developed, namely, curved, with the concavity directed forwards by the pelvic fascia, which sends strong bands to the cervix and vagina.

The normal anteversio-flexion is the result of a bending of the neck in which the angle of flexion lies, the body being straight and only following the direction of the upper part of the cervix.

¹ Archiv. für Gyn., vol. xlviii, 1894.

It is not held in anteversion by its ligaments, but is passive, and follows the direction given it by the upper portion of the neck and is held in its position by its own weight and the intra-abdominal pressure.

It follows from this that the cause of the displacements of the uterus is to be sought in changes in the supports of the uterus or the walls of the uterus itself. Loss of tone in the ligaments which surround the cervix, associated with atrophy of them and the pelvic muscles generally, and pathological changes in the structure of the uterine walls are the leading factors.

The author then gives more in detail the special causes of the various displacements and dislocations to which the uterus is liable.

OVARIAN RESECTION.

Matthaei² reports six cases from the Berliner Klinik in which laparotomy was performed on account of large ovarian tumors of one side. At the operation it was found that at the same time there was partial disease of the other side. In these six cases the second ovary was not extirpated, but the diseased tissues removed and the ovary sutured. The ages of the patients varied from eighteen to thirty-five. Five of the six were married. All these conceived after the operation and bore living children.

Matthaei advocates resection of the ovary when it contains retention cysts too large or too numerous to be treated by ignipuncture; also in case of small dermoids, and, under great precautions, in proliferating glandular cystomata of small size. The ovary should be removed, however, in all cases if the women are near the menopause or if there is malignant disease or the slightest suspicion of it.

BACTERIOLOGICAL INVESTIGATIONS CONCERNING DISINFECTION OF THE HANDS.

Reinicke³ in this article describes a series of very exhaustive experiments as to the value of the present methods of rendering the hands surgically clean. He gives very minute details as to the mode of conducting these experiments which may be epitomized as follows:

The hands are first infected with a pure culture of most virulent germs, which are allowed to dry on for an hour. A control culture is then taken, followed by mechanical cleaning with nail instrument. Then follows the thorough disinfection by one of the below-mentioned methods, after which a culture is taken to determine the degree of asepsis which has been attained.

The various methods of disinfection used were as follows:

- (1) Washing with warm water and soap, with vigorous use of brush.
- (2) The same, with the addition of sand.
- (3) Washing with warm water and green soap, then scrubbing with carbolic acid.
- (4) The same, substituting lysol for carbolic acid.
- (5) The same with trikresol.
- (6) Corrosive sublimate used in several ways.
- (7) Chlorine water.
- (8) Soap and water, permanganate of potash and oxalic acid.

Although the results by these different methods varied, in none was there a satisfactory disinfection.

Some could not be used often enough on account of the irritation of the skin. The best result was attained by the Flühringer method, which added one minute's washing with alcohol to the treatment with corrosive sublimate.

This led the author to look upon alcohol as the most important factor, and to test its value. A long series of experiments gave the following conclusions:

(1) Sure disinfection of germ-infected hands cannot be attained with the use of the antiseptics which act chemically which are at present employed, in a space of time which is short enough to be practised, or a concentration mild enough not to affect the skin.

(2) After thoroughly cleansing the hands in hot water with soap and brush for five minutes, a three to five minutes' scrubbing with spirits (about ninety per cent. alcohol) and subsequent washing off in an aseptic fluid will in all probability give absolute freedom from germs.

(3) A very safe, quick disinfection can be attained by scrubbing five minutes in alcohol.

DETERMINATION OF SEX.

Seligson⁴ in a preliminary article on the subject of the cause and determination of sex, advances a few interesting facts in support of the theory that ova from the right ovary develop into males, those from the left into females. Rabbits from which the right ovary had been removed bore only female young, while those from whom the left had been extirpated brought forth only male. Again in all the cases of tubal pregnancy of which the author could find notes, where the sex of the fetus was given, nineteen in all, those of the right side were always males, those of the left females. These points would seem to merit further investigation.

FREUND'S OPERATION FOR PROLAPSE.

The suggestion of Freund to operate on simple uncomplicated cases of vaginal prolapse in old women by a series of buried silver-wire sutures surrounding and narrowing the vagina, met with instant recognition as a happy means of treating these obstinate cases. There is no doubt that the immediate results are satisfactory.

To determine the remote results Gaertig⁵ gives the history of seven cases operated on by this method. All left the hospital in good condition. Of the seven, after an interval of a year, only two had certainly remained free from a return. Four were as bad as ever, in one case the sutures having cut through in fourteen days. In one the result was unknown. As a result of this experience, the author says that a definite cure should not be promised from this operation.

TREATMENT OF UTERINE CANCER WITH ALCOHOL INJECTIONS.

Vulliet⁶ describes a method of treatment for cancer which is applicable only to inoperable cases, or cases of recurrence after total extirpation. It consists in injections of alcohol into the sound tissues around the diseased portion. Nine to twelve injections of three or four drops each are made at a sitting, the needle being inserted deeply. Finally the ulcer or cancerous nodule is surrounded by a ring of injections. These are repeated more or less frequently according to the

² Zeit. für Geb. und Gyn., Bd. xxxi, Heft 2.

³ Archiv. für Gyn., vol. xlix, 1895.

⁴ Cent. für Gyn., No. 22, 1895.

⁵ Loc. cit.

⁶ Loc. cit., No. 23, 1895.

tolerance of the patient. The result is a drying and hardening of the tissues, retardation of the growth, and diminution of the bleeding and foul discharge. The result is only palliative.

PREGNANCY AFTER SALPINGO-OVARITIS AND SUPPURATIVE PELVIC PERITONITIS (TWELVE CASES).⁷

This anonymous article makes a very strong plea in favor of the conservative treatment of these affections. As regards the question whether in cases of peri-uterine inflammation, which he admits are generally of infectious origin, the better operation is, according to Lawson Tait, the removal of the appendages, or, following Péan and Segond, total extirpation per vaginam, the author considers the latter course more logical. But he is of the opinion that in many cases a conservative treatment will result in complete functional restoration to health.

He bases his views on his own clinical experience, and gives the histories of twelve cases of these severe inflammatory affections in which more or less prolonged local treatment was followed by pregnancy. With the exception of one case where there was placenta previa with a very large fetus, and death followed immediately from post-partum hemorrhage consequent upon uterine inertia, the pregnancy in every case was normal, without accident of any kind, confinement easy, and the puerperium satisfactory.

The author says he is convinced that the influence of these peri-metric inflammations upon pregnancy is generally null. In fact he considers that it has a happy influence upon the pelvic conditions which follow the original trouble.

COMPLETE VAGINAL HYSTERECTOMY.

Richelot⁸ describes a new method of operating for fibroids which merits notice on account of its simplicity. The operator stands between the patient's legs and makes the abdominal incision. The tumor is then delivered, and if large is enucleated either as a whole or by morcellement. The peritoneum is then stripped off the anterior uterine wall, so as to free the bladder. The index and middle finger of the left hand are then inserted into the vagina and pressed up against the anterior cul-de-sac. These are cut down upon from above with the scissors, the vault perforated in the middle, and the vaginal insertion divided as far as the sides of the broad ligaments. With the thumb in front of the ligament and the fingers behind, perforate the posterior cul-de-sac at a point which will enable the whole broad ligament to be grasped by a large pair of forceps. The same is done on the other side, and all that remains to be done is to separate the rest of the posterior cul-de-sac. An iodoform gauze dressing completes the operation. The author has operated this way three times, the time occupied being forty-five, thirty-five, and thirty minutes including the suture of the abdominal wound.

CLINICAL RECORDS.—*Athlete*: "Did — I — break it, doctor?" *Doctor*: "Your arm is crushed, your collar-bone broken, your skull —" *Athlete*: "But — have — I — broken —" *Doctor*: "What?" *Athlete*: "The — record?" — *Exchange*.

New Instruments.

NEW INSTRUMENTS.

BY EDGAR GARCEAU, M.D., BOSTON,
Surgeon to Out-Patients, Free Hospital for Women.

HYSTERECTOMY HOOK AND GUIDE.

In performing the operation of vaginal hysterectomy according to the method of Péan, this instrument will be of service. It is simply a blunt-pointed hook (Fig. 1) on the end of a staff. The staff itself is grooved on the surface corresponding to the hook; the groove serves to guide the scissors in slitting the anterior wall of the uterus, while the hook serves to pull the organ downwards. The staff is made of pliable metal, which is at the same time firm; it can therefore be bent to conform to the canal of the uterus.

Those who have not seen the operation in which the uterus is made to descend by splitting up the anterior wall after preliminary hemostasis of the uterine arteries can form no idea of the simplicity of the thing. The fundus is everted with ease, even when there are considerable adhesions or when the ovaries are cystic and so cause obstruction to the descent. There is, however, at times some difficulty in finding the canal when the cervix has been amputated, and it is to obviate this difficulty that the instrument was devised.

Three advantages are claimed for it. In the first place, traction downwards can be made, the hook being imbedded in the uterine wall anteriorly; in the second place, it serves as a guide, telling the operator the exact position of the uterus, so that wounding the viscera may be avoided; and, finally, the groove serves as a director along which the straight scissors slide.

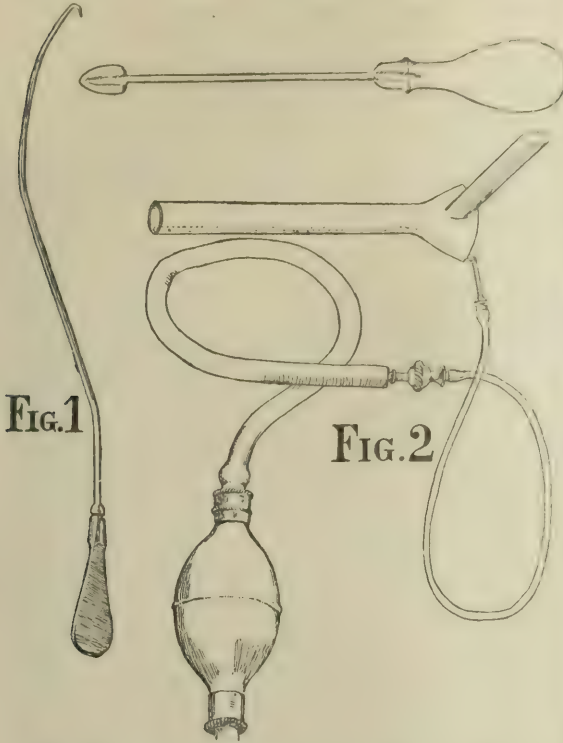
MODIFICATION OF KELLY'S CYSTOSCOPE FOR EXAMINATION OF THE FEMALE BLADDER.

Kelly's instrument is very familiar to the profession at present on account of the great aid it has given in diagnosing previously-obscure diseases of the female bladder. Now, the diseases attributed to the vague action of the *reflexes* is rapidly diminishing, and it is probable that this is truer of the bladder than of any other organ in the body. A simple hyperemia of the urethra is much more common than is generally supposed, and this alone is sufficient to upset a woman's nervous system completely. Inflammations of the neck of the bladder, as well as ulcers, tubercles and other lesions of the bladder itself, hitherto explained by the term *irritable bladder*, are now diagnosed with accuracy by actual inspection. The study of the ureters is also easy. With Kelly's instrument a sound can be passed directly up into the pelvis of the kidney, and the conditions here be ascertained. In short, a revolution has been accomplished by this little instrument.

The method of using it is simple. It is introduced into the urethra and into the bladder after preliminary deadening of sensibility by means of cocaine. Light is then reflected into it by the head mirror, and all parts of the bladder are inspected with ease. I found, however, that the urine which continues to be secreted while the instrument is in place gave a great deal of bother and that much time was lost in removing it with Kelly's suction bulb, so that the membranes of the bladder could be inspected. At times, too, if the woman stirred at all or happened to cough, and the

⁷ Arch. de Toc. et de Gyn., August, 1895.
⁸ Loc. cit.

urine had collected in any amount, the whole quantity would be suddenly expelled and go over everything, making the woman very uncomfortable and very much annoyed. The best way out of the difficulty seemed to be to remove the urine just as fast as it was secreted; by so doing much time would be saved and much annoyance avoided.



The modification which I have made in Kelly's instrument is simply a little tube of small bore which is soldered into the speculum (Fig. 2) in such a position that when the handle of the speculum points towards the woman's right thigh, when the speculum is in the bladder, the little tube lies at the lowest part of the speculum, so that every drop of urine is taken up by it. If now a Davidson's syringe is attached to the outer end of the little tube every single drop of urine can be sucked out as fast as it is secreted. The bulb of the syringe can be held by the same hand that holds the handle of the speculum so that an extra assistant is not needed. It is possible to make applications to the bladder wall or to the urethra in about one-third of the time that it would otherwise take, and when it is considered that time is an important element, the advantage is considerable. The little tube being soldered in the speculum is, of course, stationary; it does not, however, take up so much room that it interferes in any way. The obturator has a groove filed in it so that it can be inserted over the little tube. There is one detail which is worth mentioning, and that is that the little tube reaches quite to the end of the speculum and is occluded at its extremity, otherwise the bladder wall would choke it up and the syringe would not work; the holes through which the urine is sucked are three in number, one on each side close to the extremity, and one a little higher up.

The instrument can be obtained at Codman & Shurtleff's.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

NINTH ANNUAL MEETING, CHICAGO, SEPTEMBER 17, 18 AND 19, 1895.

THE Society met in the Columbus Memorial Building, 193 State Street, and was called to order by the President, DR. JOHN RIDLON, of Chicago.

After the transaction of some routine business, the President delivered his Address. He selected for his subject

THE GROWTH AND PROSPERITY OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

He said if one thing more than another had been instrumental in bringing about the present healthful organization, it was a wisely framed Constitution and By-Laws and a strict adherence to their requirements. To become a member, the candidate must be personally known by at least two members of the Association who voluntarily nominate him for membership, and he must have a creditable record of orthopedic work either as a writer, a teacher or a clinician.

The generous expenditure of practically the entire income of the Association in the annual publication of its volume of Transactions had played no unimportant part in the development of the Society. In this regard President Ridlon urged upon the members the serious consideration of the publication of a monthly or, at least, bi-monthly journal, which shall contain all the papers read and discussions before the Association, and abstracts of all other worthy publications upon orthopedic subjects, whether first appearing here or abroad. Such a journal could be issued at little if any increase upon the cost of the present Transactions, and in the hands of an enterprising editor could within a year or two be made almost self-supporting.

Dr. Ridlon closed his Address by paying a tribute to the memory of Drs. Little and Detmold. Wm. John Little was born in London on August 17, 1810, and died July 7, 1894, being nearly eighty-four years old. Wm. Detmold was born in Hanover on December 27, 1808, and died in New York, December 27, 1894. In reviewing the record of the long and active lives and of the work accomplished by Drs. Little and Detmold, one feels that truly there were intellectual giants in those days.

DRS. R. W. LOVETT and JOHN DANE, of Boston, contributed a joint paper entitled

FLAT-FOOT.

They submitted the following conclusions: (1) That the feet of the infant at birth are not flat; that the tracing at that time resembles the adult normal foot. That a body of fat develops under the arch, which gives the appearance of flat-foot for some years, and that at the age of four or five years this is absorbed. (2) That the smoke tracing is not a perfect method of studying abnormalities of the arch of the foot, because it fails to detect the slighter cases or to record pronation. (3) That the element of pronation is more constant than breaking down of the arch of the foot, and may be entirely separated from it. (4) That the condition of pronated foot without breaking down of the arch of the foot should be recognized and not confused with flat-foot. (5) That the treat-

ment of pronated- and flat-foot is the same, and consists in the use of proper boots, the application of a pad or plate, the stretching of the gastrocnemius muscle where it is shortened, and in the routine use of massage if obtainable, and always of exercises to develop the muscles which hold up the arch.

DR. S. L. McCURDY, of Pittsburgh, read a paper on

CONGENITAL ABSENCE OF RADII, WITH OPERATION.

The patient was five months old, birth at full term, presentation normal. Complete absence of the radii, with abnormal relationship existing in the blood-vessels and soft structures of the forearm, otherwise child perfectly developed. Operative interference was not advised for the reason that no successful method had been invented. In the worst cases, where there is much bony deficiency, the choice lies between amputation and doing nothing. Professor Bardenheuer, two years ago, presented a new method for the operative treatment of these deformities. His operation in the forearm consisted in replacing the defect at its lower part with bone, and thereby permanently correcting the deformed position of the hand.

The operation is performed by a longitudinal incision; the distal end of the ulna and carpus are exposed, and the first isolated from its attachments. The ulna is then split through its middle into a radial and an ulnar section. These are separated by allowing the carpal bones to come up between them. By means of a nail through each side, the ends are fixed to the carpus. A plaster bandage is applied, and left on for four or five weeks. This operation is easily carried out. It has been done by Bardenheuer three times, and the results in all three cases were good, both from a functional and cosmetic point of view. In all cases the deformity was permanently corrected. The same principles may be adopted in the treatment of other defects. In cases of congenital defects of the tibia or fibula the same operation has been done once in each. The best result was obtained in the fibular defect.

March 1, 1895, operation was done, the desire being to adhere to the method described as near as possible. It was not possible, however, to follow the method. The soft structures, tendons, etc., were so much shortened that to attempt to shift the end of the ulna across to the centre of the carpus would have been impossible except by a virtual amputation of the arm. To have split the ulna and wire the carpal bones between these ends would have been impossible. The only method was to sever the ulna at a point where the free end of the upper fragment could be brought to the semilunar. The semilunar was curetted and drilled, and after drilling the ulna these bones were adjusted with silkworm gut. It was necessary to tenotomize the tendons upon the radial side of the forearm before the hand could be straightened. A number of arteries were severed and required ligation. The cut through the soft tissues was made obliquely across the forearm beginning upon the dorsum of the wrist upward and around under the forearm, the object being to allow the structures to slide upon each other, and then sutured in the corrected position, thus avoiding the gap that would otherwise be left after a cross-section. After dressings were applied, the hand was put up in plaster-of-Paris. Primary healing. The operation was done on the left arm, and a second

operation was planned for the right arm, but the patient died with pulmonary tuberculosis five months afterward.

The author reported a case of congenital deformity with a decided history of natural impression. Mrs. S., whose husband was a railroad conductor, when about six weeks pregnant, was startled by the appearance of a crowd of men with a man on a stretcher, thinking it was her husband. She has a habit (when startled or in grief) of grasping the fingers on the left hand including the thumb, just below the knuckles, by the right hand. While the injured man was not her husband, the impression was imparted to her unborn child.

DR. A. M. PHELPS, of New York, reported a case of congenital dislocation of the shoulder-joint, and described an operation for its relief.

REMOVAL OF THE ASTRAGALUS FOR TALIPES VALGUS.

DR. JAMES E. MOORE, of Minneapolis, read a paper on this subject, in which he said that the modern non-operative treatment of talipes valgus was so satisfactory that it is rarely necessary to consider operative measures. In acquired flat-foot, several operations have been tried in extreme cases, and among them Ogston's operation, which had probably been performed more frequently than any other, but at present it did not seem to have any very enthusiastic advocates. The scaphoid had been removed, but had not been followed by flattering results. The writer had studied this subject carefully about two years ago, when the following case fell into his hands.

The patient was a woman, twenty years of age, who had cut the internal lateral ligament of the ankle when she was a child by stepping on a piece of glass. An examination showed that the uninjured foot manifested a natural tendency towards flat-foot, and the injured foot showed extreme flat foot, with the inner side of the great toe turned almost directly downward. She had grown gradually worse for some years, so that when she came to him she had been obliged to give up her employment as a domestic on account of the severe pain produced by standing or walking. On June 26, 1894, chloroform was administered with the hope of forcibly correcting the deformity, but owing to the extreme rigidity of the foot, failure was feared, so the patient's consent was gained to resort to a cutting operation if it was found necessary. It was found impossible to overcome the deformity by manual force, and an operation was decided upon. The displaced astragalus formed the bulk of the deformity, and was the keynote to the trouble. This, the author decided to remove, which he did through a longitudinal incision in the inner side of the foot. The foot could be immediately placed in a very satisfactory position. The usual surgical dressing was applied and foot held in proper position by a plaster-of-Paris bandage. The healing was prompt and satisfactory, and in about two months the patient began to walk. There is a marked improvement in the position of the foot. A photograph was shown, which was taken about one year after the patient began to walk, showing that the ankle which was atrophied had developed considerably. The result of the operation was more satisfactory from a practical than from an esthetic point of view. The patient still complains of some pain. When she stands much or walks more than usual, the foot is somewhat swollen in the evening,

but she is now at work. While she is in every way better than before the operation, the result is not perfect; but the writer hopes that eventually she will be quite well.

DR. JOEL E. GOLDTHWAIT, of Boston, read a paper entitled

TENDON TRANSPLANTATION IN THE TREATMENT OF DEFORMITIES RESULTING FROM INFANTILE PARALYSIS.

The purpose of this paper was to call attention to the possibility of furnishing better mechanical attachments for certain non-paralyzed, or only partially paralyzed, muscles, as a part of the treatment of infantile paralysis. A certain number of cases were reported with results that were most gratifying, and from which it appears not unreasonable to class tendon transplantation with tenotomy and the other surgical procedures which have a place in the treatment of this condition. At the knee undoubtedly tendon transplantation can be employed to advantage in a certain limited number of cases, and possibly at some of the other articulations, although the best results are to be looked for in those portions of the body where the tendons are well formed and lie superficially. The operation is not to be attempted upon the tendons of muscles which are wholly paralyzed, except possibly in rare instances for the purpose of furnishing an additional support of a purely tendinous character. It is conceivable that in the foot, for instance, if the tendons on the inner side are more atrophied and offer less resistance than those on the outer side, these tendons might be attached to the inner side and thus increase the lateral support. This is merely a suggestion, however, it not having been tried practically, and the benefit to be derived therefrom would undoubtedly be slight. There is also a question as to whether or not two atrophied tendons would unite firmly, although from watching the other cases, the author doubts if there would be any trouble on this account.

The best results from tendon transplantation are to be obtained in those cases in which one group of muscles has been destroyed, leaving the antagonizing or accessory muscles very little if any impaired. This results in a definite deformity which becomes more marked as the age increases. The best illustration of this is to be found in the condition so commonly seen in the foot where the gastrocnemius and the muscles at the inner side of the foot have been destroyed, the peroneal muscles retaining their normal contractility. The result is a valgus which constantly increases, both from the muscular contraction and from the faulty mechanical position in which the weight of the body must be received upon the foot in walking or in standing. This is also seen in connection with the anterior muscles of the foot, the anterior tibial and the extensor pollicis so often being destroyed leaves the peroneus tertius and the extensor communis digitorum, the only muscles to be used in flexing the foot at the ankle. This also results in a valgus which steadily increases.

To correct these mechanical conditions and to use the non-paralyzed muscles to the best advantage, the author had operated upon four cases and the tendons of the muscles given new attachments.

CASE I. A young woman, nineteen years of age, who came to the Carney Hospital October last, com-

plaining of trouble in the left foot. When nine months old she became paralyzed, which partially cleared up, leaving the foot very weak, so that walking has always been difficult. This has been growing worse of late, and there has been considerable pain referred to the inner side of the foot under the inner malleolus. The left leg was one inch shorter than the right. There was marked atrophy of the left calf, and the foot was in the position of extreme calcaneo-valgus. In walking the weight was borne upon the inner edge of the heel, the anterior portion of the foot being turned outwards fully forty degrees with the normal axis of the ankle-joint. The posterior muscles were all paralyzed, with the exception of the peroneus longus and brevis, and the tendons of these muscles instead of lying in the groove behind the external malleolus had been drawn forward so that they rested on the outer surface of the malleolus near its anterior edge. With the tendons in this position the action of the muscles caused extreme valgus and slight flexion at the ankle instead of extension as should be the case. The anterior muscles were practically normal, and having no posterior muscles to antagonize them, their contraction caused such extreme flexion that the dorsum of the foot rested against the anterior surface of the leg. A short time after this, the patient entered the hospital, and the following operation was performed.

An oblique incision four inches long was made so that it crossed the tendo-Achilles about one inch above its insertion into the os calcis. Through this wound the peroneal tendons were exposed and divided at about the lower edge of the malleolus. The tendo-Achilles was then freed, and the tendon of the peroneus brevis passed under this and attached to the tendon of the flexor longus pollicis. The tendon of the peroneus longus was then attached to the tendo-Achilles, after which the wound was closed, and a plaster-of-Paris bandage applied, holding the foot extended in order to relieve the strain as much as possible from the sutured tendons. One month later a valgus plate was applied, and this has been worn since.

The method of attaching the tendons to each other is of great importance, and unless they are firmly joined the benefit of the operation is lost. The tendon to which the attachment is to be made is split, and the end of the severed tendon, after it has been scored, is drawn through this slit, and securely held by two quilted sutures, which are so placed that when tightened the outer tendon is spread out, furnishing a broad surface for union. The result was best shown by the photograph which was exhibited. The valgus has largely been corrected, and what remains is controlled by the plate, so that the tread of the foot in walking is quite normal. As a fair test of the result, during the last five months the patient has been doing general housework, and has suffered no inconvenience from the foot.

DR. ROYAL WHITMAN, of New York, read a paper entitled

A STUDY OF THE WEAK FOOT WITH REFERENCE TO ITS CAUSES, ITS DIAGNOSIS AND ITS CURE; WITH AN ANALYSIS OF ONE THOUSAND CASES OF SO-CALLED FLAT-FOOT.

The reader emphasized the importance of looking on the foot as a mechanism, and on the flat-foot not

as a deformity only, but rather as a weak or disabled machine. Attention was called to the function of the normal foot. That it was not only a support, but also a lever. If this activity or leverage was diseased or lost, the foot was subjected to great mechanical disadvantage. He laid particular stress upon the component elements which made up the weak or flat-foot. These were (1) the improper distribution of the weight upon the foot because of the pronation or valgus, (2) the displacement of the line of strain by the abduction of the foot, and (3) the secondary lowering of the arch.

The various predisposing and exciting causes of weakness were enumerated. The importance of the early recognition of the weakness, and of the training of children in order that future disability might be avoided; the importance of the proper shoe, both in childhood and adult life, and the treatment for the various grades of weakness and deformity, were then discussed, and illustrated by diagrams and casts.

In conclusion the writer emphasized the following points. Flat-foot, in its surgical sense, is a compound deformity, of which the elements of valgus and abduction, the improper distribution of the weight and strain, are of vastly greater importance than the depth of the arch. The weak and flat-foot can be cured, but only by the application of the simple principles that any mechanic would apply to a disabled machine whose structure and use were known to him; in other words, there can be no permanent cure of weakness and deformity unless normal function is regained, nor effective treatment unless it has this end in view. The term weak foot has at least this advantage, that it implies nothing that the student must unlearn; it is because of the misapplication and misapprehension of flat-foot, and because of the associations which have so long obscured the rational treatment of the deformity, that the term has been discarded from the title of this paper.

DR. L. A. WEIGEL, of Rochester, N. Y., contributed a paper on

METATARSALGIA.

DR. ROSWELL PARK, of Buffalo, N. Y., read a paper on

THE DEFORMITIES AND MALFORMATIONS RESULTING FROM ACUTE INFECTIONS IN BONE.

Clinically, there are three locations in which bone infections are most commonly met with — beneath the periosteum, in the epiphyses, and in the diaphyses. From the pathological side, infections are of four main varieties: (1) the tubercular; (2) the staphylococcus; (3) the streptococcus; (4) the pneumococcus. To these may be added rare instances in which other organisms are primarily or secondarily present. Of these, certainly the more common is the tubercular form, whose manifestations are usually not acute. The other three may be grouped in a general way as pyogenic forms of invasion in which pus is practically invariably produced, providing only that sufficient time has elapsed. The author alluded to the acute miliary tuberculosis of bone, which corresponds in most essentials with similar invasions of the lungs, and of which he had seen occasional examples. It is not quite so rapid as the pyogenic forms, and it may take two or three weeks to produce such destruction of the bone as to necessitate operation. It stands, therefore, in intermediate position between the acute

infections and the slower (usually the tubercular) lesions. Nevertheless, it is sufficiently acute to demand prompt recognition, and when recognized may often be relieved by prompt operative interference. The course of a bone disease will depend first upon the location of the lesion, and secondly upon its character.

As showing the relative frequency of parts involved, of 30 cases observed by Kocher the disease occurred 13 times in the tibia and 11 in the femur. Of 98 cases collected by Leucke and Volkmann, the femur was involved 36 times, the tibia 34, and the humerus 11. Disease in the immediate neighborhood of the hip-joint is about five times as common as in that of the knee. Comparing epiphyses with diaphyses, and accepting Schede's 67 cases, we find that of 28 cases in which the femur was involved, half of them were in the shaft and half in the diaphysis. In the tibia, of 27 cases only 9 concerned the epiphysis; and of 7 cases of the humerus, 2 involved the epiphysis.

With regard to necrosis, it concerned orthopedists mainly in this, that it produces in many instances a weakening of the bone which may lead either to fracture, deformity or curvature. Spontaneous fractures of necrotic bone had occurred under the writer's observation, and he remembers one case of necrotic femur which broke as he was lifting the patient upon the operating table. Incidentally, there is danger of cancer in some of these cases, for Volkmann collected 32 cases in which old and fistulous passages became the site of epitheliomatous changes, and in which cancer was the final result.

DR. JAMES KERR, of Washington, D. C., followed with a paper entitled

JOINT DISABILITY FOLLOWING FRACTURES.

DR. R. W. LOVETT, of Boston, read a paper entitled

AMBULATORY TREATMENT OF POTT'S DISEASE.

He considered this disease a very grave one, which ought to be treated largely by recumbency during the active stage, for the reason that we recognize that our apparatus is intrinsically imperfect on account of the nature of the problem. If we use apparatus, it seems to him that the proper use would be in a small way to vary the monotony of recumbency. Used in any way, we should remember that the position of the superincumbent weight is a most important matter, and that the chest and head should be thrown as far back as possible. Indeed, we see nature trying to throw the chin into this position continually. We should also remember that the higher up the body or backward pull is made, the less is required, and that when this limitation in the use of apparatus is accepted, its field will be more limited than it is now. The use of traction during recumbency seems to the author an advantage, inasmuch as it adds but little to the discomfort of the child, and it manifestly increases the length, which it can only do by diminishing the curvature in the vertebral column.

DR. A. E. HOADLEY, of Chicago, exhibited and described

A NEW SPINE BRACE.

It was designed and adopted by him for the mechanical support of the middle region of the spine. The range of its greatest utility is the support which it

affords to the spinal column between the middle of the lumbar and the middle of the dorsal regions, although its usefulness is not strictly confined to these limits. Inasmuch as the greater number of diseases of the spinal column requiring mechanical fixation occur within this region, its usefulness will be comparatively very great, if found to be efficient. In its simplest form the brace consists of a steel frame, a rigid chest-pad and two aprons. The chest-pad is adjusted in contour to fit the upper anterior portion of the chest. The pad in length is about three times its width and adjusted transversely, resting immediately below the sterno-clavicular articulations. Its real length transversely should be as long as practical without being interfered with by the action of the pectoralis major muscles in the movement of the shoulder. It should be made of sheet metal hammered to give shape and rigidity, covered and lightly padded. The author then described in detail the component parts of this brace, which he divided into four portions: an upper, a lower and two lateral portions. This brace will be found useful to orthopedic surgeons.

REPORT OF FOUR CASES OF SPONDYLITIS OF THE SECOND CERVICAL VERTEBRA.

A paper was read on this subject by DR. REGINALD H. SAYRE, of New York.

Three years ago he brought before the Association some cases of spondylitis of the second cervical vertebra, as it happened that within a few months' time four cases came under his observation which presented almost identical lesions, accompanied by very similar deformities. These cases had now been without apparatus to support the head for a number of months. In all of them there was noted a small swelling at the back of the neck, at the level of the first or second cervical vertebra, which in each instance happened to be on the right side of the neck. In each case the chin was directed toward the right side of the body, the right sterno-cleido-mastoid muscle was rigid, the face looked downward, while the left ear was brought much nearer the corresponding shoulder than its fellow. In one instance, the face was deflected so far from the perpendicular as to be almost parallel with the floor and pressed so closely against the clavicle as to cause an excoriation. The position of the head was in marked contrast to that assumed by patients with torticollis due to contraction of the right sterno-cleido-mastoid muscle. Motions of the head in any direction were excessively painful, and the patients supported their heads with their hands almost incessantly. In turning to view any object the entire body moved as a solid mass without any rotation of the head. The jaw was opened with great difficulty in all cases. At the present time, all but one case can open their mouths freely, and this case has much more control of the mouth than formerly and is enabled to swallow with much more ease. In all the cases the chin was so much depressed as to make swallowing difficult.

These cases were treated by means of a support, which consisted of a pelvic belt with two upright back bars passing upward over the shoulders and held in position by shoulder-straps and an apron. From this an extension rod passed from between the shoulders to the base of the skull, where it joined a rolled metal band passing around the head and secured in position by a forehead strap and a strap passing under

the jaw from ear to ear. Universal joints at the back of the neck and between the shoulder blades allowed the adjustment of this apparatus to any position of the head, while the distance between the head and body pieces was regulated by a ratchet and key extension. Three cases at the present time seem practically well, and since the removal of the support, the range of motion of the neck has increased in all directions and there has been no return of pain.

DR. A. M. PHELPS, of New York, followed with some remarks on

A STUDY OF THE ANTERIOR FORMS AND BURROWINGS OF LUMBAR ABSCESES.

DR. S. L. MCCURDY, of Pittsburgh, described and exhibited

A COMBINATION TRACTION AND IMMOBILIZATION HIP-JOINT BRACE.

Traction was of the utmost importance. In order to apply traction, as well as immobilization, to the hip-joint in disease, the author had devised a combination of the long traction hip-splint and the Thomas splint.

DR. JOHN D. SKEER, of Chicago (by invitation) exhibited

A NEW SURGICAL SAW.

He said that where there is non-union of the bones after excision of the knee-joint, we have conditions that may give rise to any degree of deformity. Any procedure that will prevent the rotation and backward displacement of the tibia, without the interposition of any foreign body between the cut surfaces of the bones, will contribute to the success of the operation. If the tibia were cut off slightly concave and the femur correspondingly convex, the bones would lock together in such a way as to prevent rotation and the backward displacement of the tibia. This method of joining the bones together was first practised by Dr. Fenwick, of Montreal, in 1868, and published in the "International Encyclopedia of Surgery." The doctor used a fret-work saw adapted to a butcher's frame and states that the "bones should be accurately adjusted and if they do not fit nicely saw off a thin slice from either or both of the bones, and if necessary remove thin slices with the cartilage knife."

Objection has been urged against Fenwick's operation, for the reason that pockets have been found between the ends of the bones in which matter accumulated and prevented union. Dr. Skeer apprehends that the pockets and irregular open spaces were made with the narrow saw and the cartilage knife at the time of the operation.

He proposes to improve the technique of this operation by making the sections with a concavo-convex saw which he had devised for that purpose and which cuts a true circle, so that when the cut surfaces of the bones are brought together they will coaptate with mathematical accuracy. The saw-blade is nine inches long and two inches broad, curved on the flat with a concavity of one-fourth of an inch.

DR. W. O. PLIMPTON, of New York, read a paper entitled

EXCISION OF THE KNEE AS AN ORTHOPEDIC PROCEDURE.

The success of the operation is no longer an experiment, and when performed under right conditions and by a skilful operator should not only save limbs

but lives. Too much cannot be said in favor of early treatment by mechanical and fixation methods in disease of the knee-joint. If the profession at large recognized disease of this joint in its incipency and employed extension and fixation methods of treatment, comparatively few cases would advance so far as to necessitate excision. It is the duty of the orthopedic surgeon who teaches to lay special stress upon the early recognition, as well as early mechanical treatment, of these diseases. When the fixation and extension plan of treatment has been conscientiously tried and has not arrested the disease which is manifestly on the increase, the surgeon should explore the joint and do whatever the conditions demand, whether to wash out or to excise. When the articular surfaces are destroyed, the bone and the soft parts extensively involved, the joints should be excised.

In the series of excisions which the author reported, there were several examples of great destruction from osteomyelitis and tubercular disease where amputation was avoided and several inches saved to the length of the limb by allowing the cavity to fill and the clot to organize. In one case of osteomyelitis seven inches of bone were reproduced. In determining what operation for excision of the knee best subserves the requirements, it may be said that that method which allows of the most complete removal of all diseased tissue and affords perfect drainage, retains the parts in best apposition and fixes the bones without the use of pins or wire, and last, but not least, the one that can be done with the greatest ease and rapidity, is to be preferred. Fenwick's operation fulfils all requirements, with a few exceptions. Where the head of the femur is destroyed, precluding the section according to Fenwick, Phelps has devised a method to meet this condition by sawing a wedge-shape at the end of the femur and a V in the tibia for its reception. The length of time taken for excision of the knee is an important element with regard to the mortality of the operation, as the shock of the operation in excision of the knee must of necessity be profound. The author said that Dr. Phelps, on an average, did not consume more than fourteen and one-half minutes in excisions of the knee, except in exceptionally bad cases. He had seen him do an excision in ten minutes from the time the first incision was made until the last plaster bandage was in place.

DR. A. J. STEELE, of St. Louis, exhibited

AN APPARATUS FOR THE TREATMENT OF CLUB-FOOT, AND TWO CONTRIVANCES TO BE USED IN HEAD-TRACTION AND IN HIP-TRACTION.

Dr. LOUIS A. WEIGEL, of Rochester, N. Y., read a paper entitled

MECHANICAL SUPPORT IN THE TREATMENT OF SCOLIOSIS.

He believed that a mechanical appliance could be used with as much benefit, be made to do its work and be worn as comfortably on the back as on the legs.

The following officers were elected: President, Dr. Royal Whitman, of New York; First Vice-President, Dr. George W. Ryan, of Cincinnati; Second Vice-President, Dr. Joel E. Goldthwait, of Boston; Secretary, Dr. John Ridlon, of Chicago; Treasurer, Dr. E. G. Brackett, of Boston.

Place of meeting, Buffalo; time, third week in May, 1896.

THE BOSTON

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A MEDICAL VIEW OF THE MIRACLES AT LOURDES.

DR. EDWARD BEDOE has been to Lourdes, and he writes his impressions of the "miracles" there being performed.¹ He says that a visit to Lourdes will furnish the physician with more food for reflection than a dozen clinical lectures, or a series of visits to all the great hospitals of Paris, London and Vienna. He will, among other useful things, learn how little he knows, after all, about these patients whose pulses he feels, whose temperature he takes, and whose tongue he inspects in his daily work. He will discover that a man, and still more a woman, is a great deal more than the physiologist has told him, and that the physiologist has but lifted the veil which shrouds the mystery of the human organization.

He went to Lourdes in the month of August, on the eve of the festival of the Assumption, and "mingled with the thousands of pilgrims who sought the virtues of the sacred fountain at the rock of Massabielle." He found it difficult "to remain strictly philosophical," "impossible to be coarsely sceptical" in that strange assembly. Hard indeed would be the heart of any medical man which could remain unmoved by the sights which met his eyes. At no other spot in the wide world could the medical faculty behold at a glance so many of its failures! A cemetery could hardly rebuke our art more sternly! The pilgrims were mostly of the upper middle — not of the poorer — classes. It was an army of incurables. At terrible cost of suffering and inconvenience they had reached this place: consumptives in the last stage of the malady; paralytics, the subjects of spinal disease; the wretched victims of rheumatic arthritis; cases of lupus with faces and eyes devoured by the malady; children, mere bundles of skin and bone; idiots and epileptics, halt, lame, and blind, whose last hope was the Virgin of Lourdes!

No one who has not visited Lourdes "can have any

¹ Nineteenth Century, October, 1895.

idea of what the sincerest prayer and the highest devotion are," possibly because bodily suffering touches us more closely than anything else. The suppliants in the grotto kneel for hours with arms outstretched, wrapt in devotion, and often in ecstasy, regardless, or rather unconscious of the bystanders who have visited the place from curiosity. But an air of deepest reverence envelops the whole multitude. This earnestness on the part of the worshippers, Dr. Bedoe says, exalts the whole organism and serves of itself to explain much of the thaumaturgy. Is it after all so very different from the wonders wrought in the temples of old? Miracles have always been affirmed in connection with such circumstances and such religious exaltation. The temples of Esculapius in Ancient Greece were visited by the sick just as Lourdes and St. Winifred's Well are visited now, and with as much benefit apparently. After prayer to the god, ablutions and sacrifices, the patient was put to sleep on the skin of an animal offered at the altar while the priests performed their sacred rites. The appropriate remedy would sometimes be suggested, but more commonly rules of conduct and diet would suffice. When the cure took place, which very frequently happened by suggestion, as in modern hypnotism, and by the stimulus to the nervous system consequent upon the pilgrimage and the hope excited in the patient, a record of the case and cure was carved on the temple walls exactly as is done to-day at Lourdes.

Dr. Bedoe believes that faith was the *sine qua non* in Greece as in the Pyrenees, everything connected with the temple and its ceremonies was calculated to excite religious awe and to stimulate faith. The patient underwent purifications, fasting, massage and fomentations; this treatment is paralleled at Lourdes to-day. The Greek invalid was well primed with the stories of the marvellous cures which had taken place at the sacred fane; he began to feel the blessed stimulus of hope. He offered prayers and sacrifices that in the incubatory sleep the remedies for his ailment might be revealed. If all failed, it was set down to the want of faith on the patient's part, not to any defect on the part of the divinity or the priests.

Miracles of healing took place, if history may be credited, in Egypt, Babylonia and Chaldæa; anthropologists tell us that they happen with savages. As Christianity has no monopoly of faith-healing we may imagine what it is which underlies all these phenomena. To set them aside as silly talk and priestly frauds is to betray the non-scientific mind; so universal a thaumaturgy implies a basis of fact which we must not despise. Professor Charcot says that faith-cure "is an ideal method, since it often attains its end when all other means have failed." It is entirely of scientific order, though its domain is limited; to produce its effects, it must be applied to those cases which demand for their cure no intervention beyond the power which the mind has over the body. Purely dynamic diseases are cured by this means, but not organic maladies. Ulcers and tumors may be caused

to disappear if such lesions be of the same nature as paralysis and other disorders of motion and sensation which are commonly considered to be the sole field for the influence of the faith-cure.

M. Littré is cited as describing seven "miracles" which took place in France at the end of the thirteenth century at the tomb of St. Louis. He states the simple facts, as given in the churches of the period, and endeavors to give a pathological interpretation of them. He notices, in the first place, that at the moment of cure the patient felt a sharp pain; the part affected seemed to be stretched or touched, and sometimes a sort of cracking sensation in the bone was experienced; then movements became possible, although the lengthening of the limb and the possibility of moving it were not felt immediately. The cure was not so sudden; a period of weakness, long or short always followed the miracle, and the part only gradually regained its use. The cracking of the bone is just what the surgeon finds when he moves a joint which has become fixed by disease; without breaking down these adhesions, he can do nothing to restore the articulation. In cases of rheumatic paralysis a similar state of things is observed. We recognize the cracking and the pain as genuine pathological details; we should not expect a natural cure without these details. Littré explains the process in the words of Dr. Onimus, who applied to the elucidation of the subject his theory of nervous vibrations. The ascending action or vibration expresses the influence of the physical on the moral; the descending action or vibration expresses the influence of the moral on the physical. In these cases it is the descending action which we have to consider. This action is exerted on the muscular portion of the affected part; it contracts energetically; it breaks down the pathological adhesions if they exist; it restores the bones violently to their place. This done, the patient is in condition to use the limb, but not without passing through a period of debility which requires time for recovery. It is a violent extension produced by muscular contractions. What the surgeon has to do with his hand is here done by an influence exerted on the muscles themselves, and in a far more beneficent manner than surgery can effect.

What is the exciting cause of these energetic contractions? That, Dr. Bedoe says, which we find in all miracles of this sort—a strong persuasion, a complete confidence. Under a profound emotion born of these sentiments, the patient, feeling that the cure was in the extension of the part, had a belief which he could understand. Of course, such faith is not possible in every case. On one side there must be the mental condition which can receive in its fulness the emotion born of persuasion and confidence; and, on the other, all lesions must be susceptible of cure.

Dr. Bedoe gives familiar instances of unwonted strength generated by strong excitement. A gouty man who has long hobbled about on his crutch finds his legs and power to run with them if pursued by a

wild bull. The feeblest invalid under the influence of delirium or other strong excitement will astonish her nurse by the sudden accession of strength she may exhibit. In other words, these phenomena, like the majority of the miracles of healing, are effected by the overpowering influence of a great idea on the nervous system.

REORGANIZATION OF MEDICAL BOARDS IN THE NEW YORK CITY HOSPITALS.

THE Commissioners of Public Charities and Correction in the city of New York have given the medical profession of that city one of the greatest sensations it has had for a long time by their action, made public on October 21st, in arbitrarily abolishing all the present medical boards (including both consulting and visiting physicians) of the various hospitals under their direction, with the exception of that of Bellevue Hospital. The institutions affected are the great City (formerly Charity) Hospital, on Blackwell's Island, the Hospital for Nervous Diseases, the Maternity, Workhouse and Almshouse Hospitals, and the Fordham, Gouverneur and Randall's Island Hospitals. It is proposed to substitute for the present boards new boards, the appointments to which are to be decided upon by the Faculties of the College of Physicians and Surgeons, Bellevue Hospital Medical College, and the Medical Department of the University of the City of New York. The medical board of the Harlem Hospital, as previously reported in these columns, has already been reorganized on this basis. It is felt by many of the profession not connected with the three schools previously mentioned, that this action is unjust to the physicians and surgeons holding hospital appointments, and that it practically excludes medical men who are not graduates of these colleges from any chance of obtaining such positions.

At the first meeting of the New York County Medical Association after the summer recess, which was held on October 21st, a Committee appointed at the June meeting to consider hospital and dispensary abuses and other matters made a report in which the action of the Commissioners was strongly condemned. In the case of the Harlem Hospital this Committee asked for a hearing before the Commissioners in the interest of the medical men who had been summarily deposed, and urged upon the appointing boards of the medical colleges that action should be deferred until charges had been preferred, or, in the absence of charges, that they should be re-appointed. Both the colleges and the Commissioners, however, totally ignored the communications of the Committee.

The following resolutions of protest were accordingly adopted by the Association:

Resolved, That this Association condemns the wholesale dismissal of medical men from hospital positions without cause or hearing.

Resolved, That we express our disapproval of the action of the Faculties of the four divisions of Bellevue Hospital and the Commissioners of Public Charities and Correction

in ignoring the communications of the Committee of the Association.

On the other hand, the Commissioners contend that the new system now announced will result in giving better medical services to the hospitals affected thereby.

MEDICAL NOTES.

HOMEOPATHY IN PERU.—It is announced in the daily press that an American physician, after five years of struggle, has secured the right to practise homeopathy in Peru.

"INDEX MEDICUS."—The following subscriptions for the *Index Medicus* have been received by Dr. J. S. Billings, for the period September 24, to October 24, 1895:

Battle Creek, Mich.: American Medical Missionary College.
 Boston, Mass.: Dr. J. R. Chadwick, E. G. Cutler, Dr. Dr. F. C. Shattuck, Dr. E. Wigglesworth, Boston Medical Library Association (2 copies), Boston Society for Medical Improvement (4 copies), State Board of Health, Massachusetts.
 Bristol, Eng.: Bristol Medical Library.
 Brooklyn, N. Y.: Dr. George R. Fowler, Pratt Institute.
 Buffalo, N. Y.: Dr. M. D. Mann, Dr. John Parmenter, Dr. Roswell Park, Medical Department, University of Buffalo.
 Chicago, Ill.: Dr. J. H. Etheridge, Dr. E. Fletcher Ingals.
 Cincinnati, O.: Dr. Joseph Ranschoff.
 Cleveland, O.: Dr. Hunter Robb.
 Denver, Col.: Dr. J. T. Eskridge.
 Grand Rapids, Mich.: Medical Library Association.
 Nashville, Tenn.: Dr. Richard Douglas.
 New Haven, Conn.: State Board of Health, Connecticut.
 New York City: Dr. I. Adler, Dr. Samuel Alexander, Dr. L. B. Bangs, Dr. Francis Delafield, Dr. A. A. Herter, Dr. A. Jacobi (2 copies), Dr. Mary Putnam Jacobi, Dr. E. E. Keyes, Dr. F. P. Kinnicutt, Dr. Charles McBurney, Dr. John P. Munn, Dr. W. K. Otis, Dr. Wm. M. Polk, Dr. B. Sachs, Dr. H. Reginald Sayre, Dr. John E. Weeks, German Hospital and Dispensary, New York State Medical Association, Woman's Medical College of New York Infirmary.
 Philadelphia, Pa.: Dr. Thomas G. Ashton, Dr. F. X. Dercum, Dr. H. A. Hare, Dr. Ernest Laplace, Messrs. Lea Brothers & Co., Dr. J. H. Musser, Dr. S. D. Risley, Mr. W. B. Saunders, Alumni Association of Woman's Medical College, College of Physicians of Philadelphia, Philadelphia County Medical Society, Philadelphia Pathological Society.
 Pittsburgh, Pa.: Alleghany County Medical Society.
 Providence, R. I.: Dr. M. B. Gornberg.
 Richmond, Va.: Dr. G. B. Johnston.
 St. Louis, Mo.: Dr. E. C. Burnett, Dr. Henry H. Mudd.
 San Diego, Cal.: Dr. Wm. A. Edwards.
 Troy, N. Y.: Dr. Wm. Wotkins Seymour.
 Washington, D. C.: Medical Society of District of Columbia.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, October 30, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 107, scarlet fever 38, measles 3, typhoid fever 39.

THE STAFF OF THE CITY OF BOSTON ALMSHOUSE AND HOSPITAL.—The following gentlemen have been appointed as a visiting staff to the almshouse and hospital on Long Island, Boston Harbor: Dr. Abner Post, visiting surgeon; Dr. James J. Minot, visiting physician; Dr. Eugene A. Crockett, visiting surgeon; Dr. Alex. Quackenboss, visiting ophthalmic surgeon;

Dr. Edward W. Taylor, visiting neurologist; Dr. William T. Councilman, visiting pathologist. Each of these well-known physicians holds some position in connection with one or more of the following institutions: Boston City Hospital, the Massachusetts General Hospital, the Carney Hospital and the Massachusetts Charitable Eye and Ear Infirmary, so that to the patients is guaranteed the best of treatment and to the commissioner and superintendent a body of trained expert medical advisers in the management of the institution with which they are connected.

NEW YORK.

ADENOIDS AND NASO-PHARYNGEAL CATARRH. — At the last meeting of the County Medical Association the principal paper of the evening was by Prof. J. Solis-Cohen, of Philadelphia, who took for his subject, "Lymphoid Hypertrophies at the Vault of the Pharynx (so-called Adenoids) and their Relations to Rhino-Pharyngeal Catarrh."

DEATH OF DR. CONRAD. — Dr. Harry B. Conrad died suddenly of cardiac disease while walking in the street with his wife on Sunday evening, October 20th. He was a prominent up-town physician, and forty-three years of age. He was a graduate of the Medical Department of the University of the City of New York in the year 1877, and belonged to the Academy of Medicine and other Societies.

Miscellany.

ONE THOUSAND MAJOR GYNECOLOGICAL OPERATIONS.

DURING the last ten years Schauta, gynecological surgeon at Vienna, has performed a thousand capital gynecological operations, the results of which have been published by his assistant Herzfeld.¹

Ether is preferred to chloroform, as being the safer anesthetic; Schauta, however, thinks "that the affections of the air-passages are a contraindication to the employment of ether (?). Formerly he used chloroform; but several cases of death happened under this anesthetic, which led him to renounce its further use. He thinks that the malaise following ether is of shorter duration and the vomitings are less frequent than under chloroform anesthesia (a still disputed point).

Nearly all of Schauta's operations were performed for affections of the uterus or its adnexa. It has been the general custom of this surgeon, during the course of the operation, to make a bacteriological examination of the contents of the tumors or organs removed. This examination suffices to demonstrate the existence or the absence of the streptococcus, the staphylococcus, or the gonococcus, etc. If the presence of bacteria has been determined without identification of the species, drainage is deemed necessary, as in all cases where the examination has revealed the existence of pathogenic bacteria. The drainage is effected by means of strips of iodoform gauze intro-

duced into a "pocket" of the same material and placed in Douglas's pouch and left till the fourth day and sometimes longer.

In 49 cases celiotomy was performed for extra-uterine pregnancy. Half of these patients had retro-uterine hematocoele. Four died, but in two only was the death the direct result of the operation. The operative procedure was essentially the same as that in usage for extirpation of the adnexa. In half the cases the adnexa of the opposite side were also removed, being the seat of inflammatory alterations; almost all these patients were in the early months of pregnancy; in six only was the pregnancy far advanced. The results of these 49 operations are considered as encouraging to early extirpation of the fetal pouch, that is, of the adnexa, as the fetus generally develops in the tube or in a tubo-ovarian sac, the result of inflammatory processes. The ovary itself, is but exceptionally the seat of an extra-uterine pregnancy. As for the so-called "abdominal pregnancies," they are always, so to speak, secondary to a tubal pregnancy.

In 160 cases operative intervention was demanded for uterine myomata or fibromata. In 40 of these patients the operation was castration (followed by two deaths from secondary hemorrhage). In 18 cases the tumor was enucleated (four deaths). In 21 cases there was total extirpation of the uterus by the abdomen, vagina, or sacrum (three deaths). The operation by sacral resection is reserved for certain tumors situated low down, and to which access is more easily obtained through the posterior part of the pelvis. In 81 cases supra-vaginal amputation was performed (15 deaths).

In 160 cases the uterus was extirpated for carcinoma, with a mortality of 13 per cent. In 140 of these cases, the uterus was removed *per vaginam* (12 deaths). Fifteen times the ablation was performed by removal of part of the sacrum — there was a mortality of five. In four of these patients the carcinoma had extended beyond the limits of the uterus; Schauta has since then declined to operate on any more cases of the kind. While cancers of the cervix are better removed *per vaginam*, the sacral method is preferred for tumors of the body of the organ. In a few instances the uterus was removed by abdominal section; four out of five of these persons died.

Ovariectomy was practised on 198 patients. In 47 cases torsion of the pedicle was found, the mortality was 8.1; Cæsarean section was performed 43 times; six of these cases were followed by supra-vaginal amputation, and 37 by suture of the uterus. Two of the six patients operated on according to Porro's method succumbed. Thirty-eight patients were the subjects of a conservative Cæsarean section; four for eclampsia, and two deaths, and 31 for narrow pelvis; of the other two cases, one had contracted vagina and the other a lithopedion, causing serious obstruction to delivery. Of the 31 operations for narrow pelvis, two only were fatal. The superiority of the conservative section over other operations seems demonstrated; Schauta deems it even preferable to symphysectomy. The incision is made without the elastic ligature; the loss of blood is not excessive. Silk sutures, deep and superficial, unite the edges of the uterine wound, and the duration of the operation is only about twenty minutes.

Castration was performed in five cases of osteo-

¹ Klinischer Bericht über 1,000 Bauchhöhlen-Operationen als Beitrag zur Lehre von der Indikation und Technik der Koeliotomie, Vienna, 1895. See also analysis of J. K. Comte in Semaine Medicale, 1895, p. 1311.

malacia; all got well of the disease (*modus operandi* not understood). Castration was also practised in five cases of grave menstrual psychoses; four were cured or greatly benefited.

Total extirpation of the uterus by the vagina was effected in 181 patients; there were 14 deaths. As for total extirpation by abdominal section, this was attempted but four times (one death by pneumonia).

Abdominal hysterectomy was done 77 times. All the patients got well. The fixation was effected either by means of a median suture traversing the anterior wall of the uterus, or by two lateral sutures including the round ligament and a portion of the uterine wall. In all these patients, who had been under observation at variable periods, a permanent cure seems to have been obtained; two of them have gone through a normal pregnancy. This operation, Comte thinks, ought to be reserved for cases where the uterus is fixed in retroversion combined with retroflexion, for the success of vaginal hysterectomy among gynecologists of the present day seems destined more and more to limit the indications of ventro fixation.

Among the laparotomies made for the purpose of diagnosis, there were 15 cases in which the operation disclosed chronic tuberculosis of the peritoneum; 14 of these patients got well after the operation.

An interesting case is recorded of strangulation of the uterus in retroflexion by torsion around its own axis in a woman aged twenty-four years; the torsion was produced during an effort to raise a heavy burden. The right cornu of the uterus, very much swollen, was strangulated in Douglas's pouch, while the left was turned upward and forwards. Reduction was effected by laparotomy.

Schauta estimates the mortality of all these operations as 104, that is, 10.4 per cent.; nevertheless, in 45 cases only the death was the direct consequence of the operation.

DEATHS UNDER ANESTHETICS: CHLOROFORM.

THE reports under this heading of cases of deaths under chloroform in the *British Medical Journal* have been so frequent of late as to elicit the following note from Mr. E. C. Cripps, M.R.C.S., Eng., who writes:

"The reports of deaths under chloroform which appear in almost every number of the *British Medical Journal* form very melancholy reading. In the case reported by Mr. Coates on October 12th, it would be interesting to know why chloroform was administered in preference to ether. The heart's action was ascertained to be feeble before the operation, and there seems to have been nothing to contraindicate ether, so that the case was essentially one in which ether and not chloroform should have been used, and in all probability if it had been, the patient would have been alive now. Ether may be contraindicated in a very few instances, but in the large majority of cases it is the best and safest anesthetic, and it seems almost criminal to use in preference to it chloroform, which is five times more dangerous."

The operation was simply a sequestrotomy on a metacarpal bone, and, as Mr. Cripps says, the fact that the heart's action was noted to be feeble should have contraindicated chloroform. At the autopsy the heart walls were found flabby and thinner than normal. The valves were normal.

OBITUARY.—BENJAMIN CUSHING, M.D.

BENJAMIN CUSHING, M.D., died at his residence on Percival Avenue, Dorchester, October 16, 1895, aged seventy-three years. Of those who knew him, there are very few, if any, who will read the above announcement without a sense of personal loss. His exalted character, his integrity, his sincerity, his desire not only to make his own life useful but to aid others in making their lives more useful, his devotion to his profession, his great abilities, his kindness and benevolent and sympathetic nature, had endeared him to all hearts. And when it came to be understood that he was stricken down with what was likely to result in a fatal disease, it seemed as though a pall of mourning had been cast over the whole profession in his neighborhood; and now, though not wholly unexpected, the sad news of his death finds us all unreconciled and all unprepared.

We must, however, find our consolation for this loss in the fact that his has been a valuable and useful life, and no misfortune can ever reach him now. He has gone in the fulness of time. He has passed his threescore and ten years. He has made for himself a place in the memories of those who knew him, that will be kept sacred till their own lives shall cease. He has ended a useful life. He has ministered to many. His name is cherished by all. Younger men in the profession owe to him a debt of gratitude that can only be repaid by imitating the example he set them, and by practising medicine along the lines of high and ennobling virtue and devotion to right principles that he taught in all his councils, and illustrated and exemplified in his life. They will have to remember forever his valuable suggestions, his ever-ready sympathy and assistance, his universal and respectful recognition of their merits everywhere and at all times.

We to whom it was given to avail ourselves in every emergency, without dread of intrusion, of his extended experience, his great wisdom and his wonderful skill, know, perhaps, better than others can know, that the community has sustained a loss that is only saved from being irreparable by the influence that he has exerted in raising the standard of professional attainment, manliness and true nobility, in his neighborhood, to a level with his own.

It is difficult to be reconciled to his departure; but it must come some time, as it comes to all. And though we would not have chosen that it should come through a lingering, wasting and painful malady, it cannot be said that it has come before its time.

With his life's work all accomplished, in the midst of family and friends, with a remembrance firmly established in the hearts and homes of the whole community, with a place secure in the front rank of his beloved profession, and with an abiding faith that something better is coming in the great hereafter, he has gone to his rest.

Honored and loved, by kindest hopes attended
Wherever he was known,
His journey done, his suffering all ended,
He laid life's burden down.

There is no better ending to this our mortal life.

W. S. E.

Correspondence.

TOO MUCH HIGH PRESSURE AT SCHOOL.

BOSTON, October 28, 1895.

MR. EDITOR:—Most parents think that the studies of their sons and daughters at high school are altogether too numerous and too severe. We are apt to suppose that it is the particular high school to which our young people go that is at fault; but a little inquiry shows that our neighboring academies are just as bad, or even worse, in this respect. Who are to blame for this? Certainly not the parents. The teachers disclaim the responsibility, and many of them even regret it. Therefore, in our municipal at least, we are forced to conclude that it must

either be the supervisors or else that august body of irresponsible, tyrannical Solons called the *school committee*. We desire no worse punishment for such supervisors and committees than that they should be obliged to swallow the mental food which they have prescribed for the young people for three or four years. This would give them a mental dyspepsia for the remainder of their days that would surely keep them from doing any more harm of this kind.

With the exception of a few who are to become teachers, pupils are much better prepared to begin the business of life as soon as they leave the grammar school; for then they are fresh from their arithmetic and book-keeping, which are almost entirely neglected in the high schools of Boston, and what was learned of these is quickly crowded out by less practical studies. Evidently the whole plan of education hereabouts is based on the supposition that there are a few *almighty smart* scholars whom the teachers must keep ahead of, even if all the others drop out. The sooner most of them drop out the better. The great majority of pupils in humble circumstances are made dissatisfied with their lot and unfitted for useful occupations that they might easily have filled, by too much of what is called education. I remember hearing the city missionary say that most of the young people in the House of Correction were "well educated."

But this overcrowding of studies in high schools is not confined to the United States alone. It is almost universal, as is well shown by a valuable and interesting article in the *Revue d'Hygiène et Thérapeutique* for April, 1895, which tells us that in France for some time they have forgotten the campaign against intellectual overwork in order to occupy themselves with physical overwork, the effects of which are much less injurious to the individual and to the race.

The different morbid conditions arising from too much and too hurried overwork of academic teaching have been carefully investigated by M. Lagneau. At Neufchâtel, out of 731 scholars, 296 suffered from headache. At Darmstadt and at Bessingen, out of 3,568, they found 974 with headache. At Saint Petersburg, amongst 7,478 boys and girls, headache was observed in 34 per cent. of the scholars from fourteen to eighteen years of age.

In England, Dr. Crichton Brown found 46 per cent. of children suffering in the same way from too much study at school.

A study of a large number of cases of chorea by Dr. Abercrombie showed that 11 per cent. of them were due to over-much mental work. At Manchester, Dr. Ashby has observed the number of cases of chorea increase from 4 to 10 per cent. in eleven years in consequence of their system of education becoming more and more severe.

When Lord Stanley, of Alderley, brought before the High Chamber the question of overwork at school, Lord Shaftesbury, President of the Commission of Asylums for the Insane, remarked that from 32,901 teachers, masters and mistresses of schools, governesses, professors and lecturers, taken at the census of 1871, there had become inmates of asylums in 1882, 183 patients, of whom 145 were women and 38 were men. The physicians of the Cantons of Geneva and Neufchâtel have also been impressed by the enormous proportion of young women intended for the profession of teaching which they found in insane asylums.

Intellectual overwork affects the health of young women. At Paris, M. Dujardin-Beaumetz observed that for 25 places at the Superior Normal School 500 candidates presented themselves. He was struck by the poor state of health which the majority of these young women showed—badly developed, pale blooded, chlorotic, exhibiting an excitability of the nervous system which results from excessive mental work depriving them of sleep.

This situation unfortunately grows worse. M. Taine remarked that in 1890 for 42 situations for male teachers in the Department of the Seine there were 1,847 candidates, and that for 50 places for female teachers there were 7,139 trained and licensed aspirants. In spite of this

plethora of trained subjects who are unable to utilize their knowledge, they do not cease in France to increase the number of them but facilitate the instruction of unfortunate young men and women, and thus make them dissatisfied and unfit for the class from which they came. For this purpose, in place of 220,000 francs being paid out in 1857, the treasury of instruction moved an expense of 18,000,000 francs in 1889.

In democratic and cosmopolitan countries, such as France and the United States pretend to be, it would be wrong to deprive society of the services that might be rendered to it by rare and brilliant minds which require only the material means of perfecting their instruction. It is necessary, however, to exercise a more careful choice and to be less prodigal of the finances of the State, for the result obtained does not always correspond to the greatness of the sacrifice.

In Germany, where they encourage by generous allowances studies and researches by bright students, there is a reaction against the overproduction of learned people. A similar movement is expected in France, where are seen many young people, and especially young women, abandoning some modest and more lucrative careers in order to enter upon studies which are altogether too high and too intense for them, which compromise their health without being useful or profitable, and which are more injurious to the future of the nation than physical exercises even when they are carried to the extent of over-fatigue.

Very truly yours, DOUGLAS GRAHAM, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 19, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,892,332	714	359	12.01	12.16	4.78	1.82	1.12	
Chicago . . .	1,678,867	477	191	32.13	8.40	10.65	6.69	13.65	
Philadelphia . . .	1,169,040	383	129	14.61	10.99	2.76	1.30	8.47	
Brooklyn . . .	1,100,000	390	158	17.63	13.99	4.42	1.49	6.24	
St. Louis . . .	569,000	—	—	—	—	—	—	—	
Boston . . .	491,405	206	60	15.68	9.94	4.99	3.45	5.30	
Baltimore . . .	439,315	170	72	29.66	1.92	8.22	5.12	6.49	
Cincinnati . . .	336,000	89	27	6.25	11.33	—	2.00	1.36	
Cleveland . . .	311,367	97	35	10.48	13.92	—	2.04	12.66	
Washington . . .	275,500	142	37	16.80	11.20	6.30	5.60	.70	
Pittsburg . . .	233,417	104	39	22.09	9.61	4.88	4.89	3.61	
Milwaukee . . .	166,000	—	—	—	—	—	—	—	
Nashville . . .	87,754	35	11	14.30	22.88	5.72	5.72	—	
Charleston . . .	65,165	42	14	16.06	11.90	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . . .	98,187	30	8	10.06	13.33	3.33	—	6.66	
Fall River . . .	88,040	35	18	20.71	11.44	17.16	—	2.86	
Lowell . . .	84,659	44	16	16.82	11.36	11.36	2.27	4.54	
Cambridge . . .	81,419	26	11	13.90	8.90	8.90	—	4.00	
Lynn . . .	62,335	16	8	12.60	18.75	6.25	—	6.25	
New Bedford . . .	55,264	20	7	15.09	5.05	—	—	15.09	
Springfield . . .	51,534	14	5	14.28	14.28	7.14	—	—	
Lawrence . . .	52,193	—	—	—	—	—	—	—	
Holyoke . . .	40,143	—	—	—	—	—	—	—	
Salem . . .	34,437	11	4	—	9.09	—	—	—	
Brookton . . .	33,137	6	1	—	33.33	—	—	—	
Haverhill . . .	30,185	11	4	18.18	9.09	9.09	—	9.09	
Malden . . .	29,706	11	4	18.18	18.18	9.09	9.09	—	
Chelsea . . .	31,336	10	2	—	10.00	—	—	—	
Fitchburg . . .	26,394	14	4	—	7.14	—	—	—	
Newton . . .	21,922	13	5	7.69	16.66	—	—	7.69	
Gloucester . . .	27,603	—	—	—	—	—	—	—	
Taunton . . .	17,066	11	1	9.09	—	—	—	9.09	
Waltham . . .	20,877	7	4	14.28	18.75	14.28	—	—	
Quincy . . .	20,712	19	3	5.26	16.82	8.26	—	—	
Pittsfield . . .	20,447	5	1	—	—	—	—	—	
Everett . . .	18,578	6	2	16.66	—	—	—	16.66	
Northampton . . .	16,738	4	1	—	—	—	—	—	
Newburyport . . .	14,534	12	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,252; under five years of age 1,175; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 571, consumption 353, acute lung diseases 429, diphtheria and croup 205, diarrheal diseases 177, typhoid fever 99, whooping-cough 35, malarial fever 18, scarlet fever 15, measles 11, cerebro-spinal meningitis 8, erysipelas 3.

From whooping-cough Brooklyn 13, New York 9, Chicago 4, Philadelphia and Baltimore 3 each, Boston 2, Providence 1. From malarial fever Washington 6, Brooklyn 5, New York and Charleston 2 each, Philadelphia, Baltimore and Boston 1 each. From scarlet fever Pittsburg 5, New York 3, Baltimore 2, Brooklyn, Boston, Nashville, Springfield and Quincy 1 each. From measles New York 6, Chicago and Brooklyn 2 each, Providence 1. From cerebro spinal meningitis Chicago 4, Providence 2, New York and Cleveland 1 each. From erysipelas Chicago, Philadelphia and Brooklyn 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending October 12th, the death-rate was 21.0. Deaths reported 4,271; acute diseases of the respiratory organs (London) 175, diarrhea 533, measles 94, diphtheria 85, fever 65, scarlet fever 60, whooping-cough 56, small-pox (London) 2.

The death-rates ranged from 8.6 in Croydon to 42.5 in Blackburn; Birmingham 22.4, Bolton 22.7, Bradford 25.3, Bristol 16.7, Gateshead 28.8, Hull 22.6, Leeds 21.6, Leicester 19.1, Liverpool 31.7, London 17.0, Manchester 28.4, Newcastle-on-Tyne 27.5, Nottingham 24.2, Oldham 21.4, Portsmouth 17.6, Sheffield 24.0, West Ham 13.4.

METEOROLOGICAL RECORD.

For the week ending October 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...13	29.50	54	56	53	100	100	100	N.E.	N.	36	24	R.	R.	4.85
M...14	29.85	55	62	48	73	66	70	N.W.	N.W.	23	17	C.	C.	.42
T...15	30.09	46	52	39	72	85	78	N.W.	N.W.	8	3	O.	R.	.07
W...16	29.92	41	53	36	88	50	89	N.W.	S.E.	4	5	O.	F.	.01
T...17	29.72	32	56	47	77	62	70	N.W.	S.W.	18	14	C.	C.	
F...18	30.16	41	54	35	52	52	62	N.W.	S.W.	15	10	C.	C.	
S...19	29.80	46	68	45	76	78	77	S.E.	S.W.	17	23	C.	C.	

* O. cloudy; C. clear; F. fair; G. fog; H. hazy; S. smoky; R. rain; T. threat-
ening; N. snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 19, 1895, TO OCTOBER 25, 1895.

CAPTAIN OGDEN RAFFERTY, assistant surgeon, is relieved from duty at Benicia Barracks, Cal., and ordered to Fort Bliss, Texas, for duty, relieving MAJOR CLARENCE EWEN, surgeon.

MAJOR CLARENCE EWEN, surgeon, upon being relieved from duty at Fort Bliss, Texas, will proceed to San Francisco, Cal., and report to the president of the Retiring Board for examination.

The leave of absence granted MAJOR CHARLES B. BYRNE, surgeon, is extended three months.

CAPTAIN WILLIAM H. ARTHUR, assistant surgeon, is granted leave of absence for one month.

The extension of leave of absence, on surgeon's certificate of disability, granted CAPTAIN JAMES E. PILCHER, assistant surgeon, is still further extended two months on account of sickness.

PROMOTION.

CAPTAIN WM. H. CORBUSIER, assistant surgeon, to be surgeon with the rank of Major, October 17, 1895, *vice* CRONKHITE, retired from active service.

RETIREMENT.

MAJOR HENRY M. CRONKHITE, surgeon, October 17, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 26, 1895.

J. C. ROSENBLEUTH, assistant surgeon, to instruction at the Naval Laboratory.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19

Boylston Place, on Monday evening, November 4th, at 8 o'clock. Dr. Charles H. Williams will read, by invitation, on "Color Testing." Drs. B. J. Jeffries, O. F. Wadsworth and G. Hay have been asked to take part in the discussion.

Dr. E. H. Bradford on "School Desks." Discussion by Drs. H. P. Walcott, S. H. Durgin, C. H. Williams and E. G. Brackett. JAMES G. MUMFORD, M.D., Secretary.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The regular monthly meeting of the Surgical Section of the Suffolk District Medical Society will be held Wednesday evening, at 8 o'clock, at the Medical Library, 19 Boylston Place, November 6, 1895.

Dr. Joel Goldthwaite: "Tendon Transplantation in the Treatment of Paralytic Deformities of the Feet."

Dr. George H. Monks: "A Case of Spiral Fracture of the Humerus, with Specimen."

Dr. E. G. Brackett: "Subtendinous Exostosis of the Os Calcis."

Dr. M. H. Richardson: "Three Cases of Anastomosis by the Use of the Murphy Button, with Autopsy."

Specimens illustrative of surgical pathology are now in order.

M. H. RICHARDSON, M.D., Chairman.
CHARLES L. SCUDDER, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, November 7th, at 8 P. M., by PROF. DAVID W. CHEEVER. Subject: "Abscess." The three ensuing lectures will be delivered by Professor Cheever on the same subject, on Thursday, November 14th, Thursday, November 21st, and Friday, November 22d, at the same hour. The profession are invited.

PHILADELPHIA ACADEMY OF SURGERY.

THE SAMUEL D. GROSS PRIZE.

The second quinquennial prize of one thousand dollars, under the will of the late Samuel D. Gross, M.D., will be awarded January 1, 1900.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1900.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

RECENT DEATH.

SURGEON-GENERAL SIR THOMAS LONGMORE, an eminent British surgeon, died on September 30th, at the age of seventy-nine years. He had done important work in the field of military surgery.

BOOKS AND PAMPHLETS RECEIVED.

A Series of Clinical Cases. By Charles A. Oliver, M.D. Reprint. 1895.

Circular of Information for Candidates seeking Appointment in the Medical Corps of the United States Army.

Hemorrhoids; Prolapsed Rectum; New Operation. By Merrill Ricketts, M.D., Cincinnati, O. Reprint. 1895.

A Plea for a Simpler Life. By George S. Kelth, M.D., F.R.C.P.E. London: Adam & Charles Black. 1895.

A New Method for the Detection and Estimation of Sugar in the Urine. By Arthur R. Elliott, C.M., M.D. Reprint. 1895.

Transactions of the Association of American Physicians, Tenth Session, held at Washington, D. C., May 30 and 31, 1895. Volume X. Philadelphia, 1895.

Asexualization for the Limitation of Disease and the Prevention and Punishment of Crime. By E. Stuver, M.Sc., Ph.D., Rawlins, Wyo. Reprint. 1895.

Original Articles.

ENDOCARDITIS AND INTERMITTENT FEVER.

BY GEORGE DOCK, A.B., M.D., OF ANN ARBOR, MICH.,
Professor of Medicine in the University of Michigan.

ALTHOUGH intermittent fever is one of the rarer masks under which malignant endocarditis appears, it is practically one of the most important. If an endocarditis be mistaken for sepsis or for typhoid fever, the fatal issue is not so unexpected and the intractable course so inexplicable as when malarial disease is the diagnosis. Three cases with intermittent fever under the writer's observation have emphasized the importance of this form in prognosis, and the diagnostic aspects presented are so valuable that I think no apology is necessary for publishing them.

CASE I. Malignant endocarditis affecting the mitral valve and the left auricle, developing post-partum. Intermittent fever (so-called "obstetrical malaria").

Mrs. N., age twenty-six years, married two years, confined January 16, 1895, at term, after normal (first) pregnancy. The second stage of labor being prolonged, chloroform was given and the child delivered by forceps. A slight laceration of the perineum was sewed at once, and healed quickly. Recovery was slow; the patient had no milk; but at the end of three weeks she felt so well that she went sleighing. After that she remained in bed, having failed to increase in strength, and for more than two weeks had chills, fever and sweating almost every day. About the time fever began there was pain referred to the sciatic nerves at their point of exit from the pelvis. During this time, the family physician being away, another one was called in. He treated the patient for malaria, but without effect. An eminent laparotomist was then called in consultation, and after a thorough examination of the pelvic organs rejected the idea of sepsis, which he entertained on hearing the history, and asserted the case was one of malarial fever. Quinine was administered again, in large doses, but without checking the chills and fever. The family physician then returned and took charge of the patient. He then discovered a heart-murmur which was not present at the time of delivery. This had also been heard by the consultant mentioned, who held it to be anemic.

As the physician suspected sepsis and was unwilling to continue anti-malarial treatment without a positive diagnosis, I was asked to see the patient and did so March 2, 1895. The day before there was a chill, with temperature rising to 105° F., and followed by sweating. No quinine had been taken for several days. The patient was very pale, not anxious looking, much interested in the examinations and very sanguine of recovery. There was only slight emaciation. The skin was moist, without trace of jaundice. There were no hemorrhages. There was a slight effusion in the right knee-joint, without pain, which had not been noticed before. The feet were painful, but not swollen. The patient said she had had fugitive painful swellings in the fingers. There was a heaving impulse in the cardiac area, with exaggerated apex-beat in the left fifth interspace in the nipple line. The heart dulness extended to the third rib, to the middle of the sternum and to the left as far as the apex. The heart-beat was regular; there was a slight thrill over the apex. The radial pulse was 80, small and soft. There was

a loud grating or whirring, systolic murmur, loudest over the apex but heard all over the thorax and in the axilla and back. There was also a soft systolic murmur along the left edge of the sternum. At the aortic and pulmonary areas the sounds were normal. Examination of spleen, liver, lungs and pleura were negative. Palpation of abdomen negative. The urine was pale; specific gravity 1.010; no sugar nor albumin; a slight excess of leucocytes; no blood; no casts. The appetite was good; bowels slightly constipated; tongue healthy looking.

Examination of the blood for evidences of malaria was negative. There were no parasites, no pigment. The red blood-corpuscles were normal in appearance, though somewhat reduced in number. The polynuclear leucocytes were slightly increased. Fearing to alarm the patient by prolonging the blood examination, counts were not made. Inquiry into the antecedents brought out the statements that the patient had always been healthy, but had had scarlatina in childhood and pneumonia at fifteen years. After pneumonia the patient was told that "her heart had been affected," but she never had any symptoms at all and examination by two physicians previous to giving chloroform failed to reveal evidences of cardiac lesion at the time of confinement.

The diagnosis was malignant endocarditis affecting the mitral valve, with regurgitation. The cause, puerperal infection, probably assisted by an old symptomless lesion of the mitral. It became necessary to explain to the family the possibility of infection even with the greatest care, without visible local lesion in the pelvis, and to take away from the forceps delivery all blame.

Certain general principles applying to the diagnosis of malaria which I have frequently had occasion to mention on similar occasions came up in the consultation. The substance of the matter may be stated as follows: In this latitude no one has malarial fever in winter who has not had an attack in the previous summer or fall. The patient had never lived in a malarial locality and never had malarial disease. Still, as I remarked then, it is impossible to exclude exceptional instances, so that in such a case as the one before us it is proper to consider malaria as possible and microscopic examinations are then of decisive value.

The prognosis was unfavorable as to recovery, uncertain as to duration. The bad prognosis was based on the condition of the heart and strong probability of metastasis. The possibility of recovery from malignant endocarditis came up; and while admitting the possibility, I held it to be more than we could expect in this case. The treatment recommended was a supporting and symptomatic one.

For some time before I saw the patient a careful record of temperature had been kept. This was continued by the very competent nurse who carried out treatment under the direction of the family physician.¹ From the 23d of February to the 10th of April, there was an intermittent or remittent fever, as shown by the thermometer, but this had probably existed two weeks longer. The accompanying chart shows the characteristics of the fever, and though not so long in duration as in some other reported cases, it is nevertheless one of considerable interest. For the most

¹ For family reasons I have been requested to suppress all names, a thing I only regret having to do because it prevents me from giving credit to a worthy and judicious colleague.

part it shows a pure intermittent, but in the early part there was a tendency to remission or even to a continued type. Only the highest and lowest daily temperatures are here given, except on two days when I have given all the observations in order to show the daily curve. The temperature was rarely taken at night, as the patient usually slept. The temperature was unaffected by internal antipyretics, the only thing used for high temperature being sponging with water or alcohol. The rise of temperature usually occurred about noon and reached its acme about five, sometimes one or two hours later, and after remaining about the same point one or two hours fell rapidly, usually reaching normal by midnight. Toward the last, sub-normal temperature, to 96°, often occurred. Chills were not constant, though very common, coming on early in the rise of temperature and of short duration. Sweating was almost always present in the decline. During the apyrexia, even up to the last days, the patient felt very well, though weak. The pulse was remarkably steady during the early part of the disease, but early in March became frequent with the rise of temperature, and was often far out of proportion to the temperature. At the same time the pulse became frequent the respiration became irregular, and dyspnea was frequent, without physical signs in the thorax to account for it. Pain in the knees, ankles, feet and hands, and itching of the skin were frequent. The patient had at times a curious sensation as if her hands were getting large. There were never hemorrhages in the skin, but shortly before death the urine became bloody. Finally appetite was lost, nausea and vomiting began, there was difficulty in swallowing, and with gradual loss of strength, with Cheyne-Stokes breathing for several days, death occurred April 13th.

An autopsy was made at the request of the family. The points of present interest only are given. The genital tract showed no evidence of infection. The lungs and pleuræ presented no lesions. The heart was large in comparison with the size of the patient, and weighed eight ounces. The pericardium showed no change. The left ventricle was 10 centimetres long, the wall 18, 12, and 5 millimetres thick at the upper end, middle and apex respectively. The endocardium for the most part was normal, the muscle pale and flabby; no miliary abscesses. The aortic valves were normal, with the exception of a soft vegetation two millimetres in diameter on the nodule Arantii of the posterior segment. The aorta was narrow (six centimetres), its intima smooth. The mitral orifice admitted two finger-tips. The anterior flap of the valve was smooth on the ventricular surface. On the auricular side, on the outer half, was a mass of vegetations 18 millimetres high, 17 millimetres wide and 10 millimetres thick, projecting at right angles to the surface of the flap. Around it were a few vegetations the size of small pin-heads. The posterior flap was retracted and thickened to five millimetres on the edge, smooth and hard in part, but the rest of it covered with vegetations the size of pin-heads. There were also many very small vegetations on the endocardium behind the flap, on the fleshy columns and even on the tendinous cords. The left auricle was dilated and hypertrophied. On the endocardium near the opening of a pulmonary vein was a triangular, warty mass of vegetations, the sides of the triangle being one centimetre long, the height of the mass three millimetres. The right auricle and ventri-

cle were not perceptibly altered in size, their walls were slightly hypertrophied. The tricuspid admitted three finger-tips.

Microscopic examination of a piece of the left auricle with vegetations showed necrotic endocardium in intimate connection with a mass of fibrin in coarse masses and meshes. The fibrinous meshes contained numerous blood plates, a few irregular and fragmented nuclei and large numbers of streptococci in short chains, forming masses on the free edge. In the wall was a minute focus of small cells with irregular nuclei and containing a few streptococci. There were no masses of cocci in the capillaries, and none could be found in the blood in the vessels of the wall. The wall showed besides considerable swelling of the subserous tissue with numerous fibroblasts penetrating the fibrin masses, but without new-formed vessels.

The autopsy therefore confirmed the diagnosis in every particular.

The cardiac lesion is interesting in connection with the physical signs. The masses of vegetations on the mitral flap must have caused insufficiency by preventing closure of the valve. The absence of a murmur of stenosis may be explained by the fact that in diastole there was sufficient room for the blood to pass, while at the same time weakness of the auricular wall prevented the current from impinging on the projecting mass with sufficient force to cause a murmur. The soft murmur heard along the left edge of the sternum may have been due to the small vegetation on the aortic valve, or, as thought during life, to relative tricuspid insufficiency.

The other two cases were reported in the Philadelphia Pathological Society, where the specimens were shown a short time after they were obtained. Owing to some oversight they have never been published in the Transactions of the Society, but are, I think, of sufficient importance to permit publication even at this late day.

CASE II. Chronic cystitis; intermittent fever; hemiplegia; edema of lungs. Double mitral lesion; thickening of aortic leaflets; streptococcus vegetations on mitral; infarcts of spleen and kidney.

A. C. M., thirty-five years of age, merchant, native of Philadelphia. Family history negative. Moderate drinker; no history of syphilis. When eighteen years old, patient fell and injured the deep urethra. At twenty had pneumonia, and since then has always been short of breath. After that had several attacks of gonorrhea, and since then has had frequent urination, and at times retention. Eight years ago a stricture was cut. Retention ceased, but frequent urination continued. There has been no urethral discharge for eight years.

Since November, 1887, patient has had chills, fever and sweating, at irregular intervals. Lately emaciation and weakness have been marked, but even in the beginning the patient spent a large part of the time lying down. He disclaimed feeling ill, and said he only felt tired. He was under treatment all the time by various physicians. Some of them thought he had malarial fever, others tuberculosis.

April 7, 1888, M. applied for treatment at the medical dispensary of the University Hospital, where my friend and then colleague Dr. M. H. Fussell examined him. He was then emaciated, pale and sallow, but not jaundiced, not cyanotic, without edema. The apex-beat was in the fifth interspace in the nipple line,

with corresponding enlargement of the area of cardiac dullness. The apex-beat was normal. There was a rough presystolic murmur confined to the region of the apex; another systolic, high-pitched, transmitted in all directions, loudest over the apex. The spleen was slightly enlarged. Dr. Fussell and I examined the blood for evidence of malaria, which, however, was not present. The diagnosis was malignant endocarditis. We saw the patient together at the dispensary a few times after that.

On April 29th, M. had a chill, followed by pain in the left side, vomiting and prostration, and in the following night mild delirium. Next day I was sent for, and found the man lying in bed, bathed in sweat, his expression anxious. He complained of pain in the left side, increased by motion and pressure. The spleen could be plainly felt two inches below the ribs, being larger than before. There was a localized point of tenderness just below the costal margin. The signs about the heart were as before. Temperature 101.5°, pulse 96, respiration 30. (The pulse had not been accelerated at any time.) I made a diagnosis of infarct of the spleen, and ordered absolute rest, milk diet and salol. The urine examination before was negative, now there was an excess of leucocytes, and the freshly-passed urine contained large numbers of streptococci. The temperature fell to normal, the tenderness over the spleen lessened; the salol was stopped. The patient felt so well he was kept in bed with difficulty.

May 5th, about six A. M. the patient was left alone a few minutes. When the attendant returned he was found on the floor, having risen apparently to urinate. He complained of pain in his heart. Soon after that his voice became thick and he had to communicate in writing. The writing soon became unintelligible. At ten o'clock I found the patient conscious, apparently recognizing me, but not able to signify whether he could understand me. The left side of the face and left arm were powerless and flaccid, the left leg stiff and motionless. The face was anxious, the skin cold and covered with sweat. The apex-beat strong, radial pulse 100, rapid, almost fluttering. There were numerous loud râles all over the chest, audible at a distance. The patient clutched at the heart region with the right hand. Soon after I arrived conjugate deviation came on. The pulse became more frequent, cyanosis developed rapidly and death occurred about noon.

Autopsy showed edema of the lungs. The heart was dilated and hypertrophied. The mitral valve was contracted, not admitting two finger-tips, the leaflets thickened. The edges of the valve were surrounded by a mass of greenish vegetations, measuring from one and a half to two and a half centimetres in length, four millimetres in thickness. A few small vegetations on the tendinous cords.

The spleen measured 25 by 12 by 5 centimetres. It was pale, with white opacities and bluish-red flat elevations of the capsule; the upper end attached to the left lobe of the liver by old adhesions. The cut surface pale, very soft. The bluish elevations were due to the presence of five infarctions, of the color and consistency of normal spleen tissue, with an injected area around each one. The largest one, about the size of a walnut, was in the position which was painful and sensitive during life. There were also three old and contracted infarcts in the upper part of

the spleen. The kidneys were normal in size and appearance, save for the presence of three old infarcts in the left one.

The bladder walls were thickened. On the mucous surface a few small bits of pus. The ureters normal.

The liver, slightly enlarged, showed mild nutmeg change.

The brain could not be examined.

Microscopic examination of the mitral vegetation showed a fibrous and hyaline mass, covered with endothelium in some places, in others by a mass of leucocytes, fibrin and cocci. The cocci were in short chains. In the mass were small calcareous particles.

The heart was taken to the laboratory unopened, and after opening it with aseptic precautions cultures were made from the inner parts of the mass of vegetations. These gave a pure culture of streptococcus pyogenes.

In this case we have again the combination of old lesion of the valves and infection, the latter taking place from the bladder or urethra. The clinical history, as described by the patient, was quite like that of malarial fever, and the fact that he was exposed to malaria by business trips to the Chesapeake Bay made that diagnosis all the more probable to the various physicians consulted.

CASE III. Intermittent fever; jaundice; Malignant endocarditis affecting bicuspid aortic valve; dilatation and hypertrophy of heart; atheroma; contracted kidneys; nutmeg liver; infarct of spleen; edema of lungs.

N. M., aged forty-two, well-to-do mechanic. Previous health good so far as can be ascertained, although life insurance was refused fifteen years before death on account of alleged heart disease. For some time patient was treated by a skilful and experienced physician for malaria. Later, from the occurrence of jaundice an hepatic complication was suspected, and the patient was seen by Dr. D. Hayes Agnew, who concurred in the diagnosis of malaria. The patient gradually grew weaker, and died rather suddenly with asphyctic symptoms. Dyspnea had not been noticed before.

I was asked by the attending physician to make an autopsy. The body was well nourished, there was slight jaundice; no edema; no hemorrhages.

The lungs were extremely edematous.

The heart weighed thirteen ounces, the cavities all dilated. The mitral admitted three fingers, the flaps were slightly atheromatous. The aortic valve had two cusps, the anterior segment showing a rudimentary septum. On the fused leaflets was a firm, whitish vegetation, extending to the insertion of the flap.

There was slight atheroma of the aorta.

The spleen, of normal size and appearance, contained an old infarct in the upper end.

The kidneys were small, red and granular.

The liver was much enlarged, with marked nutmeg change.

The vegetations had a microscopic structure similar to the others and contained masses of streptococci.

In this case the mode of infection could not be discovered. The autopsy disclosed no other focus of infection. The predisposing cause was, no doubt, an atheromatous change in the aortic valve. As is well known, bicuspid arterial valves seem especially prone to disease.

The simulation of malaria was well marked, in fact,

so much so that no differential diagnosis was made. No doubt, careful examination of the heart would have called attention away from the other symptoms, at least temporarily; yet even if the signs of valvular disease and enlargement had been discovered, they might not have been brought into connection with the fever, for at that time the symptoms of sepsis in general and of septic endocarditis in particular were even less known than they are at present. In both of the last two cases the intermittent fever had a duration of many months, but as the temperature was not recorded it is impossible to know the details.

The cause of the peculiar temperature curve in this disease is not known. It will be remembered that Cohnheim accurately explained the cause of intermittence in malaria as being due to the nature of the infecting agent, as we now know to be the case. Cohnheim thought that the intermittence of pyemic and septic fever was due rather to an intermittent intoxication from a continuous source: "the fever is not continuous, because such foci do not produce fever *per se*, but only because their constituents enter the circulation. This is not necessarily continuous, but may be influenced by various circumstances."² In cases such as those here reported this explanation does not seem tenable. It is difficult to imagine that the poisons elaborated in the vegetations enter the circulation intermittently as supposed by Cohnheim, but more reasonable to believe, as was suggested by Murchison in his classical article on the subject³ and expressed by Musser in his valuable contribution,⁴ that the "phenomenon of intermittency is due to rhythmic responses of the nervous system to a constantly-acting poisoned blood."

While the examination of the blood in such cases is the most certain element in the exclusion of malaria, other diagnostic differences are illustrated by the histories given above. One of the most striking symptoms in the cases seen by me was a marked weakness, a constant fatigue. In Case I the patient felt as well as she could wish during the apyrexia, but she was too weak to do anything. This is in marked contrast to malaria where, even if the temperature goes one or two degrees higher than it did in this case for many days, the patient not only feels well in the interval, but is actually able to do a considerable amount of manual or mental labor until advanced anemia prevents him. As regards the characteristics of the fever itself, the temperature is not so high as is common in malaria, and I do not think the other symptoms of the attack are usually as marked as they are in malarial fever with a similar temperature.

HOSPITAL ADVERTISEMENTS.—The *London Times* of July 23, 1895, contains the following:

Anybody in London having spare time on Monday, 22d, or Tuesday, 23d, July, is invited to visit the Poplar Hospital for Accidents between 2 and 7 o'clock.

Newly built. Newly fitted. No debt. No horrors. No infection.

Best Way.—Drive or bicycle, forty-five minutes from West End.

Another Way.—Blackwall Omnibus from Piccadilly Circus, seventy-five minutes.

Another Way.—Train to Aldgate, thence by yellow tram.

² Vorlesungen über allg. Pathologie, 2 Aufl., II Bd., p. 558.

³ Lancet, 1879, vol. i, pp. 417, 453.

⁴ On Paroxysmal Fever—not Malarial, 1884.

THE DIAGNOSIS OF PACHYMEINGITIS INTERNA HEMORRHAGICA.

BY W. N. BULLARD, M.D., BOSTON.

IN making use of the term "Pachymeningitis interna hemorrhagica" I do not intend to imply belief in any theory of the pathology of the condition to which this name has been applied. I have only used it as a common and convenient designation for a well-known condition.

In this short paper I have no intention of entering into the etiology or pathology of this affection. While the exact method of production of the membranes is still under discussion and cannot be considered as absolutely settled, it, nevertheless, seems to me that the weight of evidence and probability is in favor of the view that the hemorrhage is primary and that the origin of the membranes is not inflammatory. In other words, this affection should be classed as one of the many forms of intracranial hemorrhage.

Of this condition itself there are several varieties, varying in their etiology and the conditions under which they occur.

First, we have the more or less pure traumatic cases in well-grown children or adults, in which trauma is undoubtedly the exciting cause of the hemorrhage, whatever may have been the pre-existing conditions. We ourselves believe that dural hemorrhage may occur in such cases from a normal dura and without any pre-existing membrane.

Secondly, we have those cases which occur in infants and which are undoubtedly due in most, if not all, cases to continued pressure against the cranium during birth or to other similar traumatic causes. These cases may be noticed immediately after birth, or, they may not be detected until some weeks or months later, and, again, probably a very large proportion of these cases which are not fatal remain unrecognized by the ordinary physician or even by the specialist.

The third form of hemorrhages from the dura or from its derivative membranes is that to which the term "pachymeningitis interna hemorrhagica" has been more especially applied. This is an apparently spontaneous, idiopathic, non-traumatic affection occurring in adults and, more especially, in those in advanced life. It is largely confined to those in whom some chronic cerebral disease exists and those in whom there is some weakening of the intracranial or meningeal blood-vessels. It is a condition found principally in the chronic insane, in persons affected with paralytic dementia, or in those who are suffering from chronic alcoholism.

It is this form only of this affection which I propose to consider to-day. As seen by the general practitioner and in the general hospitals it is undoubtedly rare, and even in its more severe forms is probably often unrecognized. Gowers says "that during forty years the (London) Pathological Society has received no specimen from any London hospital."

Osler states that during eight years no case was seen in the post-mortem room of the General Hospital of Montreal, while he himself had been interested in pathology for fourteen years before he saw a case.

On the other hand, at the Philadelphia Hospital it

¹ Read before the American Neurological Association, June 7, 1895.

is seen two or three times a month, usually in patients from the Department for the Insane (Osler). Wigglesworth found 42 specimens in the insane from 400 unselected autopsies. Bondurant, out of 92 autopsies at the Alabama Insane Hospital, had eight cases.

The diagnosis of this form of this affection varies according to the amount of the hemorrhage, its rapidity and other conditions. In those cases in which the hemorrhage has been slight and in which after death only membranes with or without traces of hemorrhage are to be found, the diagnosis during life is, as a rule, with our present knowledge impossible. I firmly believe, however, that in many cases with more exact and careful study and observation of the physical conditions of the chronic insane, we shall be able to find guides to the existence of this condition during the life of the patient and be able to weigh the probabilities of its existence in special cases.

In the cases where the hemorrhage is of moderate amount or where it is profuse, the diagnosis, although always difficult, is more easy. This is especially the case where we have several hemorrhages within short periods of each other.

Where the patient is insane or demented, the symptoms of the hemorrhage, even when considerable in amount, may be so masked by the insanity or dementia as to pass unnoticed. The insane or the demented frequently do not mention and perhaps do not realize the ordinary sensations, so that for the purposes of clinical diagnosis they must be placed in the same category as infants unable to give expression to their feelings. In some ways, indeed, they are even less to be relied upon than infants, for the latter can express their pain in some unmistakable manner, although they cannot describe it, while the demented may not even give expression to pain. Nevertheless, it is probable that even in the demented a closer and more accurate observation will enable us often to diagnose, or at least to suspect, this condition.

It is, however, in the more simple and evident cases that the diagnosis should be made by every competent specialist.

The symptoms on which we must rely are in the more severe cases those of intracranial hemorrhage. Our principal care is to distinguish this from the other forms of intracranial hemorrhage.

In the first place, the form of this affection which we are now considering is found largely in adults who have passed the age of forty-five, and more especially in those, not insane or demented, who have passed the age of sixty. It is especially common among the chronic insane and in paralytic dementia. It is found not rarely in chronic alcoholism. When, therefore, apoplectic symptoms occur in paralytic demented or in the chronic insane, we should bear in mind the possibility that the hemorrhage may be of this character, whatever the age of the patient. The same holds good, though to a lesser degree, in regard to the chronic alcoholics, and in them it also is to be distinguished from the acute edema of the brain. As shrinking or atrophy of the brain, together with disease of the walls of the blood-vessels, appear to be important factors in the production of subdural hemorrhage, we are justified in being on the watch for it wherever these conditions occur.

Brain atrophy or shrinkage, when it has lasted for a considerable period, seems to produce a strong ten-

dency to this affection. The same cannot be said of the weakening of the walls of the intracranial blood-vessels alone, because if they are weakened, as is usually the case, especially at the base or throughout the intracranial cavity, the hemorrhage is likely to occur in other places than beneath the dura. If, however, weakening of the walls of the blood-vessels occurs in combination with other causes which lay special strain upon the meningeal vessels, we are probably more likely to have subdural hemorrhage than where the vessel-walls have their normal resistance. It is this combination of unfavorable conditions which seems to produce at times this form of hemorrhage in chronic alcoholism. When for any reason there is special strain upon the meningeal blood-vessels and when their resisting powers are not great, an agent which under normal conditions might not be sufficient to produce serious results may now cause this affection. Thus, blows on the head, apparently not so severe as to cause trouble in the healthy or normal, may in the class of persons mentioned serve as the cause of subdural hemorrhages.

Subdural hemorrhages in the adult are to be distinguished from other intracranial hemorrhages also by the character of the symptoms. In the non-traumatic form they are apt to appear rather more slowly than intracerebral hemorrhages. In many cases the patient at first has only more or less vague symptoms pointing to the head, general confusion, stupidity and drowsiness. Sometimes severe headache occurs, but this is not invariably the case. Gradually, in the course of some hours or two or three days, the patient becomes more drowsy, unconscious, and general convulsions or localized twitchings occur.

Paralysis may or may not be present, but is rather apt to be a late symptom. Contraction of one or more limbs is not rare and is characteristic.

The most important symptom, as regards diagnosis, is the late appearance of the paralysis. There is no other ordinary form of intracranial hemorrhage in which the patient so gradually loses consciousness, and in which the paralysis (hemiplegia) comes on so long after the onset of the first symptoms. This may occur in *ingravescent apoplexy* where the hemorrhage is intracerebral, but this condition is not common and may be distinguished in other ways. On the other hand, we must remember that the paralysis does not always come late in this affection. It may occur early, or it may be already present when the final attack occurs.

This brings us to the second symptom of value in differentiation, repetition or multiplicity of attacks. When a patient has one attack following another, especially when the second occurs very shortly after the first, this form of trouble should be considered. If in both attacks the symptoms have come on gradually, we have strong evidence of subdural hemorrhage.

A marked characteristic of the actual symptoms of subdural hemorrhage is the preponderance of the irritative symptoms. A large proportion of the patients have either general convulsions of an epileptiform character or localized clonic spasms or twitchings of a portion of the face or one or more limbs. These symptoms occur early, and are apt to continue until the late symptoms — those of compression — appear. More characteristic than anything else is the existence of early stiffness and rigidity in one or more limbs.

This apparently in many cases precedes any marked

paralysis of the affected limb. When it exists it is almost diagnostic of this condition.

As is apt to be the case in many irritative conditions, the pupils, especially in the early stage, are frequently contracted. In many cases, however, they are unaffected, and are equal and normal. Fraenkel has called attention to the absence of affections of the cranial nerves in this form of hemorrhage, due to the fact that the blood does not reach the base of the skull, and hence does not exert pressure upon them.

We may, then, sum up the points of differential diagnosis between idiopathic subdural hemorrhage in the adult and the other forms of intracranial hemorrhage as follows:

(1) Subdural hemorrhage is peculiarly common in paralytic demented and in the chronic insane, and it is not rare in chronic alcoholics.

(2) In many cases its onset is more gradual than in ordinary intracerebral hemorrhage, and the irritative stage lasts an unusually long time.

(3) Irritative symptoms are prominent. General epileptiform convulsions and localized convulsive movements are apt to occur.

(4) The peculiar rigidity localized in one limb, when occurring in connection with symptoms of hemorrhage and where no affection like tubercular meningitis exists, is almost pathognomonic.

(5) The absence of affections of the cranial nerves is to be considered as in favor of this form of trouble.

It must not be forgotten, in making our diagnosis, that in many cases subdural hemorrhages have been found in company with intracerebral hemorrhages, either old or recent.

The great importance of the diagnosis in these cases of subdural hemorrhages lies in the fact that many of them are probably susceptible to proper treatment, and their immediate fatal effects can be prevented. We cannot probably as yet prevent the recurrence of new hemorrhages later.

To illustrate my meaning, I will relate the following case which occurred in my service at the Carney Hospital:

On the 10th of May, 1893, the patient, a man about sixty-five years of age, was brought into the hospital unconscious, and without any history except that he had been for several days in his present condition. He now lies in bed, stupid, somnolent, unable to answer questions, more or less restless at times and delirious. He moves all his limbs, and occasionally throws himself about on the bed.

Physical examination shows a drooping of the right eyelid and a divergence of the right eye. He cannot be induced to protrude his tongue. There is free voluntary movement of all the limbs, but the left upper extremity seems stronger than the right. The grasp is fair on both sides. On account of his mental condition sensation cannot be fully tested: responses to stimuli are everywhere diminished, but more on the right trunk, extremities and face than on the left. The knee-jerks are absent. There is no tenderness about the calves or tibia. The urine contains a slight trace of albumin and some hyalin and fine granular casts. Heart negative.

During the course of the day we obtained the following facts: The patient had used considerable alcohol for the past three years. He had, however, been in fairly good health, and had worked up to eight days ago. For some years he had occasional

attacks of rheumatism. On the 3d (seven days ago), Sunday, he fell down unconscious. On the 5th, he was better, and recognized his sister. At this time there was partial paralysis of the right limbs, which gradually largely disappeared.

On May 11th, his second day in the hospital, I found him very restless, pulling about the bed-clothes and any other objects he could reach with the left hand. There was incontinence of urine; no movement of the bowels since entrance. The right eye was now turned upwards and outwards, the pupil of medium size. The left eye was turned upwards and outwards; the pupil smaller than the right. The important symptom, however, was the appearance of a marked right hemiplegia of the extremities, the right upper extremity being apparently totally paralyzed; the right lower extremity largely so. Sensation over the right extremities was much diminished. I advised immediate operation as soon as permission of friends could be obtained.

Operation performed by Dr. John C. Munro about 4.30 p. m. Patient had Cheyne-Stokes respiration, and was almost moribund. The cranium was trephined just in front of the left parietal eminence, and an immense clot was found underneath the dura. The opening was enlarged and the clot removed. It extended from the anterior lobe backwards over the occipital, the thickest portion being as usual over the vertex and just posterior to the motor region. After removal of the immense clot, which was an inch or more in thickness at the thickest part, the false membrane was plainly visible.

At the end of the operation the condition of the patient was greatly improved as regards respiration and pulse. On the following morning he again developed Cheyne-Stokes respiration, and he died something more than twenty-four hours after the operation.

Although in this case the operation was not successful in saving life, it materially improved the condition of the patient for the time; and had we possessed data sufficient to justify operation earlier, there was a fair prospect that the patient's life might have been saved.

The proper treatment for subdural hemorrhage of any considerable size is trephining and removal of the clot. The operation is comparatively simple, and the danger to the patient slight and not to be considered in comparison with the risk of allowing the clot to remain. It is probable that removal of the false membrane, so far as it can be reached, is always advisable.

I am not aware that this operation has been performed before in these cases, although I know that it has been proposed.

THE DRUG TRADE IN THE UNITED STATES.—According to the *Pharmaceutical Era*, there are 36,352 retail drug stores in the United States, the ratio of population to each being 1,199, taking the figures of the 1890 census as a basis. It is estimated that in all probability there are 50,000 registered pharmacists, assistants, etc., employed in these stores. It is also estimated that there are in the United States over 2,000 establishments, with a capital of more than \$100,000,000 engaged in the manufacture of drugs and chemicals.

Clinical Department.

THREE CASES OF EXTRA-UTERINE PREGNANCY.

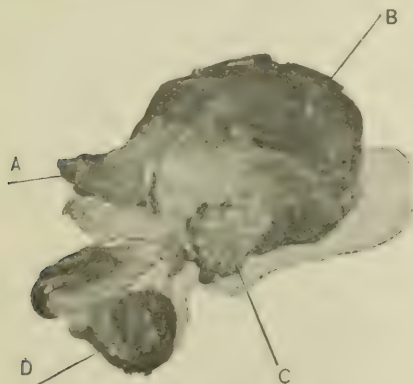
BY F. W. JOHNSON, M.D.,
Surgeon, Gynecological Department, St. Elizabeth's Hospital; Surgeon, Gynecological Department, Carney Hospital, etc.

THE first case is reported that others meeting with cases of extra-uterine pregnancy with rupture and hemorrhage may be encouraged to go ahead and operate, even though the chances for recovery seem small.

The large majority of cases of ectopic gestation with rupture and hemorrhage recover after operation.

Almost without exception the abdominal cavity is aseptic, and that leaves shock alone to be guarded against and met.

The diagnosis of rupture, even if there be hemorrhage, is by no means always easy; and this patient owes her life to Dr. E. S. Boland's diagnosis. Had he delayed in mind or body an hour or two, she would have been dead.



CASE I. FRESH SPECIMEN.

A, Uterine end. B, Ruptured sack. C, Fimbriated end. D, Corpus luteum in ovary.

CASE I. Mrs. L., aged twenty-six years, was operated on at the Carney Hospital October 4, 1894. She had been married five years, and had had one child—no abortions. She was confined two years ago (June, 1892). Labor was normal. Lochia was bloody for fifteen days, otherwise the puerperium was normal. Nursed her baby twenty-two months, and during that time was not unwell.

Menstruation began at fifteen. Regular every four weeks. Flows four days. Flowed profusely the first ten years of menstrual life; now saturates about eight napkins. Has always had dysmenorrhea. Backache, with bearing down, and pain in the lower part of the abdomen, begins the day before the flow, and lasts throughout menstruations. The pain is severest on the fourth day. Never any discomfort in the abdomen except during menstruation.

Weaned her baby April 4th and was taken unwell April 5th. Flowed four days. Flowed the usual amount. Had the usual dysmenorrhea. Did not menstruate again until June 15th. Flowed twelve days. At times profusely. Had a great deal of pain in the lower abdomen, especially severe in the right ovarian region. Between April 5th and June 15th had no pain in the abdomen, but felt tired and dragged.

Unwell again July 12th. Flowed four days. Had

the usual amount of pain, and flowed the usual quantity. No intra-menstrual disturbance.

When menstruation should have begun in September there was no flowing, but there was severe pain in the lower abdomen. This pain was present up to the night when she entered the hospital. September 29th the flowing again begun, and continued in moderate amount until after the operation.

At 6.30 o'clock, October 4th, she was seized with severe pain in the lower abdomen. She screamed with the pain, and those living above her distinctly heard her cries. The feet and hands soon became cold. The lips became bloodless, and the body was bathed in cold perspiration. The pulse was 120, and the temperature was subnormal.

Dr. Boland saw her at this time and administered morphine and stimulants. A certain amount of reaction was established. The temperature went up to 99°, but the lips remained bloodless and the face and body blanched. As she laid inclining on her left side, there was dullness over the whole length of the left



CASE I. AFTER SECTION.

A, Remains of embryo. B, Fimbriated end. C, Uterine end.

side of the abdomen. Peritonism was well marked. By vagina no bulging was detected. Thirst was present and the eyes were unusually bright.

She decided to take the chance, and was carried to the hospital at once. Dr. Boland gave the ether. The pulse was 140 when the operation begun, and strychnia and brandy were needed before it was finished. Hot-water bottles were placed between the arms and chest, between the thighs and at the feet. The chest and lower extremities were wrapped in steaming hot blankets. No vessel bled while cutting through the abdominal walls. The peritoneal cavity contained a quart of blood. Some of it was old, some was fresh, part of it was clotted and part was fluid.

It took but a few minutes to tie off the mass on the right side from which the bleeding came. The left ovary was small and shrivelled and was not removed.

The patient's condition was so poor that only a few minutes were spent in washing out the abdominal cavity with a salt solution. No drainage. She was put into a heated bed, and transfusion was done. This was repeated the next morning. Her recovery was uneventful, except that the pulse stayed between 120 and 140 for four days. The incision healed by first intention.



CASE II. FRESH SPECIMEN.

A, Right ovary. B, Fimbriated end of right Fallopian tube—open. C, Cut ends of right Fallopian tube. D, Unruptured sack. E, Fundus uteri. F, Os uteri. G, Left Fallopian tube closed by adhesions. H, Corpus luteum in left ovary.

Dr. Whitney's report: "The specimen removed by you October 4th consisted of a portion of the tube and an ovary. About one inch from the fimbriated end was a dark-red, nodular swelling covered with clotted

embryo. In the ovary was a corpus luteum about three-quarters of an inch in diameter."

CASE II. Extra-uterine pregnancy, with external migration of the ovum; hysterectomy.

B. S., married, entered the Carney Hospital December, 1893. Chief complaints: backache, sagging and dragging down, dysmenorrhea and general weakness.

Menstruation began at seventeen, regular. Flows two days. Soaks four napkins. Severe pain in both ovarian regions, beginning one day before the flow. Some leucorrhea for two years.

Has had two children. Last one born seven years ago. During the four years following had five abortions, all under three months. In the last, the secundines were removed manually.

Diagnosis: Chronic endometritis, retroflexion, left lateral laceration of the cervix.

December 21, 1893. Uterus curetted, and an Alexander-Adams' operation done.

January 10, 1894. Discharged, to return for trachelorrhaphy.

February 3, 1894. Operation on the cervix. Uterus in normal position.

February 16th. Discharged.

The following is the menstrual history since discharged, February 16, 1894.

March 20th. Did not flow much. No pain.

April. Flowed about as much as usual. No pain.

May, June and July. Nothing unusual.

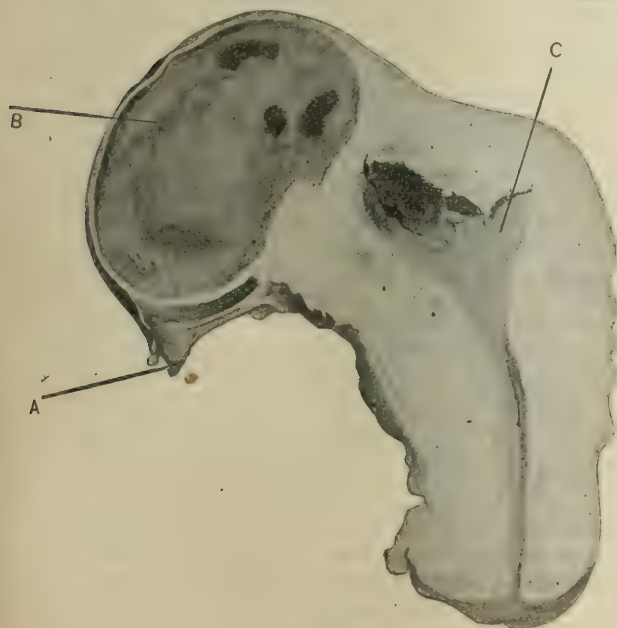
August. Flowed a good deal. Flowed one week. Severe cramps.

September. Flow was rather scanty, and there was not so much pain.

October. Flowed two to three days. Very scanty flow. Not much pain.

November was similar to October.

December. Menstruation began at regular time. For a week the flow came in gushes; then constant



CASE II. AFTER SECTION.

A, Cut end of right Fallopian tube. B, Unruptured sack filled with blood-clot. C, Uterine cavity.

blood; this measured about one and one-half inches in diameter. On section there was found in the centre a cavity about half an inch long lined with a smooth membrane, and in which was the remains of a small

flowing for three weeks. Severe cramps in lower abdomen, followed by fainting on two or three occasions.

January 30, 1895. Scanty flow for four days.

Re-entered the hospital February 13, 1895. On examination the uterus was found in the first degree of retroversion. Extending from the right horn was a mass which felt like a pus-tube. There was marked sensitiveness on pressure over and about this mass, and as there was evening rise of temperature the trouble was considered to be of inflammatory origin.

February 16th. Abdomen opened. The omentum was adherent to the right half of the fundus uteri and to the enlarged uterine end of the tube, which was the size of a hen's egg. The right horn of the uterus, the omentum attached to it, and the enlarged portion of the tube were much discolored and of a greenish-yellow hue showing the presence of beginning necrosis. The walls of the tube had given away on their upper aspect, and nothing except peritoneum separated the mass in the tube from the peritoneal cavity.

It being impossible to determine how deeply into the uterine tissue the necrosis extended, and fearing that in manipulation the contents of the tube might escape and infect the peritoneal cavity, I did a complete hysterectomy, closing the vagina and the peritoneal cavity. The convalescence was uneventful.

Dr. Whitney's report: "The specimen received from you February 16, 1895, consisted of the uterus and adnexa. The uterus was enlarged, the cavity slightly dilated and the mucosa thickened. In one tube, close to the uterus, was a spindle-shaped, dark-red dilatation, the size of a large egg, covered with blood-clot, which reached over into the uterus. Section showed this to be filled with clotted blood in which were branching cellular masses recalling villi of the chorion. No embryonic remains were found. The tube on the same side was open, but the ovary contained a few retention cysts. The opening of the Fallopian tube on the other side was entirely closed by fibrous adhesions. The ovary contained a well-marked corpus luteum, about one-half an inch in diameter. Tubal pregnancy, with external migration of the ovum."

CASE III. Extra-uterine pregnancy, with rupture; intra-peritoneal hemorrhage; laparotomy; labor at term one year afterwards.

M. B., aged thirty-two years, married nine years, was operated on at the Carney Hospital May 11, 1894. Good family and personal history.

Four children: oldest seven years, youngest fifteen months. No miscarriages. Menstruation always normal. The last child was born fifteen months previous to entering the hospital. The first menstrual period following this confinement was March 14, 1894. She flowed one day. On April 5th she had a slight show, and another on April 7th. On April 12th had a slight flow, with "terrible" pain in the right ovarian region. Since April 12th the pain in the right ovarian region has been quite constant, and at times severe.

May 11th. On opening the abdomen the pelvis was found filled with dark blood. The right tube contained a tumor the size of a lemon, which had ruptured. Intestines were adherent to the tumor. Right ovary and tube were removed. Left ovary and tube looked healthy, and were not removed.

Abdominal cavity washed out with normal salt solution. Operation, from beginning to end, lasted one hour. Artificial respiration was needed once during the operation.

Twelve days after the operation she had an attack of pleuro-pneumonia on the right side. In every other particular her convalescence was normal.

Dr. P. J. Timmins, of South Boston, who sent Mrs. M. B. into the hospital, wrote me that he had delivered her, May 19, 1895, of "a large, healthy child. . . . There was no trouble before, during or after labor."

BETTER THAN CANNON-BALLS FOR CONSTIPATION.

BY DOUGLAS GRAHAM, M.D., BOSTON.

WHEN people can go to a drug store and get medicine enough for twenty-five cents to keep their bowels moving for a week, it is not likely that they will care to undergo the bother and expense of having them started by means of massage until every other resource has failed.

Some years ago Dr. Sahli, of Berne, advised many of his patients suffering from torpid bowels to roll a five-pound cannon-ball over their abdomens for five or ten minutes every morning before rising, and in this way quite a number of them were cured of constipation. Therefore, when universal peace comes, the orator cannot only speak of turning swords into ploughshares, but also of cannon-balls into aperients; and peace will have its victories no less renowned than war.

A much more effectual, mechanical means for the relief of constipation than cannon-balls, and one which patients can also use for themselves, is, to percuss and pound their own abdomens for a few minutes morning and evening with the inner border of their fists. It is well to do this in the direction of the ascending transverse and descending colon. Alternating with percussion, friction and deep kneading may also be used. But these are less effectual and more tiresome to the patient than percussion. They are of more benefit when done by some one else, whereas there are but few people who would submit to being pounded on the abdomen by another without retaliating in some way, perhaps by a suit for assault and battery.

To show what a patient can do for himself with percussion when every other means had apparently failed, I will briefly narrate the following case: E. G., twenty-nine years of age; usual weight one hundred and fifty-six pounds. Both of his parents were highly neurotic. His general health had been but middling, and he had suffered from dyspepsia, at times to meats, at times to farinaceous substances, nearly all his life. When at his best his bowels were sluggish, moving but two or three times a week. For four years before I saw him he had been more dyspeptic and constipated than ever; and nine months before I advised him what to do he had had the grip, which locked his bowels more than ever. Six months later, as he was growing worse, he entered the hospital. Then his bowels had not moved for fifteen days and he was in great discomfort. Copious injections had no effect. Large doses of croton oil were given by the mouth, which caused the bowels to move. He was in the hospital ten weeks and had croton oil seven times

which caused six dejections of small hard lumps accompanied with much pain. He was obliged to live on crackers and water, for his stomach would retain nothing else. When he left the hospital he was much reduced in weight and strength and was advised to report every few days, for the propriety of opening the abdomen was being seriously considered. About a fortnight after he left the hospital I met him and then he told me what I have just narrated. As he was an old friend of mine, I volunteered to show him what to do, by giving him a practical lesson in percussing, rubbing and kneading his abdomen. However, my private opinion was that it would not be of any use. Fancy my astonishment when he called on me seven weeks later looking like another man, and told me that he could walk twelve miles with ease, that his bowels had moved every other day regularly after he had percussed them for a week, and five weeks after commencing his pounding he was eating freely of generous mixed diet with no dyspepsia. He has since continued well. In the hospital he had vigorous massage of the abdomen for fifteen minutes every morning. It was probably *so vigorous* that it missed its aim by causing the muscles of the abdomen to contract so strongly that the impression did not reach the intestines at all.

Medical Progress.

REPORT ON OTOLOGY.

BY CLARENCE J. BLAKE, M.D., BOSTON.

CATARRHAL AFFECTIO OF THE EUSTACHIAN TUBES.¹

HAUG reports a case of a man, twenty-five years of age, who presented himself for treatment on account of simple catarrhal affection of the Eustachian tubes. Examination of the ears showed both drumheads to be transparent and so far depressed as to allow the visible portions of the tympanic cavity to be plainly seen. As the patient had neither acute nor subacute symptoms and the trouble seemed to be merely that of the Eustachian tubes, the Politzer air douche was used in the ordinary manner, but the inflation of the middle ears was immediately followed by severe pain and objective examination showed both drumheads to be dotted by punctiform ecchymoses, the left drumhead having in addition at several points small air bubbles, an emphysematous swelling also appearing over the left mastoid surface; all of these symptoms disappeared under massage. The explanation of the mechanism of the emphysema being that a rupture of the tympanic mucous membrane had permitted passage of air underneath it along the pneumatic cells of the mastoid and through a pervious dehiscence of the cortex.

INFLAMMATION OF THE EAR CAUSED BY A CARIOUS TOOTH.²

Haug also reports a case of a patient in whom after eight hours of pain in the superior posterior molar, there was a sudden sense of pressure in the corresponding ear accompanied by pain and decrease of hearing. Objective examination showed a hemorrhagic bulla of the size of a bean on the anterior in-

ferior wall of the external canal, the drumhead slightly congested and the whole posterior inferior segment pressed outward and of a bluish-red color. The pain in the ear was not especially severe, the hearing distance for the voice in a whisper was decreased to one-half a metre, and the tuning-fork in the median line was heard by bone conduction better in the affected ear, the other ear being both objectively and subjectively normal. Examination of the teeth showed the left superior molar to be very carious, and, as was shown on examination by mirror, the cavity was filled by a dark-bluish hemorrhagic bulla. The lightest touch or even the blowing of air into the cavity of the tooth, caused severe pain. The treatment consisted in the extraction of the tooth and simple stopping of the ear with cotton. Nine days later the absorption of the exudation in the ear was in progress and on the sixteenth day the ear was entirely well. This case is of interest as there was conclusive evidence on the part of the patient that the ear had not been touched or injured in any way from without, and it is evident therefore, that a primary inflammatory process in the teeth can, under certain conditions, excite reflexly an acute irritation in the ear with consequent hemorrhagic exudation, simultaneously in the tympanic cavity and in the external auditory canal.

SEROUS MENINGITIS CAUSED BY CHRONIC DISEASE OF THE EAR.³

Upon the basis of a case which came under his own observation, Levi advances the statement that a serous meningitis may develop as a result of a chronic disease of the ear. The case in question was that of a man, thirty-five years of age, who simultaneously with the appearance of polypi during the course of a chronic suppurative inflammation of the right middle ear showed symptoms of meningeal irritation — headache, vertigo, loss of appetite, constipation, and an unsteady walk with a tendency to move toward the left, but no fever. Still later there appeared, with persistence of the headache and vertigo, but disappearance of the stiffness of the neck and difficulty in walking, the symptoms of a progressive increasing intracranial pressure, as shown by the irregular pulse (sometimes markedly prolonged), vomiting, hyperesthesia of different portions of the body, nystagmus and double dilatation of the pupils. The mastoid process, as well as the tympanic cavity, were thoroughly opened and cleared, but the patient died suddenly soon after operation. The autopsy showed caries of the middle and internal ears, passage of pus into the meatus auditorius internus through the opening in the wall between that canal and the cochlea, recent suppurative basilar meningitis and chronic hydrocephalus internus.

Ten additional cases are reported, taken from otological literature for purposes of comparison, one only of which died.

OPENING THE MASTOID.⁴

In 1889, the question of opening the mastoid by operation assumed a new prominence in the works of Küster and Bergmann, the former recommending a free opening of all the diseased parts in order to permit exit of pus.

Zaufal, following Küster's communication, went a

¹ Emphyseme de la membrane du tympan et de la région mastoïdienne, par Haug. Münch. med. Woch., October, 1894.

² Haug: Ueber Bildung Hamorrhagischen Exsudates in der Paukenhöhle und in aussere Gehörgang in Folge einer Pulpitis eines oberen Molardzahnes. Vierte Versammlung der Deutschen Otologischen Gesellschaft zu Jena am 1 und 2 Juni, 1895.

³ Levi: Ueber Meningitis serosa in Gefolge chronischer Ohrenerkrankungen. Zeitschr. für Ohrenheilk., xxvi, 2, 3.

⁴ Zaufal: Zur Geschichte und Technik der operativen Freilegung der Mittelohrräume. Arch. für Ohrenheilk., v, 37.

step further, and removed the superior posterior portion of the canal in order to freely expose the epitympanic space, and in 1890 reported the results of his operation in twelve illustrative cases. In the same year Stacke published the account of his operation; the operations, both of Zaufal and of Stacke, being applicable, as a rule, to cases of chronic suppurative disease, and very rarely to the acute cases. Zaufal considers his procedure indicated in the following classes of cases: first, in all cases of chronic suppurative disease of the middle ear accompanied by swelling, tenderness, or the presence of pus on the outer surface of the mastoid, and in cases of fistula of the outer mastoid wall, or of the posterior bony wall of the external auditory canal, in cases of bony stenosis of the canal and facial paralysis; second, in cases with such cerebral symptoms as progressive hyperemia of the fundus, neuroretinitis, vertigo, vomiting, etc., and in those cases in which there has been either continuous or remitting fever of long duration, or septic fever, whether the mastoid process gives external symptoms of inflammation or not. And in these latter cases he recommends the most complete opening of the middle-ear cavity, as this is often only a preliminary operation in such cases to the opening of the cranial cavity for the purpose of evacuating extra-dural abscesses, exploring for cerebral abscesses, or for the opening of the sigmoid and transverse sinuses. In such cases, according to Zaufal, the operation of Stacke is a waste of time. He further commends his operation in cases of cholesteatom, for the removal of sequestra and foreign bodies in the antrum, especially when their presence is accompanied by alarming symptoms, and in cases of profuse offensive secretion, of actinomycosis and tuberculosis of the middle ear.

Zaufal's operation may be divided into the following periods: first, the opening of the field of operation; second, extirpation of the posterior superior lining of the osseous portion of the external auditory canal; third, opening of the mastoid antrum by chiselling through the mastoid and the removal of the whole of the posterior bony wall of the external auditory canal; fourth, removal of the superior posterior portion of the inner end of the osseous external auditory canal, which forms the outer and inferior wall of the epitympanic space; fifth, evacuation of the tympanic cavity; sixth, suturing and bandaging. The principal purpose of this operation is to bring about the formation of sound cicatricial tissue of the walls of the chronically inflamed tympanic cavity, a tissue which would be productive neither of pus nor of the exfoliative cholesteatomata. In the successful cases Zaufal has found the cavity thus formed to be lined eventually by a thin, dry, transparent membrane, or else filled by dry, firm bands of connective tissue. In regard to the formation of a permanent opening in the mastoid by skin transplantation, as is commonly recommended in cases of cholesteatom, Zaufal considers this unnecessary, the purpose of this safety opening being accomplished in his operation by the large opening of communication which is established between the middle ear and the external auditory canal.

INTRACRANIAL COMPLICATIONS OF OTITIC ORIGIN.⁵

Moos reports three additional cases of intracranial complications of otitic origin. The first, a man fifty-four years of age, had suffered from suppurative in-

flammation of the middle ear with discharge since childhood.* Following a cold he had severe pain in the ear accompanied by swelling over the mastoid and the operation, which included not only evacuation of the mastoid but free opening of the antrum also, resulted in the removal of masses of caseous pus from the latter cavity. Notwithstanding the completeness of the operation, it was followed by prolonged vomiting, prostration and the general symptoms of pyosepticemia. The autopsy showed thrombosis of the transverse sinus.

The second case was that of a man thirty-seven years of age who had also suffered from a suppurative inflammation of the middle ear since childhood and who had a cholesteatom of the tympanic cavity and antrum, caries and facial paralysis, and who was seized suddenly with severe pain in the head and repeated chills. The autopsy in this case showed thrombosis of the sinus and also cerebral abscess.

The third case was that of a man thirty-five years of age who had suppurative disease of the middle ear following scarlet fever in childhood. Eight days before his death he was seized with severe pain in the right ear without other symptoms than insomnia and chills, which did not appear until the second day before death and he retained consciousness until the last hour. The autopsy showed a cerebral abscess as large as a pullet's egg on the right side and a cerebellar abscess on the opposite side.

OPERATION FOR RELIEF OF SUPPURATIVE DISCHARGE.⁶

Politzer reports a case of a woman, forty-six years of age, who had for several years, an occasional slight and not offensive, suppurative discharge from the left ear. Four weeks before admission to the hospital she had severe pain in and behind the ear, and for fourteen days before operation visible swelling at the tip of the mastoid. Examination showed the external auditory canal to be narrowed and filled with pus; there were soft granulations in the middle ear; the upper and middle portion of the mastoid surface was normal, but at the mastoid tip, there was a small abscess which had opened spontaneously. The radical operation was performed and in the tympanic cavity and epitympanic space yellowish-white, dry cholesteatomatous masses were found and the fistulous opening of the abscess in the mastoid was found to communicate directly with the inferior wall of the tympanic cavity. One week later transplantation was done according to Thiersch, the skin being taken from the left forearm. On the anterior and inferior wall of the opening the transplantation was successful; on the posterior wall the new skin sloughed away and the transplantation had to be repeated.

REMOVAL OF THE MALLEUS AND INCUS IN CHRONIC SUPPURATIVE DISEASE OF THE MIDDLE EAR.

Reinhard,⁷ in a communication upon the subject of removal of the malleus and incus in cases of chronic suppurative disease of the middle ear, advocates this operation for the purpose of enlarging the opening through which pus from the fornix tympani must find its exit, and the means of cleansing and treating the walls of this cavity their entrance, and reports twenty-

⁵ Adam Politzer: Demonstration einer Patientin, bei welcher die Radicaoperation der Freilegung der Mittelohrräume mit nachfolgender Thiersch'scher Transplantation ausgeführt wurde. Monatschrift für Ohrenheilk., June, 1895.

⁷ Reinhard: Beitrag zur Hammer-Amboss-Excision. Archiv. für Ohrenheilk., xxxlvi. vii.

⁶ Archives of Otolaryngology, July, 1894.

three cases of chronic suppurative of the fornix, without implication of the mastoid, in which he removed the malleus, and in sixteen the incus also, succeeding in finally healing fifteen out of the twenty-three cases, the fifteen cases classed as healed remaining under observation without recurrence of discharge for six months. In the majority of the fifteen cases cicatrization occurred in from one to three weeks, but where this was not the case, syringing with the antrum canula was resorted to with the speedy result of bringing about a cessation of the discharge. In one-half of the cases the hearing improved; in the others it remained the same as before the operation.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTIETH ANNUAL MEETING, BALTIMORE, MAY 28, 29 AND 30, 1895.

DR. MATTHEW D. MANN, of Buffalo, President.

DR. ASHEY of Baltimore, in a brief address, warmly welcomed the members to Baltimore.

A number of gentlemen from Baltimore and different parts of the country were present as invited guests. The time given for the reading of papers was twenty minutes, for the opening discussion ten minutes, five minutes for succeeding speakers.

THE RENAL CATHETER AND ITS USE IN THE DIAGNOSIS AND TREATMENT OF RENAL DISEASES.

DR. HOWARD A. KELLY, of Baltimore, read the first scientific paper.

The renal catheter was made long, fifty centimetres, and varied in diameter from one-half to three millimetres. The ureterscope was introduced, the orifice of the ureter was brought into view, the catheter was introduced, the urine came out from the kidney in drops. For bacteriological purposes the urine was caught in a rubber sleeve. Five illustrative cases were recited. In one, during the treatment of the pelvis of the kidneys, small pieces of stone passed through the catheter from the kidney. In another case, being unable to sterilize a suppurative discharge from the pelvis of the kidney, he cut down, removed a stone, and subsequently the urine came away clear instead of being thick with pus. The renal catheter enabled one to locate exactly any constriction or obstruction in the ureter; to determine the functional value of the two kidneys; to diagnose and differentiate between hydronephrosis and pyelo-nephritis and pyelitis; to determine the nature of the infective process; to diagnose malignant disease; to carry out treatment, more especially disinfection.

DR. MUNDÉ, of New York, questioned whether the catheter could not be introduced into the ureter as well by touch as by the use of the ureterscope, and mentioned a case in which it seemed Dr. Kelly had failed in New York.

DR. KELLY replied that a good light was essential, but with this, which he did not have in New York, one could always catheterize the ureter, and with greater safety than by touch. He had never seen any ill consequences follow catheterization of the ureter, further than some fever with chill, which disappeared.

Some remarks were also made by Drs. GORDON,

SKENE, BACHE, EMMET, BALDY, McLAREN, and the President.

FURTHER EXPERIENCE AND OBSERVATIONS IN HYSTERECTOMY FOR FIBROIDS.

DR. S. C. GORDON, of Portland, Me., presented this paper as a supplement to the one which he had read on hysterectomy for uterine fibroids two years ago.

After quoting some paragraphs from this, he said that the more he performed complete hysterectomy for uterine fibroids the more satisfied he had been with the results. There were never any unpleasant after complications. However little of the cervix was left, as in Baer's operation, there was always more or less danger from septic material, nor did he close the vaginal opening completely after hysterectomy. He thus secured sufficient drainage without gauze, etc. He had had no deaths within a year, having performed hysterectomy during that time on about twenty cases. He believed in operating early, as soon as the patient had symptoms which caused her to consult the gynecologist. The operation was then safer, and the longer one waited the more likely was the case to be complicated by adhesions, malignant disease, etc. Dr. Gordon preferred the abdominal route. He had not changed his mind as to the advantage of continuous catgut suture in the pelvis in this operation. The continuous suture placed the blood-vessels fully under control; there was less liability, on account of the elasticity of the catgut, to strangulation of the tissues; there was no danger of subsequent fistula.

The discussion was postponed until Dr. Emmet had read his paper.

THE USE OF TRACTION AND MORCELLATION IN THE REMOVAL OF FIBROIDS VS. HYSTERECTOMY.

DR. THOMAS ADDIS EMMET, of New York, read this paper. He said the method to be described for treating fibroid growths of the uterus by traction and morcellation was one yet but little known to the profession, although he had practised it for many years. While the subject was limited to a special mode of treatment, he hoped the discussion would also be directed to determining the circumstances under which the uterus should be removed. He thought the method should reduce the number of total extirpations. We were yet in a transition stage, when the tendency was to run to one extreme or the other. He would no more accept the view that the uterus should be removed from the fact that a fibroid existed, than he would condemn the operation with the dictum that it should never be performed. To remove the uterus because of the existence of a fibrous growth, from which the patient may have suffered but little, was not, in his judgment, justifiable. To extirpate the organ before thoroughly exploring its canal, was equally reprehensible. Frequently a secondary growth projecting into the canal was the immediate cause of the loss of blood. The most important point of all, after locating a uterine tumor, was to determine the rapidity of its growth. He would exclude loss of blood as the least urgent symptom or need for removal of the uterus, since it was possible, with proper surroundings, to hold it in check for an indefinite period. It was but reasonable that this delay should take place whenever there was the

slightest prospect of a good result. We need not discuss the death-rate of hysterectomy for fibroids, as this, doubtless, could be made more favorable, but the after-condition of the patient offered the chief objection to the operation under any circumstances but the most urgent. Some women were subsequently invalids because of sagging of the roof of the pelvis, or prolapse of the bladder, of the urethra, of the vagina; others for no known cause.

For years Dr. Emmet had been striving to define, if possible, the limit of necessity for hysterectomy, and had consequently been misrepresented as opposing it under all circumstances, which was an absurdity. As a result of his own observation and personal experience, the indication was only to save life. He had practised the method which he was about to describe for over thirty years, yet it was now coming back to us from abroad as an original method with a foreign endorsement and title, "Treatment by Morcellation."

Velpeau and Amassat were the first to enucleate, or by force tear these growths from their bed; Dr. Sims at an early period forcibly separated a fibroid with a stout steel instrument; and afterward Dr. Thomas introduced the serrated scoop. But by all these means damage was done to the surrounding uterine tissues, and a cavity was left which sloughed more or less. The procedure which Dr. Emmet originated was different, consisting in firmly seizing the growth with a large tenaculum or double hook, and by traction exciting sufficient uterine contraction to displace the mass and at the same time close the space which had been occupied. Great care was taken to do as little damage as possible to the tumor until it was evident that the uterus was contracting sufficiently to aid in displacing the mass and at the same time to obliterate the cavity. Section was made where necessary. The traction was begun as far off as possible, at the upper portion, so that in making the final separation it was done at the lowest part of the growth or that nearest the mouth of the uterus. The strong hook buried in the tumor should be twisted on itself so as to keep the point as much as possible toward the canal, away from the uterine wall; and in using the scissors the cutting should be toward the canal and finger inserted into the canal. Do not cut off a portion of the tumor until it begins to block the way; do not dig the tumor out of its bed. The traction should not be downward, dragging down the uterus, but twisting laterally in one direction and another.

Large fibroids were sometimes crowded outward and became subperitoneal because of smaller ones within, and sometimes removal of the latter was followed by the former becoming pedunculated and submucous. He believed fibroids had their origin near the canal where there was greatest functional activity, and that they were due to perverted nutrition, usually in women who had not had the natural stimulus of pregnancy. They often disappear with involution following pregnancy.

DR. WILLIAM M. POLK, of New York, opened the discussion on the papers of Drs. Gordon and Emmet. He said Dr. Emmet had limited his subject chiefly to submucous fibroids. In regard to tumors which could not be removed in that manner, Dr. Polk would take a stronger stand for hysterectomy than Dr. Emmet had seemed to do, for the excellent results usually obtained more than offset the occasional failures. As to

the manner of operating, he thought we had neglected the infrapubic route much more than we should. Tumors, up to the size of a six months' fetus, could be removed by this method with safety and with better results than through the abdomen. He was sorry Dr. Emmet had not extended his method of morcellation to removal of the uterus as a whole when it contained fibroids, instead of limiting it to removal of the tumors alone. He supposed he would have done so had he not placed himself in opposition to removal of the entire diseased organ.

DR. J. M. BALDY, of Philadelphia, said his experience upheld the views expressed by Dr. Gordon as to the necessity for extirpating the fibroid uterus. He cited cases in which neglect to operate early had ended disastrously.

DR. P. F. MUNDÉ, of New York, said he still stood on the ground which he had taken when Dr. Gordon read his paper two years ago, opposing removal of the uterus which contained a fibroid when no symptoms were present. He practised morcellation by the vagina frequently, and would never operate by the abdomen in such cases as Dr. Emmet had reported.

DR. HOWARD A. KELLY said he agreed with Dr. Mundé, and disagreed absolutely with Dr. Gordon, for he had seen fibroids of the uterus disappear while the patient was under observation. Fibroids might be present from the size of a pea up, and certainly one should not remove the uterus when they caused no symptoms. He would operate where he could not relieve hemorrhage or pain or pressure symptoms, and where there was associated inflammatory diseases of the appendages.

DR. R. S. SUTTON, of Pittsburgh, made a distinction between myomatous tumors and fibromata, saying that no one had ever seen a hard fibroma disappear, while all had seen myomata, which were softer, disappear at the menopause or other period. Some specimens were shown in which he claimed no one could have avoided removing the uterus with the tumor.

DR. MCGONIGAL, of California, referring to Dr. Emmet's paper, said there were some fibroids which could be removed by enucleation, but he thought they had a natural tendency downward. There were others, intramural, which it was hardly possible to remove except by taking away the uterus. In others, subserous in character, enucleation could be performed through the abdomen, sparing the uterus and appendages.

DR. A. P. DUDLEY, of New York, would advocate conservatism rather than the radical operation in all cases where the latter was not absolutely necessary. There were various methods of treating uterine fibroids, and one should apply them according to the case and his ability. He used catgut, as did Dr. Gordon.

DR. A. J. C. SKENE, of Brooklyn, gave an experience with Dr. Emmet's method, and said there were tumors which tended toward the uterine canal which could be treated in this way. There were others which tended in the opposite direction, and came legitimately under the surgeon's knife.

DR. GEORGE J. ENGELMANN, of St. Louis, referring to Dr. Sutton's remarks, said he wished he possessed the ability always to make the distinction referred to between fibromata and myomata. He had seen many tumors disappear, some with treatment,

some without, some striking symptoms relieved, especially by electricity. He agreed with Drs. Mundé and Kelly.

DR. MONTGOMERY, of Philadelphia, would not feel like taking the ground that the uterus which contained a fibroid should always be removed.

DR. HOWARD, of Baltimore, related some successful experience with Dr. Emmet's method.

DR. A. H. BUCKMASTER had observed Dr. Emmet's work, and was impressed by some points in the paper, especially as to the necessity for thorough exploration of the uterine cavity in order to arrive at an exact diagnosis. If this were not done, the uterus would often be removed where there was no necessity for it.

DR. J. R. GOFFE, of New York, said the age of the patient had not been mentioned in connection with hysterectomy. A small fibroid in a woman of thirty might demand removal of the uterus when it would not in one near the menopause.

In closing the discussion, DR. GORDON read the last page of his paper, stating that he performed hysterectomy only in case the fibroid had caused the patient to seek the advice of the gynecologist.

DR. EMMET said all had overlooked the important points in his paper except Dr. Buckmaster. The uterus was often removed to-day when dilatation and thorough exploration would show that the tumors could be gotten rid of otherwise and thus spare the patient the invalidism to which she was liable on losing her generative organs.

LIGATION OF THE PEDICLE WITH CATGUT.

DR. ARCHIBALD MACLAREN, of St. Paul, read a paper in which he described a method of preparing catgut, introduced by a St. Paul physician, and related cases to show that this material had been thoroughly sterilized and was perfectly safe. The sterilizing process consisted in exposure to a high temperature, 290°, while the catgut was wrapped in paper and put in a glass tube. It was free from the objection pertaining to other methods of heat sterilization, in that the catgut was not rendered brittle.

DR. A. P. DUDLEY, of New York, spoke highly of catgut, which he used almost universally in the pelvis and elsewhere. It was obtained from a firm in New York who used the heat process of sterilization.

DR. W. M. POLK, of New York, said he had lost two patients with catgut without apparent cause, when others treated in the same way, except that silk was used, recovered. The trouble with the catgut seemed not to have related to sepsis, because when tested it was found sterile.

The President, DR. MANN, had used catgut pretty constantly for about twelve years, and he could not say that he had ever seen ill results directly due to this material. He thought Dr. Polk's deductions were hardly justifiable, since the catgut was found free from germs.

DR. HOWARD A. KELLY expressed preference for silk, although he was able to sterilize catgut in cumol.

THE PRESENT TREATMENT OF UTERINE DISPLACEMENT.

DR. PAUL F. MUNDÉ, of New York, in a paper on this subject, stated that he used supports in the treatment of posterior displacement much more frequently than in anterior displacement. His percentage of cures by such measures was still short of that given

by Dr. Davenport, and did not exceed the figure given in his paper in 1881, five per cent. Antelexion without prolapsus did not call for a pessary. When it was combined with prolapsus he used Gehrung's pessary.

Regarding operative procedures, Dr. Mundé first spoke of Alexander's method of shortening the round ligaments, which he performed before any other operator in this country, 1884. The total number of posterior displacements which he had so treated was 77, and he had been well pleased with the results. If the ligaments were not found, it was the fault of the operator. They might be weak, however, and break. Next to Alexander's operation, he preferred one of the methods of shortening the round ligaments within the abdomen. He would not, however, open the abdomen solely for the purpose of fixing the uterus anteriorly. The ideal operation for prolapsus had not yet been devised. If the woman had passed the menopause, he thought the recent method of the younger Freund would prove valuable, narrowing the vagina by circular stitches. Another recent advancement consisted in freeing adhesions through an incision in the posterior cul-de-sac, and then performing Alexander's operation.

EXPERIENCE WITH VENTRO-FIXATION AND ALEXANDER'S OPERATION.

DR. A. LAPHORNE SMITH, of Montreal, read a paper giving a summary of his experience with ventro-fixation and Alexander's operation. During the past five years he had performed the two operations forty-nine times, Alexander's twenty-one, and ventro-fixation twenty-eight. Of course, this was only a small proportion of the cases of retroflexion which he had treated during the same period. The pessary had many objections, yet a few cases were cured after wearing it a few months. Plastic operations would not prevent prolapsus. Alexander's operation failed when the uterus and appendages were adherent, and this condition could not always be excluded before commencing treatment. Alexander's operation also had its risks; he had seen patients in whom it had been followed by hernia; he had known the ligaments to break, for naturally, having been out of use for months or years, they were weak, or in a state of fatty degeneration. In doing ventro-fixation one had the opportunity to examine the appendages, to break up adhesions, etc. It had been objected that it made a movable organ an immovable one. In answer he would say that he had found on opening the abdomen a year after the operation, that the attachment had been converted into a pedicle which permitted of free movement. Dr. Smith used two or three silkworm-gut sutures, and left them in a month.

ALEXANDER'S OPERATION.

DR. CLEMENT CLEVELAND, of New York, read this paper. He regarded Alexander's operation as one of the most beneficent ones ever devised; those who had been least satisfied with it belonging to the number who had had little experience. Bad results usually belonged only to first efforts, but it required considerable experience to become proficient in its performance. He thought it was the fault of the operator when the ligaments were not found. They were sometimes fragile and broke easily, but usually they had enough strength to hold up the uterus. He cau-

tioned patients that it was best not to become pregnant for a year, yet he had never seen abortion or trouble arise from it. Dr. Cleveland had performed ventral fixation frequently, but preferred Alexander's. Make a short incision, draw the ligaments out sufficiently, usually about four inches, and in order to make their attachment quite firm, use their extremities as sutures, besides stitching them with silkworm gut at the pubes.

The discussion on the three papers was opened by DR. DAVENPORT, of Boston. Retroflexion of the uterus frequently was only temporary, and even when it had existed for years it failed often to cause symptoms until some complicating condition arose. Alexander's operation did not come into the discussion where there were adhesions. In simple retroversion he would prefer Alexander to ventro-fixation. The former, however, did not always relieve the symptoms. The frequency of hernia had been underestimated; it was apt to be followed by a feeling of numbness at the site of the scar. The cause of the displacement was not the weakness of the round ligaments, and these sometimes failed to hold the uterus in position owing to the abnormal condition of the cervix, of the utero-sacral ligaments, etc.

DR. ELY VAN DE WARKER, of Syracuse, referred to his paper of about twenty years ago, first describing the use of the intra-uterine stem, for which he then received very severe criticism. Time, however, had changed the minds of his critics. The instrument was of great value in certain cases.

The speaker thought Alexander's operation, with which he had personally had considerable experience, was not founded on scientific principles, and had proven unsatisfactory. Some pathological factor aside from the round ligaments had caused the retro-displacement and prolapsus, and this should receive one's attention.

DR. H. C. COE, of New York, thought Dr. Van De Warker spoke from false premises. The round ligaments were never intended to hold the uterus up as a dead weight. They were shortened simply to prevent it falling backward. There was no comparison between Alexander's and ventro-fixation, for the latter was to be undertaken only where the abdomen had, for some other reason, already been opened.

DR. THOMAS ADDIS EMMETT, of New York, had early been given opportunity to introduce the finger into the vagina and feel the lifting of the uterus when Alexander was performing his operation, and as a consequence of that experience had never done the operation. The trouble was due to the prolapsus, not the version; to straightening out and engorgement of the vessels; and what relief came from pessaries, etc., was due to overcoming prolapsus, not to overcoming retroversion.

DR. W. M. POLK, of New York, said Alexander's operation had been with us so long, and had been performed so many times that there could no longer be any question of its efficiency in relieving these cases. It could even be done where formerly it had been considered necessary to open the abdomen, for by first making an incision into the vaginal cul-de-sac the adhesions could be freed and the Alexander then performed.

DR. J. M. BALDY, of Philadelphia, spoke of the necessity for treating the uterus for inflammatory conditions, etc., and stated that in some cases of prolapsus hysterectomy was indicated.

DR. GEORGE M. EDEBOHLS, of New York, had had some additional experience with the operations described in his paper two years ago for the relief of uterine prolapsus, and stated that it had been quite satisfactory. It had been said that when the round ligaments were not found it was always the fault of the operator. He had himself once believed this, and doubtless it was usually true, but he had lately had two cases in which he had opened the abdomen on failing to find the round ligaments during Alexander's, and it was shown that they failed to proceed downward in the usual direction after reaching the internal ring, but passed outward.

(To be continued.)

Recent Literature.

A Clinical Manual of Diseases of the Eye, including a Sketch of its Anatomy. By D. B. ST. JOHN ROOSA, M.D., LL.D. Pp. 621. New York: William Wood & Co.

If the title of this book had read, "A Panegyric upon the Ophthalmometer, with Incidental Remarks (more or less true) upon Ophthalmology," it would have more nearly expressed the real contents of the book. The teachings of this book are so one-sided and at variance with the experience and practice of the most careful ophthalmologists of the day, that it is with considerable difficulty that we know where to begin in writing a review. Perhaps the best course is to make a series of quotations from the book itself. "Retinoscopy is a method of very little importance where the ophthalmometer is properly employed and relied upon, whatever may be the case," p. 151.

"The patient will choose a cylindric glass under the examination made with a mydriatic, when without one he will not," and leads the reader to infer that an astigmatism of half a diopter thus obtained should not be corrected.

"In my judgment, we may, with propriety and with great advantage to accuracy, and consequent benefit to the patients, abandon all other methods for determining astigmatism, except in very rare cases and trust entirely to the ophthalmometer," p. 497.

"With a little practice with the ophthalmometer, retinoscopy also becomes of very little value. Loring never considered it of any importance," p. 513.

"I can hardly sufficiently condemn, as illogical and useless, the plan of using the ophthalmometer and then verifying its readings by the use of atropia and retinoscopy. Even the use of test-glasses in many cases may be dispensed with, if we have satisfied ourselves by a careful ophthalmoscopic examination that no lesion exists on the fundus, lens or vitreous, and the test-cards show $\frac{3}{8}$ or more to express the distant vision," p. 514.

"I think that uncorrected hyperopic astigmatism is the chief source of asthenopia. So important a factor is it that we need not in young persons, unless the axial refraction be highly hypermetropic, correct this at all, but be content with correcting the astigmatism for near work only. This is when the vision without glasses is $\frac{3}{8}$ or $\frac{3}{16}$. Just how much hypermetropia we may leave uncorrected I can hardly say, any more exactly than to indicate from two to three diopters as the limit," p. 518.

"When I became familiar with the use of the ophthalmometer in 1888, I once for all abandoned the idea of relieving muscular asthenopia except by correction of an error of refraction, and I advised, as I do now, that the term be given up as having no rightful place as generally used in ophthalmology. If the student will carefully correct the errors of refraction, he will have no need for tenotomies, except for strabismus, nor for prism, except for paresis or paralysis of the external muscles," p. 520.

"In all but exceptional cases, the correction of the astigmatism alone will, I believe, give the best results," p. 531.

"There is scarcely a muscle in the body that begins work at so early a period . . . as the ciliary muscle," p. 536.

After the reader has read through the above extracts, comment from the reviewer is hardly necessary, nevertheless, perhaps the restatement of some ophthalmological facts may serve to point a moral and adorn the tale:

(1) The ophthalmometer simply measures the curvatures of the anterior surface of the cornea.

(2) The posterior surface of the cornea is not measured by the ophthalmometer, neither is any abnormality of the lens or the curvature of the posterior surface of the eye.

(3) Retinoscopy measures the total error of all these factors, including that of the anterior surface of the cornea.

(4) The trial of eyes by test-lenses, when carefully done, gives a result which differs from that of the ophthalmometer in a majority of cases, owing to the above factors, all of which can be approximately estimated by retinoscopy.

(5) The cure of asthenopia by the correction of muscular errors is an everyday experience in the practice of a large proportion of the ophthalmologists of this country.

(6) The ciliary muscle at birth is almost rudimentary.

From all of which it will be seen that the happiest lot which could befall a practitioner in ophthalmology would be that all his competitors should be converted to Dr. Roosa's views.

Nor are all the astounding statements in this book confined to the chapters on refraction. Under the head of "Anesthetics in Operations," we find the following directions: "A solution of eight grains of cocaine to the ounce is sufficiently strong. It is used from fifteen minutes to a half hour before the operation, dropping it freely on the cornea every three to five minutes."

One can easily imagine, but not wish to witness, the mental state of the patient, and the physical condition of the eye, when the knife attempts to enter the anterior chamber in a cataract case after treatment for half an hour as described above.

The omissions are sometimes as startling as the statements quoted above; for instance, in the diagnosis of acute glaucoma severe symptoms are enumerated—increase of tension, ciliary congestion, etc., but the shallowness of the anterior chamber and the dilatation of the pupil are entirely omitted.

In the section on the removal of cataract by suction a very good cut of Dr. Robert Willard's suction instrument is inserted, but wrongfully attributed to Dr. H. Derby. The paragraph is concluded as follows:

"I do not think it has many advantages over a good linear extraction, while it is rather difficult to perform"; neither of which statements would be agreed to by any surgeon who had used Dr. Willard's instrument in properly selected cases.

And finally there is bound into the book at the end fifty pages of advertisements, which is an infliction hard enough to bear in a monthly magazine but absolutely inexcusable in a scientific book that is already bulky and heavy.

A Text-Book of Practical Therapeutics. With especial reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., B.S.C., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Fifth edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co. 1895.

This fifth edition of Professor Hare's book is a still further improvement on the lines which are characteristic of this well-known work. The material is so arranged as to be most readily accessible, and the information is clearly imparted. The work lacks the fulness of some of the other books on this subject; but it is eminently what its title asserts, "A Text-Book of Practical Therapeutics."

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In Twenty Volumes. Volume III: Occupation Diseases, Drug Habits, and Poisons. New York: William Wood & Company. 1895.

Under the general headings of Occupation Diseases, Drug Habits and Poisons, this third volume of the "Twentieth Century Practice" contains the following articles in the order given: "Alcoholism and Drug Habits," by Dr. Norman Kerr; "Shock and Collapse," by Dr. George F. Shrady; "Sea-Sickness," by Dr. A. L. Gihon; "Mountain Sickness," by Dr. Georg von Liebig; "Osteomalacia," by Dr. W. T. Councilman; "Heat-Stroke and Frost-Bite," by Dr. Gihon; "Diseases of Occupations," by Dr. James Hendrie Lloyd; "Poisoning," by Drs. Beaumont, Small, and James Stewart.

The authors are well-known men, the subjects are important, and the articles are in most instances useful contributions.

It is not easy to understand with reference to all of them on what principle they were selected and thus grouped together under the heading of the title-pages. The article on "Poisoning" is more brief and condensed than that on "Alcoholism and Drug Habits," and the article on "Diseases of Occupations," deals in places with the same questions as the article on "Poisoning."

These volumes have so far followed each other with a promptness which augurs well for the early completion of the work.

THE MEDICAL ASSOCIATION OF THE HAWAIIAN ISLANDS.—The officers of this association, elected at the annual meeting in May last, are: Drs. John S. McGrew, President; Henry W. Howard, Vice-President; and Robert P. Myers, Secretary.

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PERMANGANATE OF POTASH AS AN ANTIDOTE FOR MORPHINE POISONING.

WE have in a former number of the JOURNAL alluded to the experiments of Dr. Moor, of New York, respecting the antidotal power of permanganate of potassium in poisoning by opium and especially morphine. Dr. Moor claims to have demonstrated upon animals and himself that as much as three or four grains of sulphate of morphine can be taken internally provided a similar or double number of grains of permanganate of potassium are also swallowed at the same time, or very soon after. Bokai had previously shown the antidotal efficacy of the permanganate administered internally in one-third of one-per-cent. solution in the treatment of phosphorus poisoning, phosphorus in presence of this oxidizing agent being converted into ortho-phosphoric acid, a harmless compound. Andeal still later studied the action of potassium permanganate in animals poisoned by strychnine, muscarine, colchicum, oil of savine, and oxalic acid. He claimed quite remarkable results, affirming that all those toxic substances were perfectly innocuous to animals which were at the same time treated with the permanganate. Rabbits dosed with oxalic acid were exempt from toxic effects if at the same time or immediately afterward they received the same amount of a one-half-per-cent. permanganate solution.

Subsequently some discredit was thrown on Dr. Moor's experiments by Dr. Andrews, of Montgomery, Ala., who called attention to the extraordinary tolerance of dogs to morphine, even in doses which would be ordinarily fatal to a man.

By far the most valuable contribution to the literature of the subject is by Dr. Leedom Sharp, in the October number of the *Therapeutic Gazette*.¹ The writer analyzes the experimental and clinical data, and finds evidence that permanganate exerts an in-

fluence that combats to some extent the effect of morphine. There are now on record some dozen clinical cases of morphine poisoning, where permanganate of potash entered into the treatment, either as the principal agent or as adjuvant. In some of these cases it was administered early, in others not till after the poison had been for some hours swallowed; it was given in some cases by mouth, in others subcutaneously. In most of the cases, the attending physicians found it difficult to assign the part in the recovery due to the permanganate, other remedial agents having been used. While there has been but one case reported that can be said to have recovered from the poisoning by the administration of the permanganate, there is scarcely one that might not have got well under persistent and judicious treatment, had the permanganate not been given. Dr. Sharp is, however, convinced that in a few of the cases there is evidence of a decided effect produced by the use of the drug. He is confirmed in this belief by the results of his experiments, which show not only that there was marked increase in the number of respirations, but an apparent effect on the circulation, and that in each case where morphine had been given the lives of the animals were materially prolonged beyond the time at which death occurred in the control experiments with morphine, when permanganate was given to counteract the poison.

There is, this writer says, no doubt that morphine is rendered largely inert by permanganate when the two are brought together in direct contact; it may be regarded as demonstrated that when permanganate of potash is taken immediately after the administration of a toxic dose of morphine, or when given together, the poisonous effects are destroyed. Dr. Sharp's experiments on rabbits, after he had first ascertained the toxic dose in these animals, seem quite conclusive in this regard.

In cases where both morphine and permanganate were introduced by the mouth, the effect was much more marked than when both were exhibited subcutaneously, even where the permanganate was injected as nearly as possible in the same place that the morphine was injected. It is interesting to note that shortly after the administration of the permanganate there was a marked rise in the number of respirations, which seemed to indicate a physiological action on the respiratory mechanism. The action of the permanganate in cases of poisoning by morphine is much more decisive than that of peroxide of hydrogen, or any other oxidizing agent (this is given as an inference from five carefully conducted experiments).

We cannot present even an epitome of all the experiments recorded in Dr. Sharp's monograph, and can only give the conclusions:

(1) The susceptibility of lower animals to the action of morphine renders experiments on them very unsatisfactory as aids to a correct estimate of the results in man.

(2) The dose of permanganate of potassium necessary to counteract the enormous lethal dose of morphine in the lower animals must, of itself, prove fatal.

(3) The exhibition of permanganate of potassium by the stomach or hypodermically has a marked influence in prolonging the life of rabbits poisoned by morphine.

(4) The action of permanganate of potassium, when given separately from and not immediately following the dose of morphine, is not chemical: (a) because there is no proof of a chemical action to be adduced from the cases or experiments; (b) because there is evidence that it does not act chemically.

(5) The action of permanganate of potassium is physiological: (a) because there is no proof that it acts chemically except when brought into direct contact with the morphine in the stomach; (b) because there is evidence that the permanganate, when given by the stomach or hypodermically, increases the number of respirations; (c) because there is evidence that the exhibition of the permanganate by the stomach or hypodermically has an appreciable effect on the circulatory system, as seen by the dilatation of the vessels of the ears and by the direct effect on the blood.

(6) Permanganate of potassium is not a reliable antidote: (a) because there is no proof that when it is administered after the absorption of the morphine it has any chemical action whatever on morphine in the system.

(7) Permanganate of potassium, like strychnia, atropine, and caffeine has some valuable properties useful in the treatment of morphine poisoning, but as yet undetermined.

THE SIGNS OF DEATH.

A RECENT editorial on this subject in the *British Medical Journal* calls attention to certain letters to the daily papers, in which is expressed a belief in the possibility of the interment of living persons. A popular superstition, of which many medical men meet instances, is this, that some friend or relative may have been buried alive. "When the body was transferred from the receiving tomb to the grave, it was found to have turned on its side," or, "The face had such a natural expression at the funeral, do you think he could have been merely in a trance?" are instances of the questions asked of medical men with regard to such cases. The belief in the possibility or even frequency of such accidents is fostered by newspaper writers who dilate upon the possibility of the deceased having been in a trance, and upon the length of time during which such trance seizures may last, until a great deal of harassing and entirely unnecessary anxiety on the part of the public is conjured up. We quote from the above-mentioned journal the following answer to these trance arguments, etc.:

"The possibility of apparent death being mistaken for real death can only be admitted when the decision of the reality of death is left to ignorant persons. We are quite unprepared to admit the possibility of such a mistake occurring in this country to a medical practitioner armed with the methods for the recognition of death that modern science has placed at his disposal. Moreover, even by the ignorant, the reality of death can only be questioned during the period preceding putrefaction. During this period various signs of death appear which, taken collectively, allow of an absolute opinion as to the reality of death being given. To each of these, as a sign of death, exception may perhaps be individually taken, but a medical opinion is formed from a conjunction of these signs, and not from the presence of an individual one."

In catalepsy, trance, and profound sleep lasting for a long period, the heart's action is never entirely suspended, and its pulsations, though faint, may always be detected by careful stethoscopic examination. The respiration also never entirely ceases under these conditions.

When to the absence of respiration and circulation and the gradual cooling of the body, beginning at the extremities and extending toward the trunk, are added the gradual oncoming of rigor mortis, and the production of post-mortem ecchymoses, the diagnosis of death may be made with certainty.

The cadaveric rigidity is also easily distinguished by unmistakable characteristics from the rigidity due to tetanus, catalepsy, hysteria and the various other causes which produce it during life.

The change of position of a body in a coffin may be due to tilting or motion during lowering into the grave, or may be the result of gaseous distention during putrefaction. Supposing that a body has been screwed down in an air-tight coffin, it would be impossible for consciousness to be recovered, for the reason that any respiratory movements would produce speedy asphyxia. The feeble flame of life is not to be revived by the entire exclusion of air, and confinement within the narrow limits of a coffin.

If after twenty-four hours have elapsed from the time of supposed death, a competent medical authority on examination of the body pronounces that death has taken place, there can be no question of the fact.

MEDICAL NOTES.

ANNUAL MORTALITY FROM SNAKE BITE IN INDIA.—The loss of human life from snakes and wild animals in India last year was one to every ten thousand of the population. From the same cause a hundred thousand head of cattle were lost.

VOMITING BY A NEW METHOD.—Dr. Charles L. Greene, of St. Paul, publishes in his local journal an interesting article entitled, "A Suggestion Bearing upon the Treatment of Persistent Vomiting by a New Method," a careful perusal of which fails to show any new method of vomiting other than that practised so effectually at sea.—*Maryland Medical Journal*.

THE TRI-STATE MEDICAL SOCIETY.—At the last meeting of the Tri-State Medical Society (of Iowa, Illinois and Missouri) the following officers were elected: President, Dr. Robt. H. Babcock, of Chicago; First Vice-President, Dr. A. H. Cordier, Kansas City; Second Vice-President, Dr. W. A. Todd, Chariton, Ia.; Treasurer, Dr. C. S. Chase, Waterloo, Ia.; Secretary, Dr. G. W. Cale, St. Louis. The next meeting will be held in Chicago the first Tuesday, Wednesday and Thursday, in April, 1896.

KAFFIR GOLD FOR THE LONDON HOSPITALS.—Mr. B. I. Barnato and several other friends have sent

to the Lord Mayor of London, through Mr. H. C. Burdett, checks for £15,000, £1,000 of which is to go to the Hospital Sunday Fund, £600 to the Hospital Association for the establishment of a reference library on all subjects connected with hospitals and charities, and the remainder to other indicated charities.

MEDICAL SCHOOLS OF PHILADELPHIA.—The *Medical News* gives the following statistics as to the several medical schools of Philadelphia. The University of Pennsylvania has 900 students, as against 865 in 1894-95; Jefferson Medical College has 725, as against 700; the Medico-Chirurgical College has 350, as against 225; the Hahnemann Medical College has 285, as against 260; the Women's Medical College has 200, as against 175; and the Philadelphia Polyclinic 150, as against 120. The total number of students in all the medical schools of Philadelphia this year is, therefore, 2,610, as against 2,345 in the previous session.

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.—The annual meeting of this Society was held at Chicago, September 24, 25 and 26, 1895. The attendance of members was large. The following named were elected officers for the ensuing year: President, Dr. Joseph Price, of Philadelphia; Vice-Presidents, Drs. Albert Hawes Cordier, of Kansas City, and George Sherman Peck, of Youngstown, Ohio; Secretary, Dr. William Warren Potter, of Buffalo; Treasurer, Dr. Xavier Oswald Werder, of Pittsburgh; Executive Council, Drs. Charles A. L. Reed, of Cincinnati; James F. W. Ross, of Toronto; Albert Vander Veer, of Albany; Lewis S. McMurtry, of Louisville, and J. Henry Carstens, of Detroit. Seventeen new Fellows were also elected. The ninth annual meeting was appointed to be held in Richmond, Va., Tuesday, Wednesday and Thursday, September 15, 16 and 17, 1896.

PHYSICIANS AND POETRY.—The fact that Sir Edwin Arnold recently delivered the address at Sir Thomas's Hospital, on the occasion of the distribution of prizes to the students in the Medical School, recalls certain passages in the after-dinner address of Prof. Charles Eliot Norton before the Massachusetts Medical Society last June, on the importance of the cultivation of the imagination, and especially of poetry, to the busy medical man. His tribute to Sir John Simon, the distinguished surgeon to that same hospital, will be remembered. "I have known few men" he said, "who had a more thorough acquaintance with Shakespeare, with Milton, and with the other great masters of English literature than he." The students at that hospital, it seems, are fortunate in having such a reminder of the "never-failing source of comfort" which they may find in literature and poetry, as were the members of the Massachusetts Medical Society last June.

THE EFFECTS OF THE MODERN MILITARY RIFLE.—In our editorial of August 29, 1895, on this subject

we published a partial abstract of Sir William McCormac's address before the British Medical Association, showing that these projectiles of small size and rapid velocity produced by no means such innocent and trifling wounds as the theories of certain writers would have us believe. On the contrary, their shattering effect upon the skull and long bones, both at long and short range was found to be extreme. A confirmation of this view has recently come to light in a report published in the *Journal of the American Medical Association* of October 19th, by Major Alfred C. Girard, Surgeon U. S. Army, of the case of a military convict who was shot through the head by a sentinel while attempting to escape from Fort Sheridan, Ill., with the Kräg Jorgensen rifle, which has lately been adopted by the U. S. Army. The shot was fired at a distance of ninety feet, and the man died within half an hour. At the autopsy the wound of entrance was found in the upper occipital region, and that of exit in the forehead. Extensive stellate fractures were produced at both points; the whole skull cap was shattered, with partial separation of the sagittal, coronal and lambdoid sutures. Such an instance effectually disposes of the so-called "humane" theory of the effect of these projectiles. The extensive fractures produced are believed to be due to the fact that the high velocity increases and extends the zone of lateral expansion, increasing the so-called "explosive" effect.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, November 6, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 116, scarlet fever 17, measles 4, typhoid fever 27.

ANOTHER FATAL KNOCK-OUT BLOW.—During a boxing bout at the Casino Club at Natick last Saturday, a sharp blow under the left ear felled one of the contestants. In falling, his head struck the sharp edge of a table, cutting a gash. Whether the death was due to immediate severe cerebral hemorrhage, to the paralysis of the pneumogastric, or concussion, it seems more probable that the blow in the neck brought about the fatal issue than the striking of the forehead against the table. We refer to our editorial on this subject on November 22, 1894, and correspondence in the issues of November 29th and December 13th of the same year.

NEW YORK.

THE DEAF AND DUMB IN AMERICA.—The venerable Dr. Thomas Gallaudet has just returned from a three months' European trip, during which he read a paper at the congress of the British Deaf and Dumb Association on "The Higher Education of the Deaf-Mutes in the United States. As the result of his observations abroad he declares that Europe is far behind the United States in this field.

THE NEW YORK OBSTETRICAL SOCIETY.—At the annual meeting of the New York Obstetrical Society, held October 22d, the following officers were elected: President, Dr. Henry C. Coe; First Vice-President, Dr. J. Riddle Goffe; Second Vice-President, Dr. A. Palmer Dudley; Recording Secretary, Dr. Arthur M. Jacobus; Assistant Recording Secretary, Dr. George W. Jarian; Corresponding Secretary, Dr. Robert L. Dickinson; Treasurer, Dr. J. Lee Morrill; Pathologist, Dr. George C. Freeborn.

THE COMMISSIONERS OF CHARITIES AND CORRECTION CRITICISED.—At the last meeting of the Medical Society of the County of New York, held October 28th, resolutions were adopted similar to those passed by the New York County Medical Association the week previous, protesting against the action of the Commissioners of Charities and Correction in summarily dismissing the attending and consulting physicians of the various hospitals under their charge. The principal resolution reads as follows: "*Resolved*, That we, the Medical Society of the County of New York, protest against this outrage upon the medical profession of the County of New York, and condemn the action of the Commissioners of Charities and Correction in delivering to these incorporated colleges three-fourths of the appointments upon the Consulting and Medical Boards of these hospitals, to whose support the profession at large as taxpayers contribute." In the preamble it is set forth that the three medical colleges (College of Physicians and Surgeons, Bellevue, and University Medical College), are incorporated institutions; that their faculties, with the Fourth Division of the Bellevue Hospital (which now shares with them the appointing power), are composed of less than one hundred physicians, while there are in the County of New York about three thousand physicians; and that these three thousand physicians are excluded from positions in the public hospitals except by courtesy of the colleges and the Fourth Division of Bellevue Hospital. After the adoption of the resolutions a motion was carried that the President should appoint a committee of five to present them to the Commissioners and also to the Mayor as soon as possible.

THE PAUPER INSANE AGAIN.—In making up its allotments for the year of 1896 the Board of Estimate and Apportionment has provided for the care of the pauper insane of the city for only three months from January 1st, as it is believed that within that period the Legislature will again pass an act transferring the insane to the care of the State. The board decided, however, that for these three months the weekly allowance for each insane person should be increased from \$2.75 to \$3.55, the sum allowed by the State.

A FATAL JUMP.—Patrick Callahan, who had previously made a successful jump from the Brooklyn bridge, lost his life on October 27th, from injuries received in jumping from the highest point of the great railroad bridge at Poughkeepsie, a distance of 212

feet. It is said that death was really due to loss of blood, and that if his wounds had been promptly and properly dressed a fatal result would not have ensued.

SUICIDE OF DR. CARPENTER.—Dr. James B. Carpenter, one of the most highly respected citizens of the town of Gouverneur, N. Y., committed suicide on October 28th, while suffering from temporary aberration of mind. For some time past he had been in poor health. Dr. Carpenter was born in Johnstown, N. Y., on July 9, 1819, and was graduated from the Castleton Medical College in 1847. During the late war he served as surgeon of the 39th Regiment, New York Volunteers, and in 1867 went to Gouverneur, where he had a large practice. About ten years ago he retired from practice, but continued to take an active interest in public affairs. In 1848 he married a sister of Governor Roswell P. Flower, and his wife died about fifteen years ago. He leaves one daughter, Mrs. Andrew Irving.

DEATH AT THE AGE OF ONE HUNDRED AND FIVE YEARS.—On October 31st John Victory died in Brooklyn at the venerable age of one hundred and five years. Nine years ago, when ninety-six years old, he was run over by a brewery wagon, and in consequence had to have his leg amputated. Afterwards abscesses formed which necessitated a second and a third amputation. His recuperative power seems to have been extraordinary, and he remained in excellent health after this until a short time before his death. His final illness was of but three days' duration. Mr. Victory was born in County Cavan, Ireland, in May, 1790, and came to this country in 1830. He was the father of twelve children, six of whom—five sons and a daughter—are now living.

OPENING OF THE CRAIG COLONY FOR EPILEPTICS.—The State Board of Charities has sent a circular letter to all the superintendents of the poor in the State informing them that the Craig Colony for Epileptics in Livingston County will soon be ready to receive a limited number of public patients to be apportioned among the various counties of the State.

Miscellany.

THERAPEUTIC NOTES.

THE RESULTS OF ANTITOXIN TREATMENT IN GERMANY.—Heubner, of Berlin, has reported in the *Deutsche med. Wochenschrift* for October 17, 1895, the results in 117 cases of diphtheria treated by antitoxin since his previous report. His personal experience in the serum treatment now includes over 300 cases of diphtheria, and has extended over a period of two years. Of the 117 cases now reported for the first time, there were 12 deaths, a death-rate of 10.2 per cent. Since the end of May, 1894, 220 cases have been treated by antitoxin, with a mortality of 11.4 per cent. Of 174 uncomplicated cases there were 15 deaths, or 8.6 per cent. Of 46 complicated cases, 10 deaths, or 21.7 per cent. Heubner finds that the ef-

fects of the treatment of laryngeal cases, whether or not intubation or tracheotomy is necessary, are marvellously good, and that cases escape operation which before the days of the antitoxin treatment it would have been absolutely necessary to operate.

The question whether a fall of temperature is produced by the serum still remains a matter of doubt, although Heubner is inclined to think that the rapid fall of temperature by crisis which he has noted in many of his cases, takes the place of the slow descent by lysis which is so frequently observed in diphtheria.

In 84 cases of pure diphtheria, albuminuria was observed 23 times, or in 27 per cent.; six times the albuminuria was present before the injections were begun. The albuminuria in none of these cases assumed dangerous proportions. Exanthemata, sometimes attended by fever and pain in the joints, was observed in 19.6 per cent. of the cases.

Heubner states, that as far as his experience has extended, he has found no reason to change his opinion as to the harmlessness of the antitoxic serum. The danger which was formerly of gravest importance in diphtheria, and which was the chief cause of our anxiety, that of invasion of the larynx and trachea by the membrane, has been reduced by the antitoxin treatment to a matter of comparatively slight significance.

Correspondence.

THE STUDY OF DERMATOLOGY IN EUROPE.

BOSTON, October, 1895.

MR. EDITOR:—I have thought that a sketch of my experience in the study of dermatology in the principal medical schools of Europe during the past two years might be of interest and advantage to other students.

It was by my father's advice that I went first to Paris, and so I will speak of my life there first.

The St. Louis Hospital, where instruction in skin diseases is chiefly given, is a very large, very old, and very interesting building. It was erected in 1610 as an asylum and means of isolation for the poor people stricken with the "plague," which was then raging so fiercely in Paris. There are three departments connected with this ancient edifice—one for dermatology, one for surgery, and one for obstetrics. For the diseases of the skin there are six hundred beds, a large new building for the out-patient service, a superb museum, an unsurpassed library, a post-mortem room, various laboratories, a large bathing establishment, and a room devoted to the uses of the Parisian Dermatological Society. These various divisions were under the control of six physicians—Messieurs Hallopeau, Quinquaud (who died during the winter), Tenneson, Du Castel, Thibierge (who was substituting for Monsieur Besnier), and Professor Fournier. I must digress here a moment to express a deep regret that so many of the older school were absent either through death or indisposition. I refer to Hardy and Vidal, who had died during the previous three years, and to Besnier, who felt himself forced to relinquish his active service through enfeebled health. The loss of the privilege of seeing and hearing these Nestors of modern French dermatology was a keen one to me, but certainly no man should complain of the pupils of these older masters who are now in daily attendance at the St. Louis.

But to continue. Each of the six physicians has about one hundred beds in his wards, a laboratory for pathological, bacteriological and chemical research, and six or eight assistants under the charge of the *chef de clinique*, who is usually an older man and one whose appointment covers a

period of eight years. There is only one service officially connected with the Faculté de Médecine de Paris, and this is under the leadership of Professor Fournier, who well deserves the distinction. Under Professor Fournier there is a still larger corps of assistants in charge of M. Louis Wickham, and, in addition, two comparatively young men who served as pathologist and bacteriologist respectively, men whose investigations have already brought their names into the highest prominence in the dermatology of to-day—I refer to Darier and Sabouraud. These three men—Wickham, Darier and Sabouraud—form a trio of assistants of whom any professor might well be proud. But now, unfortunately, Darier has lost this position through his appointment as *Médecin des Hôpitaux*; Wickham must go in two years; and Sabouraud cannot remain forever. Luckily, Darier has now, in 1895, a temporary position in replacing M. Besnier, but through the unfortunate system of Parisian hospitals he must soon be lost, perhaps forever, to the St. Louis, in order to fill some vacant post in any Parisian medical institution—whether it be one devoted to general work, to the insane, to the blind, or what not.

The best programme of work to be pursued at the St. Louis is hard to determine on account of the embarrassment of riches. Every day from nine until half-past eleven or twelve there is the out-patient department, which is absolutely unsurpassed in Europe in the richness of the quality and the quantity of the material. The number of patients presenting themselves daily varies from 250 to 400; among them are many rare diseases or many uncommon phases of the more usual ones. The celerity with which this vast throng of patients is seen is wonderful, but it is all explained by the admirable system and discipline maintained by the physicians and nurses. The chief allows his first and second assistants to prescribe for the patients, and each of these consulting doctors has an assistant at his elbow who writes the prescription and offers all explanations. The children are seen first, then the women, and finally the men—each patient coming before the physician with his affected area of skin bared so that all may see. The men all appear stripped to the waist. In these several ways, 200 to 400 people can be seen thoroughly enough between nine and twelve o'clock, and those whose cases need further study are assigned definite days and hours to reappear in the wards.

The out-patient department is presided over by one of the six physicians—each day being devoted to one man, who demonstrates to the small group of interested ones about him the noteworthy cases. Some of the men are exceedingly good talkers, and one learns much of the latest research, and is also impressed with the fact that the forefathers of the modern school were extraordinarily good observers and exceedingly advanced in their specialty. Another great advantage in these impromptu talks is that one hears the names and ideas of all foreigners quoted and respected, no matter what his country, and I firmly believe that, as a rule, the Parisian dermatologists honor foreign observers and are less self-satisfied than most of their European colleagues.

From the out-patients each physician chooses the new patients who are to fill his wards. From such a vast source to draw upon one can imagine what interesting and what severe cases occupy the beds of the St. Louis Hospital—of which I shall speak in a moment. From the out-patient consultation there are many who are requested to come again on a certain day in the week when their wants are administered to at greater length. The syphilis patients are assigned one day, the trichophytic adults and children another, those with lupus another, and those of doubtful or very difficult diagnosis another. Thus it is that there is so much to see on any given day in the week, when opportunity is offered the stranger to see more intimately the minutiae of disease and treatment than is possible in the hurry of the out-patient consultation.

But let me explain. The syphilis patients are interrogated most carefully as to their family and personal history, and after the many interesting questions have been asked

and answered their treatment is explained. With the trichophytic patients there is more to be done. From the new ones microscopic examinations of hairs from the beard or scalp are made, culture media are inoculated, and questions asked. With the old patients, epilations are begun or continued and the subsequent medicinal cures pursued. The sufferers from lupus are admitted in turn and the treatment by the scarifying knife or electric cautery administered, and the patients are sent back to their beds in the wards or else to their occupations with varying medicated plasters covering their superficial wounds. Many of the cases of lupus erythematosus and *nævi* are treated in the same way.

Of the interest and advantage of frequent visits to the wards one cannot say too much. Every morning about nine o'clock the daily visit of the physician-in-chief is made, and the visitor feels more than amply repaid for what he has seen of the patients and heard from the physician, who discusses the disease and its progress with his assistants. I shall never forget my first visit in Professor Fournier's wards under the guidance of M. Wickham. It seemed as if I were in a museum, for every bed contained some dermatological curiosity. Syphilis in all phases of severity and unusual appearance, keratosis follicularis, several cases of dermatitis multiformis, two of dermatitis exfoliativa universalis, most curiously modified cases of psoriasis and tinea trichophytina, together with the usual severe types of carcinoma, lupus, lupus erythematosus, eczema, et cetera. These are the cases which occur to my mind after a lapse of eighteen months. During the winter almost all the rarer skin diseases found their way into the six hundred beds of the hospital, but to mention them all would be to run through the index of a modern book on dermatology, and so I must content myself with a few of the more unusual examples which now remain especially impressed upon my mind: Mycosis fungoides, "glossite exfoliatrice marginé," leprosy, lymphoderma, acne necrotica, keratosis palmaris et plantaris from continued ingestion of arsenic, "bouton de Biskra," elephantiasis, "lichenification" in its varied aspects, ichthyosis, lichen scrofulosorum, Paget's disease, melanoderma lenticularis progressiva, molluscum contagiosum, morphea, pityriasis maculata et circinata, prurigo, psoriasis with subsequent loss of all nails, verruca plana, and "Vagabond's Disease."

As to the lectures of which a stranger can avail himself while at the St. Louis I must say a word. In addition to the extemporaneous talks by the bedside and over the out-patients, almost every one of the six physicians gives a course of two months' duration some time during the year; and lastly, there are the extremely interesting and instructive Tuesday clinical and Friday didactic lectures of Professor Fournier, whose immense experience in syphilis is concentrated into words and delivered to his hearers in the most beautiful, classic French. I have never listened to a more finished speaker, and no one could have spent an hour with him without carrying away some fact indelibly imprinted on one's mind.

The meetings of the Parisian Dermatological Society are held every month in the Salle des Conférences—a room especially devoted to the society in the same building as the library, museum and out-patient department. The walls are covered with interesting prints of the St. Louis Hospital in olden times and with photographs of the men who have added so much to the glory of French dermatology, while busts of the world's greatest dermatologists add still further interest to the lover of the history of this branch of medicine. The meetings are attended by all Parisian physicians interested in the skin, and are presided over by M. Besnier. Cases are presented and papers read, but to the stranger what gives so fair a promise is marred by the continuous noise of the men discussing among themselves a previous doubtful case. Thus no sound of the reader's voice can be heard by those in the back part of the room. With such men present and with such cases before one it is a great pity that such an opportunity should remain so unproductive and unsatisfactory.

And lastly, the student can turn his leisure moments—

if there can be such at the St. Louis—to the wonderful museum of Baretta models. There is no other such place in the world. The superb life-like models now number over 1,900, in addition to the private collection of Professor Fournier, and what the student has failed to see in the other departments of the hospital can surely be found here as true to nature and almost as instructive as the disease in real life. A most complete catalogue by M. Feulard exists, while all the most interesting models have been subjects of monographs by their original observers. Thus can one spend hours and hours reading dermatology with the case before his eyes.

Thus far in this little description of the advantages of Parisian study I have devoted myself to morning work, but now when I come to the consideration of how the student is to occupy his afternoons, I am grieved to say that at last I must speak disparagingly of Paris from a dermatological point. Of course, a man should become acquainted with the histology and pathology and bacteriology of the skin and not confine himself in these later days to the clinical side alone. And here is where Paris is distressingly inadequate as a field of study to the stranger. In the winter of 1893 and 1894 no man in Paris gave any lectures upon the microscopy of the skin, and few, if any, spoke except in the most cursory manner of this important subdivision of dermatology. Now, in 1895, Darier is delivering an excellent course of lectures, but naturally lectures are only the starting-point, and one must work for himself with the microscope; but this opportunity under an instructor is still withheld to the stranger.

During my winter in Paris I had the privilege of working under Darier in Mallasez's laboratory at the Collège de France, and the histology of the skin was demonstrated to me by him in his clear, distinct and systematic manner.

In January, February and March by good luck I was fortunate enough to be enrolled as a member of the bacteriological course under M. Roux at the Pasteur Institute. I can imagine no more thoroughly scientific course in any branch of learning than this, as given by the modest man who has now become so deservedly world-renowned through his wonderful success in the treatment of croup and diphtheria. Every day at half-past one the small class assembles and listens for an hour or more to the clear, methodical, all-comprehensive words of M. Roux. Very often other men, as Metchnikoff, speak upon subjects of which they have made particular study and research. The lectures are descriptive and illustrative of the technique, all the best practical methods are explained and demonstrated for the study of the germ of each disease, and the life history of the different bacteria with their future results in the animal body is beautifully told. The richness of the apparatus is wonderful. After the lecture each student repeats at his own desk what he has seen demonstrated by the lecturer, and an able corps of assistants is on hand to help him in the intricacies of modern bacteriology. One great advantage in the Pasteur course is its thoroughness. The student must do everything for himself. He must prepare his own culture media and later inoculate them; he must inoculate animals and perform autopsies; he must prepare his material and stain and mount his slides. Of course, all necessary help and advice are given, but the aim of the Roux system is to make the student do things for himself and to do them thoroughly and scientifically.

This course must naturally be elementary, owing to its brevity, but every disease is lectured upon with the utmost thoroughness and nothing is treated cursorily or carelessly. The special lectures on hydrophobia and diphtheria were pre-eminently remarkable in this perfect course for novices in bacteriology.


Such was my work in Paris in the winter of 1893-94, and I shall always remember it with the greatest pleasure and delight; and now, after my travels elsewhere in Europe, I look back upon the St. Louis and the Pasteur Institute as the places of all others where one can find at their very best modern dermatology and modern bacteriology.

CHARLES J. WHITE, M.D.

(To be continued.)

METEOROLOGICAL RECORD.

For the week ending October 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro. Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily Maximum. Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S..20	29.90	44 50 39	58	56	57	N.W.	W.	16	6	C.	C.
M..21	30.08	41 48 34	72	60	66	W.	N.W.	6	8	O.	C.
T..22	30.17	46 57 34	52	74	63	S.W.	S.	4	11	C.	C.
W..23	30.07	53 59 47	75	58	66	W.	N.W.	11	9	F.	C.
T..24	30.16	43 52 34	67	59	63	W.	S.W.	9	7	C.	C.
F..25	29.84	52 61 42	69	56	62	S.W.	N.W.	16	14	O.	C.
S..26	30.03	42 50 33	68	70	69	N.W.	S.	8	6	O.	C.
	30.03	54 38			64						

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall ☾ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 26, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	697	249	11.66	16.52	2.66	1.26	3.92	
Chicago	1,678,967	454	199	25.74	14.74	8.14	3.52	12.10	
Philadelphia	1,164,040	362	103	14.56	12.04	3.36	2.24	7.84	
Brooklyn	1,100,000	398	146	17.00	16.50	3.50	—	9.25	
St. Louis	506,000	—	—	—	—	—	—	—	
Boston	494,005	220	82	17.55	13.95	6.65	2.25	7.50	
Baltimore	496,315	204	71	12.25	10.29	3.60	4.41	1.47	
Cincinnati	336,000	—	—	—	—	—	—	—	
Cleveland	314,537	103	36	27.16	4.85	2.91	7.76	15.52	
Washington	275,500	118	39	19.56	13.60	4.25	8.50	1.70	
Pittsburg	235,617	—	—	—	—	—	—	—	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	43	13	13.98	2.33	2.33	—	6.99	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	21	9	23.80	—	4.76	4.76	4.76	
Fall River	88,000	34	15	20.58	11.76	11.70	—	5.88	
Lowell	84,359	26	11	19.25	14.55	7.70	3.85	7.70	
Cambridge	81,619	21	9	14.28	4.76	—	—	14.28	
Lynn	62,355	21	7	19.04	14.28	—	4.76	4.76	
New Bedford	55,254	12	3	8.33	8.33	—	—	8.33	
Springfield	51,534	14	6	28.56	21.42	7.14	—	14.28	
Lawrence	52,153	17	12	11.76	11.76	11.76	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	13	—	6.97	6.97	6.97	—	—	
Brookton	33,157	7	3	14.28	14.28	—	—	14.28	
Haverhill	30,185	6	1	16.66	—	—	—	—	
Malden	29,706	10	2	10.00	—	10.00	—	—	
Chelsea	31,295	8	4	25.00	12.50	—	—	25.00	
Fitchburg	26,394	12	2	—	—	—	—	—	
Newton	27,222	5	4	—	60.00	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	10	2	—	—	—	—	—	
Waltham	20,877	10	2	20.00	20.00	—	10.00	—	
Quincy	20,712	5	1	—	—	—	—	—	
Pittsfield	20,447	4	0	—	25.00	—	—	—	
Everett	18,578	3	1	—	—	—	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	7	1	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,960; under five years of age 1,053; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 498, acute lung diseases 408, consumption 325, diphtheria and croup 208, diarrheal diseases 130, typhoid fever 76, whooping-cough and malarial fever 20 each, scarlet fever and cerebro-spinal meningitis 14 each, measles 9, erysipelas 6, small-pox 1.

From whooping-cough New York 9, Brooklyn 4, Chicago 3, Philadelphia, Baltimore, Salem and Waltham 1 each. From malarial fever Washington 6, Baltimore 4, New York and Brooklyn 3 each, Nashville 2, Philadelphia and Haverhill 1 each. From scarlet fever Brooklyn and Boston 3 each, New York and Providence 2 each, Philadelphia, Cleveland, Lynn and North Adams 1 each. From cerebro-spinal meningitis New York 6, Chicago 3, Worcester 2, Lynn, Somerville and Clinton 1 each. From measles New York 7, Brooklyn 2. From erysipelas

Chicago 3, Philadelphia, Brooklyn and Springfield 1 each. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending October 19th, the death-rate was 19.1. Deaths reported 3,873; acute diseases of the respiratory organs (London) 215, diarrhea 333, diphtheria 107, measles 83, fever 60, scarlet fever 47, whooping-cough 39, small-pox (London) 1.

The death-rates ranged from 31.5 in Blackburn to 10.4 in Derby; Brighton 15.3, Croydon 13.6, Halifax 17.2, Hull 22.9, Leeds 17.0, Leicester 16.4, Liverpool 24.0, London 18.0, Manchester 24.3, Newcastle-on-Tyne 20.7, Nottingham 13.1, Portsmouth 17.9, Sheffield 17.3, West Ham 17.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 26, 1895, TO NOVEMBER 1, 1895.

FIRST-LIEUT. MERRITTE W. IRELAND, assistant surgeon, to proceed from Fort Stanton, New Mexico, upon the abandonment of that post, to Benicia Barracks, California, and report for duty at that station.

CAPTAIN WILLIAM B. BANISTER, assistant surgeon, granted leave of absence for one month, to take effect on or about November 10, 1895, with permission to apply for an extension of one month.

Leave of absence for one month, with permission to apply for an extension of two months, is granted FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon, Camp Merritt, Montana.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 2, 1895.

M. H. CRAWFORD, surgeon, and J. E. PAGE, passed assistant surgeon, to the U. S. S. "Boston."

E. P. STONE, passed assistant surgeon, and G. P. BRADLEY, surgeon, to hold themselves in readiness for service on the "Indiana."

F. J. B. CORDEIRO, passed assistant surgeon, to the U. S. Training-ship "Constellation."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING OCTOBER 31, 1895.

PURVIANCE, GEORGE, surgeon. Granted leave of absence for twenty-five days. October 23, 1895.

HUTTON, W. H. H., surgeon. Granted leave of absence for twenty days. October 19, 1895.

GUIERAS, G. M., passed assistant surgeon. Granted leave of absence for thirty days. October 18, 1895.

YOUNG, G. B., passed assistant surgeon. Relieved from duty in laboratory of Bureau and directed to rejoin his station at Key West, Fla.

SPRAGUE, E. K., assistant surgeon. To proceed from Key West, Fla., to Key West Quarantine Station, for temporary duty. October 16, 1895.

PROCHAZKA, EMIL, assistant surgeon. To proceed from Cairo, Ill., to Detroit, Mich., for duty. October 31, 1895.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday, November 14th, at 8 P. M., by PROFESSOR CHEEVER. Subject: "Abscess." The profession are invited.

RECENT DEATHS.

BENJAMIN FANEUIL DUNKIN ADAMS, M.D., M.M.S.S. (formerly of Waltham), died at Colorado Springs, Col., October 28, 1895, aged fifty-six years.

DYER BALL NELSON FISH, M.D., M.M.S.S., died at Amherst, October 28, 1895, aged fifty-seven years.

BOOKS AND PAMPHLETS RECEIVED.

The Etiology of Rickets. By Samuel H. Friend, M.D., Milwaukee, Wis. Reprint. 1895.

Improved Public Bathing Facilities. Report of Special Committee presented at the special Town Meeting, Brookline, October 24, 1895.

Original Articles.

THE LEGISLATIVE PROVISIONS FOR INSANE CRIMINALS IN MASSACHUSETTS.¹

BY ARTHUR H. HARRINGTON, M.D.,
Medical Director of the State Asylum for Insane Criminals, Bridgewater, Mass.

If we study the legislation of the State of Massachusetts from an early period which makes provision for the insane, we shall find at quite an early date, as early in fact as 1816, a statute providing for the custody of certain persons belonging to the class called the "criminal insane." This statute provided that if persons, while being held for crimes and offences, were found to be dangerously insane, they should be committed by the legal authority "to prison." This law stood upon the Statute Book until 1832, the object of it being apparently to merely protect the community against *certain* dangerously insane persons.

The question of medical treatment does not appear to have entered to any extent into the care of such persons, but it must be remembered that previous to 1834, the prisons and gaols were the common receptacles for the *insane* as well as criminals, and the condition of the *insane criminal* may have been no worse than that of the insane in general who became public charges.

In the year 1832, an act was passed authorizing the commitment of the persons designated in the act of 1816 to the State Lunatic Hospital at Worcester, as soon as it should be opened. And soon afterwards provisions were made for the commitment of *all* penal cases becoming insane, to the State Lunatic Hospital.

The year 1832, then, may be regarded as marking the beginning of special legislative acts which have had in view the care and the cure of the insane of the convict and criminal class.

The provisions of these acts have placed the convict and criminal insane on an equal footing with all other insane persons who are cared for at the public expense, as far as affording them conditions which would contribute in the highest degree to their care or to the amelioration or cure of their mental disease. All of these provisions reveal a sentiment the equity of which no one will deny. The insane person, no matter what his moral status or antecedents or how he may be regarded by the light of the law, whether he is innocent of crime, or a convicted felon, is *one* sick and suffering, and the common sentiment of our time dictates that all such are equally entitled to care, to measures of relief or to conditions which will promote recovery from mental disease. Massachusetts has for many years responded fully to this sentiment; but she has done so by bringing the insane of all classes, without regard to their moral status, their antecedents, or their position before the law, together in the wards of our State hospitals. In no other way was it regarded as practicable by the State to give the insane of the *criminal* class the care which persons mentally diseased ought to have.

But actual experience has demonstrated, both from the material and moral standpoint, the disadvantage and the impropriety of treating under one roof the criminal and non-criminal insane. Abundant testimony to this effect is to be found in hospital reports.

The presence of criminals serves in a great measure to retard the diminution of the use of restraint of all kinds. Windows, bars, locks and doors must be so constructed as to foil ingenious attempts at escape. The comfort and liberty of innocent persons has often to be sacrificed for the sake of security, when there are criminals upon our wards who are still under sentence.

The injustice as well as the impropriety of this system, it seems to me, could not fail to force itself upon the minds of all who have seen upon the wards of our State hospitals those whose lives have been vicious and criminal, side by side with innocence, with respectability, and with those who have been honored citizens in our midst.

But we have only to go outside the statutes, to public documents in which questions relating to the insane are discussed, to find that for many years there has been a strong sentiment existing in Massachusetts, which has been at times an active one and which has called emphatically for some legislation which would relieve the hospitals of the convict and criminal class, and at the same time afford this class the same care and treatment for mental disease which they ought to receive and which they have received in the State hospitals. We shall see in what follows how this sentiment and this demand has been met by the State.

In the year 1864 an appropriation was asked of the Legislature to establish on the lands of the Tewksbury Almshouse an asylum for chronic and harmless insane. This was obtained. At the same time the advocates of an establishment for the insane of the *criminal class* urged an additional appropriation for the establishment of a receptacle for insane criminals at the same place and in connection with the chronic asylum. This plan met with great opposition from the projectors of the chronic asylum. Not that they were opposed to some provisions which should relieve the hospitals of the insane criminals, as far as I have learned, but that they *were* opposed to the plan for connecting it with the asylum for chronic insane at Tewksbury. However, a bill was passed authorizing an additional appropriation for the establishment of the said receptacle in connection with the asylum at Tewksbury, but the opponents of this measure appear to have done more effectual work after the passage of the act than before, for the asylum for chronic insane at Tewksbury was established, that for *insane criminals* was not. I am informed that *two years* were suffered to elapse without drawing upon the appropriation for the Receptacle for Insane Criminals; and according to the State law the act, in consequence, became void. And thus ended this bit of *negative legislation*. I cite this in order to show that we thus have on record more than thirty years ago the existence of the sentiment in Massachusetts which demanded the separation of the criminal and the non-criminal insane.

From time to time since 1864, the subject of separate provision for the criminal insane has been recurring, and has been forcibly presented to the State on many occasions. At one time "the impropriety and injustice" of thus associating the criminal and the innocent was brought to the notice of the Governor and Council. At one time the State Board of Lunacy and Charity were requested by the Legislature to make a report upon the subject. The Board of Lunacy, as well as the managers of the hospitals, had

¹ Read before the New England Psychological Society, September 24, 1895.

plans to propose; but when the subject came to the point of legislation, there were so many conflicting opinions that nothing could be accomplished, and the whole matter was allowed to drift.

These matters to which I have merely made reference bring us down to about the year 1886. I wish now to enter briefly upon a period extending from 1886 down to the present day, which in relation to our subject, might be called the *Period of Evolution at the State Farm* — of an institution which at the last session of the Legislature received the official name of "*State Asylum for Insane Criminals*." I wish to give you briefly the history of this period, for in no other way I think, can I bring to your minds so clear a comprehension of the present status of this asylum, of what has been accomplished in legislation the past year, and in how far there was a falling off in what was actually accomplished from the original purpose and desire. The facts from which I gather this history are found in reports and public documents, and I am also indebted for much information to Mr. H. M. Blackstone, the Superintendent of the State Farm.

If we go back to the year 1886, we shall find that the institution at Bridgewater, known as the Bridgewater Workhouse (the name has since been changed by legislative enactment to "*State Farm*"), comprised two departments: first, a workhouse department, to which were committed persons found guilty of vagrancy and common drunkenness, and to which they were sentenced for short terms usually; and, second, an almshouse department. These two departments still exist.

The number of the inmates, both of the workhouse and almshouse departments, varied greatly at different seasons of the year. In the winter months the number present would crowd the capacity of the institution, while during the summer months the number would reach low-water mark. The institution possessed a large farm, which with plenty of labor could be made very productive, but just at the season when labor was wanted the most, the able-bodied prisoners and paupers were away upon their "annual vacations," and would not return till fall or winter set in.

In casting about for some remedy for this condition the management of the institution observed that the State lunatic hospitals were complaining of overcrowding and its attendant disadvantages. The thought suggested itself that if authority could be obtained to make provision for some of the chronic and harmless insane at the State Farm, that the State hospitals would be willing to give up some of their numbers of the chronic and harmless class. It was expected that if this could be done, the State Farm would thus obtain one class of inmates whose numbers would remain nearly constant, who might be employed upon the farm advantageously to themselves, and besides relieving the hospitals to some extent of their numbers and giving to the State Farm a class whose labor could be profitably utilized, they could in addition to all this be supported at considerably less cost than in the large hospitals.

This plan was so feasible and the arguments so conclusive that the Legislature readily authorized the erection at the State Farm at Bridgewater (Chap. 219 of the Acts of 1886) of buildings not to exceed in cost \$50,000, and to accommodate not less than 125 chronic insane men of the pauper and harmless class. Work was begun at once. The buildings were completed the following year, and by the 1st of October, 1887,

there had been transferred thereto 130 patients of the quiet and harmless class. The buildings which were built within the appropriation, and which were found capable of accommodating 150 patients, were admirably adapted for just the purpose for which they were intended, namely, the care of the chronic and harmless insane; and as far as this class were concerned, the reports show that the "claims and predictions of the advocates of this movement were fully realized." But within one or two years of the first transfer to this asylum the management began to perceive that the interests of the State hospitals were being consulted in a greater degree, in the class of persons transferred, than had been anticipated by the State Farm people; for among the persons transferred began to come quite a large number of the *criminal class*. Thus far none of them could be said to be otherwise than harmless, but they were of a different stamp than had been looked for. They did not seem to evince that interest in farming which it was hoped they would; but, on the contrary, they seemed much more anxious to exhibit their skill as "fence-jumpers" and "lock-pickers," as I learn from one of the reports, than they did as agriculturists.

This contingency was one that had not been provided for in the plan of the buildings constructed, but it became necessary to provide for it at once, by some additional construction which would be more secure against escapes; but no sooner were the means to do this asked of the Legislature, than the authorities of State hospitals came forward, and urged strongly that if further appropriation were made for buildings for the insane at Bridgewater, that the transfers thereto should hereafter be wholly from the *convict* and *criminal* class, or those who were *criminal* or *vicious* in their tendencies. The appropriation for a stronger building was obtained, but the statute authorizing it (Chap. 89 of the Acts of 1888) assumed this form, "that there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding \$60,000 for the purpose of erecting and furnishing strong buildings for *insane male criminals*, providing for not less than 100 patients." This building was completed and occupied in the fall of 1890, making the capacity of the department for the insane 250.

The reports of the State Farm from this time on, contain frequent reference to the changing character of the inmates of the asylum. I will quote from the superintendent's report of 1892: "The pauper and harmless class of inmates with which this asylum first started, are fast disappearing. . . . It will be readily seen that very soon the entire number will be *convicts* and *criminals*. Of the present number (230), there are 127 convicts from the State Prison and houses of correction. The northwest wing, containing fifty strong rooms, is all the sufficiently strong accommodation we have for safe care and keeping of this dangerous class of men. The transfers to the asylum, are all now from the class, who almost without exception, should have a single strong room. To undertake their care in the older asylum buildings on the dormitory plan is positively unsafe and dangerous — escapes will be frequent — and too great hazard attends them." This same report asked for an additional building containing 75 strong rooms. The Legislature saw the necessity for this addition and this building is now nearly completed and is calculated to raise the capacity to 325.

One other stage in the development of this institution was reached by an act (Chap. 251 of the Acts of 1894) the important clause of which reads, "that no person shall be hereafter transferred thereto [meaning the lunatic wards of the State Farm] from a State lunatic hospital, except those transferred and committed to said hospitals from the State Prison, the Massachusetts Reformatory, the jails and the houses of correction of the several counties and the House of Industry of the City of Boston."

This act gave by statute law, it will be seen, a distinct class, namely, *convicts* and *criminals*, and those alone, to the lunatic wards of the State Farm.

Thus far we have seen the gradual transition of this department of the State Farm from its original plan, which contemplated the presence of only 125 insane of the pauper and harmless class, to an organized asylum for the congregation of over 300 of the most difficult class of the insane to care for and control. The originally lightly constructed buildings, with large dormitories and few single rooms, have had added to them strong buildings containing single rooms only, for the safe-keeping of insane men, who in many instances have long and even life sentences over them, and who sometimes show great ingenuity and persistency in circumventing and overcoming the means put in their way for preventing escape. Among them also are men who from their form of insanity are dangerous. Among them also, are those who respond to measures adopted for their improvement or even recovery.

Much praise is due those who have superintended the general management of this asylum and organized its details up to the time to which I have now brought this history, namely, 1894. But the *lay management* of the State Farm has not been slow in discerning that here was a field which was strictly a professional one, and desired to be relieved of all responsibility for the asylum department, and to place it where it properly belonged — on medical shoulders.

A complete separation of the insane department from the workhouse and almshouse departments by statute was recommended by the Trustees and Superintendent in their last report.

I quote from the Superintendent's report, as follows: "Inasmuch as its character [referring to the asylum department] has so radically changed, having in fact become one of the most difficult class of patients to restrain and manage and requiring expert medical direction, it is a serious question whether it should longer continue as a ward of the State Farm or be separated by statute law and managed distinctly as an independent department or institution." I also quote from the Trustees' report, as follows: "After a careful examination of the subject by the Trustees, as well as for reasons presented by the Superintendent in his report, it is deemed important and necessary that the legislative authority be given for the entire separation of the management of the insane from the other departments of the institution." During the legislative session of 1895 this matter was brought before the Joint Committee on Charitable Institutions in detailed form.

The plan most desired by the Trustees and local management was an entire sundering of the department for the insane from the rest of the institution under a separate Board of Trustees.

The plan of separation, however, met with decided opposition by the Legislative Committee, the main ob-

jections focusing around the policy which is opposed to the multiplication of institutions in Massachusetts. It was evident that there was no disposition on the part of the Committee to look favorably upon any measure which had as its basis a separation by statute law of the asylum from the rest of the institution. But with a view to relieving the lay-superintendency, the management still insisted that there should be some statutory enactment recognizing the professional factor in the conduct of the asylum.

A bill was finally drawn up which was a result of conference between the Legislative Committee, those representing the interests of the State lunatic hospitals, and those representing the interests of the State Farm. [I will say here that the work of formulating this bill was done by the Hon. Edwin B. Harvey, M.D., Chairman of the Committee on Public Charitable Institutions of the legislative session of 1895; by the Hon. Francis C. Lowell, Trustee of the Worcester Lunatic Hospital, and member of the Judiciary Committee of the legislative session of 1895; by Mr. H. M. Blackstone, Superintendent of the State Farm, and others.]

This bill received the recommendation of the Joint Committee on Public Charitable Institutions; it passed the Legislature without opposition, and became a law in June, 1895.

The provisions of this act, which follows, may be divided, first, into those which are of *local* interest and importance, and, second, into those which are of *general* interest and of *vital* importance to the State lunatic hospitals.

CHAPTER 390 OF THE ACTS OF 1895.

An Act to establish an Asylum for Insane Criminals at Bridgewater, and to provide for and regulate commitments and removals to the same, as follows:

SECTION 1. So much of the Hospital and Almshouse Departments of the State Farm at Bridgewater as was established for the care and maintenance of insane men under the provisions of Chap. 219 of the Acts of the year 1886, Chap. 89 of the Resolves of 1888, and Chap. 48 of the Resolves of 1893, shall hereafter be known and designated — the State Asylum for Insane Criminals.

SECT. 2. The Superintendent of the State Farm, subject to the approval of the Trustees, shall appoint a physician as medical director of the said Asylum, and shall fix his salary. Said director shall have the care and custody of the inmates of the Asylum, and shall govern the same in accordance with the rules and regulations approved by the Trustees.

SECT. 3. The insane male persons mentioned in Sect. 10 (insane convicts in the State Prison or Reformatory Prison), Sect. 12 (insane convicts in a house of correction or prison other than the State Prison or Reformatory Prison), and Sect. 14 (insane persons held in any jail for trial or for sentence, except for a capital crime), of Chap. 222 of the Public Statutes, and Chap. 320 of the Acts and Resolves of the year 1885 (any insane prisoner confined in the Massachusetts Reformatory), shall hereafter be removed to said Asylum for Insane Criminals instead of to a State lunatic hospital.

SECT. 4. The description of insane male persons mentioned in Sect. 15 of Chap. 213 of the Public Statutes (person held in prison on a charge of having committed an indictable offence, but not indicted by the grand jury by reason of insanity), and Sect. 16 (indicted person found to be insane at time of trial), Sect. 19 (person acquitted by reason of insanity), and Sect. 20 (person indicted for murder or manslaughter acquitted by reason of insanity), of Chap. 214 of the Public Statutes, may be hereafter committed or removed to the Asylum for Insane Criminals instead of to a State lunatic hospital as therein provided

when in the opinion of the court said insane persons are criminals or have been vicious in their lives.

SECT. 5. The State Board of Lunacy and Charity is hereby authorized to transfer to and from the State lunatic hospitals and the Asylum for Insane Criminals any of the description of persons mentioned in this Act, whenever in its judgment such transfer will insure a better classification of insane criminals.

SECT. 6. The insane persons heretofore transferred to said Hospital and Almshouse Departments and held therein in accordance with existing law, shall be held in said Asylum as though removed thereto under the provisions of this Act, and the State Board of Lunacy and Charity may hereafter transfer and commit thereto any inmate of a State Lunatic Hospital, of the Worcester Insane Asylum or of the State Farm (Prison or Almshouse Department) of the description of persons mentioned in Chap. 251, of the Acts of the year 1894 (persons committed from the State Prison, the Massachusetts Reformatory, the jails and houses of correction of the several counties, and the House of Industry of the City of Boston); and the provisions contained in Sect. 2 of said Chapter relative to the return of such persons to the prison or other (penal) institution, to which they were originally committed, shall apply to all persons removed to the Asylum for Insane Criminals under the provisions of this Act.

SECT. 7. Sect. 21 of Chap. 214 of the Public Statutes is hereby amended by inserting after the word "Hospital," in the first line of said section, the words, "or to the State Asylum for Insane Criminals," so that said section will read when amended, "any person committed to a State Lunatic Hospital or to the State Asylum for Insane Criminals under the preceding section (persons found insane and committed after indictment for murder or manslaughter) may be discharged therefrom by the Governor, by and with the advice and consent of the Council, when he is satisfied after a hearing of the matter that such person may be discharged without danger to others."

The radical feature of this act is that portion of it which provides for the commitment of the insane criminals directly to this asylum instead of to the State lunatic hospitals as heretofore. Also, certain of the so-called "court cases," which include persons arrested for crime, but found to be insane, will be committed directly to this asylum if the court determines that they "are criminals or have been vicious in their lives."

It is not claimed that this is a perfect bill in all respects. It was framed to meet the exigencies of the case, and we hope the future will remedy its faults.

Thus I think I have shown you clearly the successive steps by which this department of the State Farm has undergone a complete transition. The original plan of providing for a few chronic and harmless insane having gradually given way to the establishment of an asylum, the function of which is to be the custody and treatment of the insane criminals of the State. You have seen wherein there has been a failure to establish this asylum upon the independent basis recommended by the Trustees. There has been gained, however, to a considerable degree a needed recognition of the professional element in its management; but the greatest gain, I think you will all agree, is the relieving of the State hospitals of the presence of *all* the convict, and *some* of the criminal insane or so-called "court cases." This is a measure, it must be remembered, which an effort has been making to accomplish for thirty years. The State also by this provision avoids the expensive and roundabout way by which these cases have heretofore reached the asylum at the State Farm, namely, through the State hospitals.

This, then, is an account of the way up to the present time in which Massachusetts has met the demand for separate provision for her insane criminals; but the question now arises in the minds of those thoroughly acquainted with all the conditions, whether as regards the future there has been a complete solution of the problem. A few years ago the State Board of Lunacy and Charity, soon after the transfers to this asylum began to be of the criminal class, stated in their report as follows: "The question of a separate criminal asylum so long agitated has thus been practically settled, at no great cost to the State, and to the relief of all concerned." But even *now*, with what has been accomplished since these words were written, it seems to me that Massachusetts should be slow to congratulate herself that she has disposed of all the questions relating to the care of her insane criminals.

At present this asylum is *one* department of a large institution, the other departments of which differ widely from it; but on account of this relationship the asylum must necessarily be dependent upon general conditions which govern the institution as a whole, and in this particular case, moreover, the asylum is necessarily subject to general conditions which govern *two* State institutions, namely, the Tewksbury Almshouse and the State Farm—both being managed by the same board of Trustees. The practical result of such relationship will be, I think, with departments differing widely in their nature and needs, that one or the other may suffer, because first, general and relative conditions have to be considered.

For these reasons, then, Massachusetts, which has allowed the question of the separate care of her insane criminals to drift for many years and to almost take care of itself, may yet be brought face to face with conditions and problems which cannot be *properly* settled on any narrow basis. I think it is a question whether the problem can be properly solved short of establishing an institution upon a separate site, and in buildings planned and adapted from the beginning for the *care, treatment, and custody* of the *insane criminals* of the State.

NOTE.—At the meeting of the New England Psychological Society, September 24, 1895, at which this paper was read, the following resolution was passed:

"That it is the sense of this meeting that the State Asylum for Insane Criminals should be separated from the other departments of the State Farm, and placed under a special Board of Trustees."

A STUDY OF GUNSHOT WOUNDS WITH REFERENCE TO THE PROXIMITY OF THE WEAPON AT THE TIME OF FIRING.

BY J. N. HALL, M.D., DENVER, COL.,
Professor of Therapeutics and Clinical Medicine, University of Colorado.

OF very great importance in certain cases of shooting, and especially in deciding the question of murder or suicide, is the inquiry as to whether the weapon was held close to the body or not at the time of firing. Fortunately we are generally able to answer this question with considerable accuracy.

The factors of most importance in deciding this matter are the staining left by the grains of powder blown out with the ball, and the brand, or burning by the gases of combustion, when these conditions are to be found. When they are not present, the weapon must have been held at a considerable distance, for, if

fired close to the body, some marks would have been left to prove it. In the case of the shotgun, beyond the distance at which powder-marks may be seen, a study of the area covered by the wounds, owing to the spreading of the shot, is often of assistance, while in the case of the rifle, beyond the distance mentioned, an accurate judgment is impossible. As regards the shotgun, it has been stated that at such a distance that the shot would enter as one body and thus give rise to but one orifice, the body would certainly be burned. That this rule may be at fault at times has been pointed out in the instances which I have quoted elsewhere,¹ in which a whole charge of shot has remained intact even at a distance of a hundred yards, which phenomenon is explained later in this article.

But even if the wound be stained by the powder we still cannot form a very accurate judgment until we know something of the size and character of the weapon with which it was inflicted. With any hand weapon one could say that it had been held within a few feet, but a rifle or shotgun would cause as much staining and burning at two or three feet as a revolver would at a quarter of the distance. It is likely that the staining is less than in the time of the older writers upon this subject, for the quality of the powder has been improved very greatly, and the staining is less as the powder improves in quality, because the grains are more perfectly burned. Upon the fact that they are not completely burned depends the tattooing. A few grains, probably in process of combustion, are blown out with the ball, and although from their lightness they are unable to travel far; if the target be within a few feet, they are often found sticking in it, if the material of which it is composed render this possible.

If the grains of powder be too large for the style of weapon in which the shooting is done, as is often the case, many of them will be found about the ball hole in the target if it be at short range. If the powder be so highly glazed as to ignite with difficulty, the same result may be found. But we are not so much exposed to error in this matter as before the general use of breech-loading weapons, since the ammunition used in them, and especially in pistols, which more especially concern us, is commonly loaded at the great factories, where particular care is taken that each variety of shell shall be loaded with the exact size and quality of powder which shall burn most thoroughly, and thus give the best ballistic results.

Since revolvers are in common use which vary in size from .22 calibre to .45 calibre, and with barrels from two to eight inches in length, it is obviously impossible to lay down any precise rules as to the exact distance at which staining may take place. General limits may be established, but in any given case, one must be guided by experiments made with the same kind of weapon and ammunition used in the shooting. When we say "with the same kind of weapon," we mean not simply one of the same calibre and length of barrel, but of the same style of manufacture, as nearly as can be obtained; for the manner of construction of the weapon may exert as great an influence in determining this question as its calibre. The better-made weapon stains at a greater distance because it confines the gases more tightly and hence produces better ballistic results. Thus it may be stated

broadly, that the staining by grains of powder, and the brand, or burned spot where the gases of combustion have impinged, may be seen at a greater distance in case a well-made weapon has been used, and the brand excels in distinctness as well under these circumstances.

In making the experiments to determine these points, one should see that the weapon is in approximately the same condition as regards the amount of fouling in the barrel as the one with which the shooting was originally done. If the pistol has been used and not cleaned, the accumulated dirt is blown out with the first discharge, and may so obscure the target that nothing can be learned from it. There is also the danger that the smutting from this dirt may be confused with the staining from the powder. The bluish stain at the immediate edge of the bullet hole, which is seen regardless of the distance of the weapon, and which comes from the lead of the bullet, should not be confused with the appearances we are considering.

I know of nothing better for these experiments than the white blotting paper recommended by Dr. Fish, in his original article concerning the brand, although I have tried many different substances. Fastened to a box filled with fine sand, the shooting may be done with absolute safety, if one only avoids striking the nails with which the box is fastened.

In a general way it may be stated that the tattooing from the powder-grains, as well as the brand, will be more distinct as we approach the target, and as we use a heavier weapon, or a better-made one. If the muzzle is held within an inch or so of the target, however, there may be merely burning about the edges of the bullet hole, without brand or tattooing, all being merged with the blackening about the edges of the orifice. I have seen this appearance repeatedly in the human subject.

The brand is not generally seen with pistols at distances exceeding a foot, while with the shotgun or rifle, this distance is entirely too small, but varies with the size of the weapon and its load. At a distance several times that at which the brand may be found, the tattooing is still distinct, for the grains of powder are carried several times as far as the gases of combustion which produce the brand, being much heavier. The size of the tattooed spot increases up to the point at which it grows fainter, as the distance is increased, and the same rule applies to the brand, although I think to a less degree. The natural spreading of the powder-grains and the gases accounts fully for this phenomenon. But the tattooing has very different limits from those of the brand, the latter being found only above the bullet hole, while the tattooing is to be found all around it, but more above than below. The area covered increases as we increase the distance, as mentioned. The brand, however, although at very close range showing immediately above the bullet hole, retreats farther and farther above it as we increase the distance, until it becomes too faint to be distinguished. [The term *above* is used arbitrarily to indicate the direction toward which the sight of the weapon points, which is really above in all cases excepting when the pistol is turned to the right or left, or inverted, in making experiments or for other reasons.]

Inasmuch as the brand is superficial, it disappears

¹ "Gunshot Wounds in their Medico-Legal Relations." International Medico-Legal Congress, 1893.

as the wound heals, provided the wound has not caused death, whereas the tattooing, being largely beneath the surface, remains, although it becomes fainter, for some months, and assumes a bluish tint rather than a black one, which it has at first. If, then, the patient recover, the brand disappears, while the tattooing remains in the great majority of cases, always excepting those in which the true skin is not involved. It should be noted, however, that the majority of grains of powder in almost any case are merely lodged superficially in the epidermis, and spontaneously separate in a few days if not removed sooner, leaving absolutely no mark, so that the tattooing is generally very much less than would appear likely at the time of infliction of the wound. In one trial, in which the direction of the sight of the weapon at the instant of discharge was of vital importance, I was obliged to take the evidence of the attending surgeon, which fortunately was conclusive, as to the presence and location of the brand, while the tattooing was still perfectly distinct, many months after the shooting, as it remains to this day.

For a full understanding of the importance of the brand, an explanation of its nature and the reasons for its constant position will be in order. The entire credit for this explanation is due to Dr. Fish, who published it in the *Boston Medical and Surgical Journal* of October 2, 1884.

It was, of course, known that it was due to the burning by the gases of combustion, which really constitute a considerable flame, as may be seen by watching a gun fired after dark. Dr. Fish showed that the reason for its constant position toward the side of the bullet hole to which the hammer and sight of the weapon had been directed at the instant of firing was that the pistol rebounded because of the fact that it was supported below its centre, owing to the drop of the handle. The force of recoil being applied above the point at which the pistol is supported, the weapon tends to revolve around this point. In other words, the kick of the pistol throws its muzzle upwards. The gases of combustion, being necessarily behind the ball, tend to follow the new direction of the barrel, assumed because of the rebound. Hence they strike above the bullet hole. As proof of this explanation, Dr. Fish showed that if the pistol be confined in a vice, the brand is equally distributed around the orifice, regardless of the position of the hammer, for there can then be no rebound.

In some experiments some years ago, in connection with a trial for murder, I showed the jury that with a single-shot rifle, the brand shows slightly above the bullet hole, the recoil upward being much less than with a revolver at similar distance, because the line of application of the force passes much nearer the point of support of the weapon than in the revolver, owing to its much greater length. With the double-barrelled gun the brand shows slightly above and to the side of the barrel fired, for the barrel is a little to one side of the centre of the weapon. This statement, naturally, does not apply to double-barrelled weapons in which one barrel is above the other, as in certain rifles and combination guns.²

With this explanation it is easily seen why the brand is farther from the bullet hole, as we increase the distance from the target. The angle of rebound

remains the same, but the line upon the target which subtends this angle increases with the distance and the brand is always at the upper end of this line. So far as I have studied, this point with its explanation, has never been made before.

Since the largest pistols equal if they do not surpass the smaller guns in ballistic power, it seems to me useless to try to lay down rules applicable to any case, as to the distance at which the brand and the tattooing are to be found, and especially as these points vary with the kind of ammunition and the style of manufacture of the weapon. I shall therefore give only the results obtained with the .22 calibre revolver, which may be taken as a guide in similar experiments with other weapons if the facts concerning them be desired.

Using the "BB" or fulminate caps, which contain no gunpowder, but only the fulminate of the cap itself, the brand may be seen at times distinctly up to three inches, resembling that from gunpowder. The staining around the brand, however, is of a bluish or slate-colored tinge. The tattooing may be seen up to about a foot, from unburned residue, but appearing somewhat like the marking from powder. The blotting paper was not fired at the shortest distance tried, two inches, although at this distance there were seen burned spots on the paper where the fulminate had burned it superficially, although not to such a degree as to give rise to a flame, or to cause the fire to continue.

With the common .22 short cartridge, which uses about three grains of powder, at two inches the paper was fired but once in four trials and then but slightly. The brand showed very distinctly upon the edge of the bullet hole, in the direction toward which the hammer was held. At four inches the brand had retreated distinctly from the edge of the orifice and showed with great plainness. The paper did not fire in any instance at this distance, nor at greater ones. The tattooing was distinct, and more above the bullet hole than below. At six inches the brand was fainter and farther removed from the orifice. At eight inches it was not distinct enough to be made out absolutely in all cases, while at a foot it had entirely disappeared. But even up to twenty-four inches the tattooing showed to a slight extent.

With American wood powder, loaded in the short cartridge, the paper fired at two inches on one occasion only and never at a greater distance. The brand was tolerable distinct at two inches, faint at four and not seen at greater distances. The tattooing was less than with black powder, and at a foot resembled that from the latter at two feet. The staining was rather slate-colored than black.

With Schultze powder the brand is seen but faintly as compared with the brands from the other powders and four inches was the greatest distance at which it could be made out. The bluish staining was distinct, but no real tattooing was found, for in this powder the combustion is much more perfect than in those mentioned. The staining is apparently made by the gases alone and practically disappears at six inches. Unless this powder be ignited by a strong primer, and be also tightly confined, by means of wadding or otherwise, it is not well burned and then portions of the unburned residue may be seen sticking about the bullet hole, but of flesh color or brownish shade. The paper was not ignited in any case, even at two inches.

With larger weapons these distances are materially

² This case was reported in the *Boston Medical and Surgical Journal*, August 14, 1890.

increased, as we increase the power of the weapon, but, although I have made many experiments in this line, the record is too long for insertion here. In any given case, knowing the character of the weapon, the ammunition and the points particularly in dispute, one may easily determine these points by experiment. With some of the larger revolvers, tattooing to a slight extent is possible up to even six or eight feet, it is stated, although I have never seen it at quite so great a distance.

In the case of the rifle or smooth-bore gun, up to the point at which the brand and tattooing disappear, experimental research as just indicated would throw much light upon the question of the distance at which the weapon was held. Beyond this distance, I do not think any conclusions could be arrived at in any given case worthy of confidence, excepting that, at a very great distance, there might be evidence from the wound that the ball was nearly spent, or had turned sidewise, which a rifle bullet from a clean gun practically never does, unless at great range. Such a case could scarcely call for a medico-legal investigation. As to the peculiar appearances presented by wounds from rifle bullets, they could not be definite enough to be of any value in this connection.

In the case of the rifle or revolver, there is one element not yet considered which might possibly, under certain circumstances, be of value. I refer to the fact that, when the barrel is very foul, the ball may turn sidewise in its course in going a very short distance. "Leading," as the deposition of lead and smut is called, is especially a cause of this trouble. The chief use of this knowledge would be in proving that this turning sidewise of the bullet was not to be taken as evidence that it had become spent, inasmuch as I have even seen it occur with a 40-82 Winchester rifle at a distance of forty feet, repeatedly, because of the presence of dirt in one groove just within the muzzle. I have shown elsewhere that this turning may occur within six inches of the muzzle in small pistols of poor quality. "Leading" at the muzzle is much more effective than if further down the barrel, in producing such a result.

With the shotgun and smoothbore, if of large calibre, especially, so that a heavy wad is used in loading, it is possible that one might occasionally find that the wadding had struck and left a mark which would be of use in this connection. I have seen many of these marks made by shotgun wads at close range in "patterning" shotguns, but not at distances much exceeding five yards. I have, however, often seen them travel several times this distance in the air in shooting upward, or at the trap. But in any case it is likely that one would get a better idea of the distance from the effect of the shot upon the person, than from so uncertain a matter as this.

The spread of the shot from a shotgun must be determined experimentally under conditions similar to those under which the shooting has been done. The examiner should be cautioned that the shot may "bunch" and all strike together up to twenty, forty, or even a greater number of yards, in using the breech-loader, owing to the fact that the paper-shot shell used is occasionally detached from the metallic base, and, being expelled with the shot, holds it together. From this cause I have known the head of a rabbit to be taken off clean, as if by a rifle ball, at such a distance that ordinarily one would have expected only a few

shot to strike the animal's body. A friend hunting with me shot into a flock of ducks at about one hundred and fifty yards, merely to cause them to fly in hope of getting a shot. As he used ordinary duck-shot, he was amazed to find that he had crippled three of them, but, in reloading, he found only the base of the shell in the barrel fired. The explanation was then easy. The shot had been held together until just before the flock was reached, when, bursting its confining shell, it scattered and did its work, as mentioned. Several devices are upon the market which cause shotguns to shoot closer at long ranges than otherwise, as the linen-thread-wound cartridges and the buckshot strung upon a stout cord or wire. Other devices cause the shot to scatter rapidly for certain kinds of close shooting, even in choked guns. None of these are, however, commonly used.

In one case submitted to me in which a man had been killed with a shotgun, and no burning or tattooing was found, the shot had struck only the posterior cervical region, producing instant death from injury to the cord. Although I had no opportunity to examine the weapon in this case, it seemed to me that it was perfectly safe to state that the range must have been between six or eight feet and fifteen or twenty feet, as judged by the spread of the shot which had struck the neck, for an ordinary load had apparently been used.

The early authorities thought that some idea as to the distance at which a weapon had been held might be gained by noting whether the ball had penetrated or not,—if it had not, it being assumed that it was because it had lost its force before striking the body. There was no doubt some reason, in certain cases, in this, when the comparatively inefficient weapons of a century ago were used, but at this time no dependence whatever is to be placed upon such evidence. Military surgeons quote examples in which a rifle ball has passed through two men and lodged in the body of a third, even at a considerable distance, and I have three times known of three antelope being killed by one ball, and once of three deer in similar manner. On the other hand, I have known a heavy winter overcoat to stop three bullets fired at distances varying from five to ten feet, from a cheap revolver, in an attempted homicide, all three dropping to the floor upon removing the overcoat, to attend to wounds of parts not covered with this garment.

Under certain circumstances one may find that the clothing of a person shot at has been fired by the flame issuing from the weapon at the instant of discharge, and burned to a greater or less extent. This is proof that the shot must have been a close one, although rags used as wadding may set fire to grass, for instance, at a distance of some yards. This latter contingency could scarcely be of moment in a medico-legal investigation. With a .38 calibre revolver, using the Smith & Wesson cartridge, I found, in experimenting to learn the distance at which a cambric night-dress might be fired, that, at a distance of six inches or a little over, it was burned every time, so as to necessitate extinguishing the flame to prevent the destruction of the fabric. At nine inches it did not ignite on one occasion, although it did on many others, and at twelve inches it ignited but once out of several trials. It has been shown that cotton-batting will ignite at a considerably greater distance. Inasmuch as this firing depends so much upon the size and char-

acter of the weapon, and the firmness of texture of the fabric tested, as well as its other qualities, it would be best, in each individual instance, to try the experiments under the exact conditions known to exist, so far as they could be learned, rather than try to lay down any arbitrary rules in this connection.

It should be noted, and I have not seen the distinction made before, that this firing may take place from two separate and distinct causes: first, from the burning gases at the point where the brand shows most plainly, and, secondly, from separate partially-burned grains of powder or bits of wadding which have struck the fabric and adhered. The latter variety of firing occurs at considerably greater distances than the former, for the ignited solid bodies may be blown to much greater distances than the gases will traverse. Firmly woven fabrics fire with difficulty from the gases, although the separate fibres of such cloths as have a nap ignite readily. The burning grains of powder or wadding easily ignite any cloth that I have tried, however, if they obtain a lodgment.

I was once asked in a trial for homicide, how I accounted for the fact, that in this case, a night-dress of fine cambric had been fired, and burned extensively, while the skin showed no traces of powder-marks. The wound had been received upon the tip of the left shoulder, from behind, the ball glancing downward and causing death. From this wound was known, approximately, the direction of the weapon when fired, but not its distance, nor the direction of its hammer, as the shooting occurred during a struggle. After considerable study and experimentation, I stated that, in my opinion, this might be accounted for in two ways, or possibly by a combination of the two. If the weapon had been held with the hammer upward, as in ordinary shooting, the recoil of the weapon would have tended to make the greater part of the staining and tattooing above the wound, and, as the latter was on the very tip of the shoulder, no part of the body could have been in position to receive the brand or much of the tattooing. Further, by firing a similar pistol at a similar fabric, it was shown that, when the angle at which the weapon was held was much less than a right angle, the cloth deflected the grains of powder from the white blotting paper underneath. At twenty degrees the paper showed a few slight indentations under the points at which the powder-grains had struck the cloth, as it lay immediately upon the paper, yet the latter showed no dark stain, although long black marks appeared upon the cloth, where the grains had glanced along its surface. The original garment in this case had been too much burned to be of use. My own opinion is that both of the factors mentioned contributed to the result in this case. An obvious inference from what has just been considered is that the markings and burnings upon clothing should be most carefully studied, in arriving at a conclusion as to the distance at which a weapon has been held from the person injured.

Many instances have been recorded tending to show that absolute contact with the body may prevent the penetration of the skin even by the bullet. This was the probable explanation of non-penetration of the skin of a boy's hand in a case which I have quoted elsewhere,⁸ and of certain cases of attempted suicide in which only a contusion of the skin at the point of contact of the pistol's muzzle existed, the ball dropping

to the floor. I have seen nearly a dozen weapons of one kind or another which had been exploded by obstructing the muzzle in this or some other way, especially by the lodgment of snow or mud in the barrel, and hence hesitate to experiment upon a matter attended with so much danger. In my case quoted, the region about the wound was blackened, without distinct brand or tattooing.

Clinical Department.

CLINICAL EXPERIENCE IN ABDOMINAL SURGERY AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY J. COLLINS WARREN, M.D.

THE following cases have been collected from the record-books of the hospital, and represent the bulk of the work performed during eight months of service.

Although it may not cover all the operations done during that time in my service, it represents fairly well the variety of the problems which present themselves to the hospital surgeon. An attempt has been made to follow up the subsequent histories of the cases, a task of no small difficulty. For the sake of avoiding needless repetition a great many of the cases are not reported, but a careful selection has been made from each class to show the different types of cases. It ought to be stated, however, in this connection that no case has been withheld on account of its unfavorable termination. I am much indebted for notes of cases and reports of the results to Drs. Tenny and J. S. Stone.

I regret that the facilities for bacteriological research at the hospital are not such as to enable me to make this side of clinical study a feature of the article. I am happy to be able to state, however, that sufficient funds are now in possession of the trustees to build and equip a pathological and bacteriological laboratory worthy of the hospital.

The preparation of cases for abdominal surgery has not changed materially within the last two years. The methods differ slightly in the different services.

The diet of a patient, if sufficient time be given for preparation, should be of such a nature as to leave as slight an amount of residuum in the lower bowel as possible. Liquid food without milk—such as beef-juice, broths and also eggs—seems best suited for this purpose. No active cathartics should be allowed the night before the operation. If it is thought best to clear out any fecal residuum that may be of long standing a half an ounce of castor oil may be given forty-eight or thirty-six hours before the operation. An enema is all that should be attempted the night before or the morning of the operation.

The preparation of the abdomen takes place the afternoon preceding the operating day. The skin is shaved, and then scrubbed with soap, hot-water and ether. A soap poultice (absorbent cotton covered with gauze soaked in soft soap) is then applied for two hours. The part is then scrubbed with ether, corrosive sublimate (1-3,000), and a corrosive poultice of the same strength is applied and allowed to remain on over night, to be replaced by a fresh poultice in the morning.

⁸ Boston Medical and Surgical Journal, May, 1895.

ACUTE APPENDICITIS.

There were in all 15 cases of this affection in which an operation was performed, with two deaths. There were a few cases admitted to the ward which recovered without operation. Five cases are selected as instructive examples of the operative treatment. In the case of J. S., the prompt interference enables one to see the condition of the appendix before the stage of suppuration and the rapid recovery which usually follows in such cases. J. M. shows well the efforts of nature to shut off the pus from the general peritoneal cavity, and the success attending efforts to wall off that cavity with sterilized gauze during the evacuation of the abscess. The next two cases, N. H. and M. G., show conditions under which it is difficult to find the appendix. In the case of N. H. the danger of leaving the appendix is well shown. Although an appendix, if left behind, is a constant menace to the patient, the danger of breaking down the protecting barrier is one that should always be carefully considered in difficult cases. The case of J. C. illustrates the danger of delay in operation. When he was admitted to the ward there were two cases convalescing from attacks in which no operation had been performed, and in one of these the symptoms resembled closely those of J. C.

In none of these cases is there a report of hernia following the operation.

In suppurating cases the stump of the appendix was tied, usually with stout catgut ligature, in order to avoid the discomfort of a slowly healing ligature sinus.

In the recurrent cases, and in those acute cases which have not come to suppuration, the ligature was tied with silk, and the lumen was disinfected with strong carbolic acid. The edges of the stump were then stitched together, and the stump itself finally buried in a fold of peritoneum.

A fold of iodoform gauze was passed down to the end of the stump in suppurating cases, and was surrounded by a wall of sterilized gauze. This was usually allowed to remain in from three to six days. In acute cases a free incision and a liberal packing of the wound has appeared to me preferable to a partial closure by stitches.

Operation, Recovery.—J. S., nineteen years of age, entered December 1, 1894, with a history of high epigastric pains, with colicky pain in whole abdomen of twenty-four hours' duration. Went to bed. Knees were drawn up, and he could not lie on his right side. Vomited (greenish) several times during the night, but no chills. Had morphia during night. General tenderness. Passed no gas. Bowels moved two days ago. Never had a similar attack before.

At entrance lies on right side, with knees drawn up. Pain seems to be paroxysmal. No collapse. Temperature normal, pulse strong and full, 96. General abdominal tenderness and tympany. Six ounces of urine drawn by catheter. No cake. Rectal examination negative. Tenderness more marked in left iliac fossa. A high enema of suds and turpentine brought down good movement and some gas. He was prepared for immediate operation. The regular incision, about three inches long, was made over McBurney's point. There was no edema of the abdominal wall. The omentum was adherent. A very little serum was found in the abdominal cavity. There was no intestinal injection. The appendix was found behind

the cecum and doubled upon itself; the loops were adherent, and the whole organ was firmly attached to the cecum by adhesions, which had to be cut in order to apply a ligature. The appendix was found to be normal otherwise, and contained no concretion. It was removed, the stump cauterized and hidden in a pouch of peritoneum and bowel wall, and retained there by intestinal sutures. Continuous silk sutures to peritoneum and silkworm-gut to external wound. One-sixth of a grain of morphia subcutaneously was given. At 11.30 P. M. much pain; lying on right side and distention marked. Was given morphia, cracked ice and milk and lime-water. Had two good movements, and passed considerable gas with relief of all the symptoms. Later had some diarrhea, but otherwise made a good recovery. The wound healed by first intention; and December 15th, fourteen days after the operation, he was discharged well.

July 3, 1895. Reported. Has been perfectly well. No further attacks of pain. Has no tenderness. After walking much has soreness in scar. No evidence of hernia. Scar perfectly firm and solid.

Operation, Recovery.—J. M., twenty-three years of age, entered October 2, 1894. Four days ago she had a sudden, sharp and constant pain in upper abdomen. Constant vomiting of greenish material. No chill, but chilly sensations. Small defecation next morning. Is habitually constipated. During the next three days small movements obtained by enemata, but without relief to the pain. On the second day the pain went to the lower abdomen, and by the third day was localized in the right iliac fossa, where there was marked tenderness. No vomiting since first night. Now, pain and tenderness in right iliac fossa. The cheeks are flushed and the abdomen moderately distended. Skin in right iliac region mottled with red. Temperature on entrance 102.8°, pulse 120, respiration 30. In the right iliac fossa there is a distinct mass, dull on percussion and very tender. This mass extends well around into flank. Vaginal and rectal examination are negative. Prepared for immediate operation.

An incision, four inches long, was made through McBurney's point. The deep layer of the superficial fascia was found to be edematous. On opening the thickened peritoneum, a rounded, grayish mass presented, composed of inflammatory tissue. The general cavity was carefully walled off with sterilized gauze and a small incision was made into the fluctuating tumor. Foul gas and pus escaped and was quickly sponged away with small sterilized gauze sponges. The cavity was then freely opened and flushed with sterile water. In the wall was found the gangrenous appendix, which was removed, the base being tied with catgut ligature. The infected tissues were wiped with peroxide of hydrogen and with a weak solution of corrosive sublimate, they were then dried and packed with iodoform gauze. No sutures. Dry dressing and swathe. All ligatures of catgut.

During the night the rectal tube was used, with great relief to abdominal pain. The second day catamenia set in, and continued four days. The bowels were moved by enema on the third day; all gauze out next day. On seventeenth day slight pain (incipient phlebitis) in right thigh relieved by cotton wrapping.

Cultures taken from the interior of the appendix and grown upon gelatine showed a pure culture of the bacillus coli communis.

The wound granulated well, and on November 3d, one month after the operation, she was discharged well with a linear scar.

July 5, 1895. Does not spare herself at all except in lifting. No hernia. "In perfect health."

Operation, Recovery.—N. H., entered December 12, 1894, age nineteen, single. Two weeks ago, after an evening meal of cold corned beef and sweet cider (never indulged in before), she awoke with pain in belly—general. Vomited, but had no chills. Went to bed. (Bowels moved before she vomited.) Has grown steadily worse.

The abdominal muscles are rigid. A dull area, with corresponding cake, extends from median line near navel to right iliac fossa. Very tender here also. By rectum local tenderness, but no bulging. Rest of abdomen tympanic. Temperature 101.8°, pulse 108, respiration 28. Facies not characteristic, but very pale. Immediate operation.

Incision below and outside of McBurney's point. Muscles edematous. Bowel walled back with gauze. Everything about cecum and appendix a mass of adhesions. Working down and inwards about four ounces of foul green pus were freed, and wiped away with gauze and corrosive. Appendix was not found. An iodoform wick was inserted and the wound dressed.

The subsequent history was that of a granulating wound. Myrrh wash was used as a dressing, and on January 17th, thirty-six days after entrance, she was discharged well, wearing an abdominal supporter.

July 10, 1895. In April had an attack of pain across abdomen; great tenderness above the scar. The pain was so severe that she could not move in bed. There was very frequent black vomiting for two days. The tenderness lasted for a month; still, on deep inspiration, slight pain in this place. Health at present fairly good.

Operation, Recovery.—M. G., forty years old, entered October 28, 1894. Six weeks ago, while pregnant, had intermittent pains in right iliac fossa, without vomiting or chills. Bowels regular. Child born three weeks ago. Nineteen days ago, two days after birth of child, had chills, abdominal pain (worse on right). No vomiting or other symptoms. Bowels regular. Next day pain localized in right iliac fossa, and since then has been sharp and intermittent. Nothing else now except pain and tenderness. On entrance her temperature was 101.5°, pulse 100, respiration 36. There was no abdominal distention, but dulness in the right iliac fossa, where a hard, movable mass could be felt. Tender on pressure. Vaginal examination negative. By rectum retroflexed uterus felt. She was prepared for operation, and three large dejections passed without relief to the symptoms. On the next morning, all symptoms having increased, the operation was performed.

On opening the abdominal cavity there were no signs of peritonitis. Behind and outside of cecum—retroperitoneally—was a large fluctuating mass, which, after gauze protective had been placed was cautiously incised through peritoneum, and pus allowed to flow out in small quantities at a time. A large amount of very foul pus was thus evacuated and the cavity flushed out with boiled water. No search was made for appendix, as it was incorporated in the abscess wall. The wound was packed with iodoform gauze and a dry dressing applied. After the operation a stimulant enema with salt solution, was given,

as the operation had been attended with considerable hemorrhage. She made a good recovery from the ether and did well. November 1st, the wound was dressed, and found to be discharging a foul, chocolate-colored fluid. Syringed with styrone and repacked. November 3d, bowels moved freely. The further history is that of a granulating wound. A rather obstinate constipation was relieved by cathartics; and on the twenty-third of December, fifty-five days after the operation, she was discharged well, with a very small granulating wound, which had entirely healed by January 8, 1895.

July 2, 1895. Very well since discharge. Back a little weak. Slight bulging on right side, she thinks.

Perforation, Operation, Death.—J. C., aged thirty-nine, entered November 18, 1894. One year ago he had symptoms suggesting the passage of a calculus through the left ureter, but never passed any gravel.

Four days ago began to have dull pain radiating from median line of abdomen to right side. He worked the next day (Friday), but Saturday was obliged to go to bed, where he remained until brought here. Although he was somewhat nauseated Friday night and Saturday morning, there has been no vomiting and no chills. His bowels moved on Friday morning. He had considerable sharp pain incident to the jolting received in being brought to the hospital. His entrance temperature was 101° F., pulse 100, respiration 32. He did not appear very ill, and was considered a good case to watch. On the second day of his entrance to the hospital (the fifth of his illness) his temperature dropped and he took liquid nourishment well. The next day the temperature reached normal and he had no pain, although the abdomen was still somewhat rigid and there was slight tenderness in the right iliac fossa.

At 2.30 A. M., November 21st, he was reported for sharp pain relieved by the application of hot-water bottles and the internal administration of ginger. At 5 A. M. his pulse and temperature were rising, and he was in constant pain, mostly in the right side, with considerable perspiration. He became somewhat more comfortable later, but at 11.30 A. M. the operation was performed.

Free, thin, greenish pus was found in the abdominal cavity, and the intestines were covered with flakes of fibrin. The appendix was found perforated near the base, and a concretion was found lying free near it. The appendix was ligatured with silk and removed, the stump being hidden in flaps of peritoneum and buried in a fold of intestinal wall sutured over it. The abdomen was carefully wiped with sterilized gauze moistened with a weak solution of corrosive sublimate, a drainage-tube surrounded by iodoform gauze was pushed deep into the pelvis.

The patient failed steadily after the operation, although at 11 P. M. he became conscious and rational. At 2 A. M., November 22d, he became delirious, and at 6.53 A. M. he died.

RECURRENT APPENDICITIS.

There were three cases operated upon between the attacks. One of these is selected as an example of what may be done in the way of temporizing when it is desired not to operate during the attack. In one of the other cases the patient reports six months after the operation, "similar continual pain, though less severe than before the operation. No hernia." In a

third case the appendix was found to be normal, and the discovery of a blue line on the gums shortly after the operation suggested lead poisoning as a possible source of the abdominal pain.—The desirability of making a careful differential diagnosis before sending such a case to the hospital need hardly be emphasized. The operation "between the attacks" has in my private practice been followed by the most satisfactory results.

Removal of appendix, Recovery.—The patient, a waiter, twenty-three years old, entered the hospital October 18, 1894. Nearly two years ago he had a bad "colic," accompanied by constipation and vomiting. He was confined to bed for one day, and the next day resumed work. A year later a similar attack, but less severe, kept him in bed for two or three days. Since then he has had several attacks, with constantly diminishing intervals. Constipation with each attack, vomiting with first only. Last November was in hospital three days with attack, but refused operation. Chills only in that attack—last November. Each attack left a right iliac tenderness.

Two days ago, during night, had general abdominal pains, slight at first but gradually increasing until morphine was required. Pain persisted, and last night had vomiting and chills. One small dejection. Came here in ambulance because too weak to walk. Good development and nutrition; tongue coated; dull and stupid. No abdominal distention, no dulness, no cake. General tenderness. No spleen. Rectal examination negative. He was poulticed with sulpho-naphthol, and in the next ten days became much better. Nearly all symptoms disappeared, and October 29th he was operated.

The abdomen was opened at McBurney's point, and an appendix showing very slight signs of inflammation was exposed. The appendix, which was long, small in diameter, and with very few adhesions, was removed. A silk ligature was placed about the stump, which was touched with the cautery. The cecum was sutured over stump from each side. The peritoneum was closed with continuous silk, and the external wound with silkworm gut.

On November 6th all sutures were removed. The wound healed by first intention. Uneventful recovery. Discharged well November 17th, nineteen days after operation.

Patient reported in June, 1895, that there have been no symptoms of the former trouble since the operation.

(To be continued.)

SARCOMA OF THE CHOROID.

BY W. A. PARKER, M.D., SPRINGFIELD, MASS.

MRS. H. W. P., of Holyoke, age thirty-two, came to me November 5, 1894, complaining of pain and loss of sight in the left eye. The vision had been gradually failing in this eye for a year till then, when she had only perception of light. In addition, she had had very often sensations of dazzling light, felt momentarily. A feeling of soreness, or "a bruised feeling," as she described it, had gradually developed, until it became very distressing, and forced her to apply for treatment. The pupil in the left eye was somewhat larger than that in the right; the anterior chamber was much shallower, and the tension of the left

eyeball was perceptibly increased R. V. = $\frac{20}{20}$; H., 0.50 D. L. V. = Perception of light.

Ophthalmoscopic examination showed a normal condition in the right eye; in the left, nothing but a detached retina could be seen.

The symptoms of detached retina produced in an eye not myopic and not injured by a blow, shallow anterior chamber, increased tension and pain pointed to the possible, if not probable, presence of an intra-ocular tumor; the patient was too young to have *primary* glaucoma. I advised enucleation. It seemed to me that, even if there were no tumor, it would hardly be a mistake to remove an eye which was hopelessly blind, and which was causing much suffering. The patient refused the operation, and went to the Manhattan Eye and Ear Hospital, New York, where the eye was removed by Dr. Webster.¹ I add the notes taken at this hospital in Dr. Webster's service.

DR. WEBSTER'S REPORT.

Phorometer.—Right, $\frac{1}{2}$ D., 105°, with the rule. Left, $1\frac{1}{2}$ D., 75°, with the rule. R. V. = $\frac{20}{20}$; Hm., 0.50 D. L. V. = Perception of light.

Ophthalmoscope.—Right, normal. Left, anterior chamber very shallow; a reflex from nasal side back of lens, as though from a sarcoma of the choroid and ciliary body. Has had a good deal of pain in both eyes. The pain, the bulging forward of the iris, and the red and immovable swelling on the nasal side of the fundus suggest a tumor. There is no history of tumor in the family. Enucleation advised.

I advised the patient to come to the Manhattan Eye and Ear Hospital for the enucleation, where I removed the eye, along with over a quarter of an inch of the optic nerve in order to include, if possible, any elements of the supposed tumor that might be following the nerve back into the cranium.

Diagnosis, January 23, 1895.—Detachment retina, tumor (?).

Treatment. Dr. Webster enucleated eye in usual way. Dressed and bandaged. There was very little injury to orbital structure. On 24th, bandage removed; no ecchymosis; cleansed and dressed with patch. On 25th, slight ecchymosis at inner canthus. On 27th, looks well; cleansing continued. On 30th, discharged. O. D. = $\frac{20}{20}$. O. S. = 0.

PATHOLOGIST'S REPORT.

Gross.—About the size of a child's eye; normal in appearance externally. On section an albuminous, viscid, brown fluid exuded from between choroid and retina. The retina was completely detached and formed a band in the centre expanding above into a fan-like process. A tumor was situated in the choroid on the lower and outer side of the interior of the eye, occupying about one-fifth of the interior.

Microscopically, a section of the tumor reveals spindle-cells of uniform size with oval vesicular nuclei running in irregular bundles, also a few scattered pigmented cells. Small vascular sinuses were scattered throughout the section containing blood globules and pigmented leucocytes. The fluid contains various-sized lymphoid cells, most of them pigmented, size about one two-hundredth to one three-hundredth of an inch. Diagnosis, spindle-cell sarcoma.

¹ October 13th, the patient has been under my observation since she returned from New York, and till April 30th there had been no positive or suspicious signs of secondary growths, but since that time she has had at times severe and almost intolerable pain in the left side of the head. W. A. P.

Medical Progress.

RECENT PROGRESS IN ANATOMY.

BY THOMAS DWIGHT, M.D.

THE VERMIFORM APPENDIX.¹

DR. R. J. A. BERRY, whose studies on the cecum have been noticed in a previous report, now discusses the appendix, in part from the results of one hundred observations of his own, in part from those of others. He finds that the average length, in his cases is 8.3 cm.; but taking it from the works of others also, he finds it 9.2 cm. He then considers the relation of the length to the age and sex, with results which do not strike us as very conclusive. In his one hundred cases the average male length is 8.6 cm.; and the average female 8.0 cm. Even if the series were larger, an average difference of 6 millimetres is hardly worth talking of. The main fact, however, is in accord with Bryant's views, who states that the male appendix is about 1 centimetre the longer; on the other hand Fennell says just the opposite. Berry finds the appendix longest between the ages of twenty and forty, but again the differences are not great, nor the series large. It is important to know that very long appendices may occur in children. Twice Berry measured an appendix of 13.3 cm. (his longest), and one of them occurred in a boy of five. He had but one case between ten and twenty years, and that measured 11.5 cm. He finds the average diameter 6 mm. at base and centre, and 5 mm. at apex. Bryant had, apparently, found the same. Dr. Berry measured the diameter in only 55 cases, of which 30 were males. The male average is 6 mm., the female 5 mm. The conclusions are satisfactory as to the relation of the appendix to the cecum. According to our author, "In over 90 per cent. of cases the appendix will be found arising from the postero-internal aspect of the cecum at a point 1.7 cm. below the lower border of the ileum just where that viscus enters the large gut."

The valve at the opening of the appendix is, in the opinion of Dr. Berry, with whom we incline to agree, an inconstant structure and of no importance whatever. He quotes Struthers as follows: "When the fundus of the cecum is full, or when the body lies on the back or on the left side, there is nothing to prevent semifluid cecal contents raising the valve and passing into the appendix." That the appendix is obliterated very frequently, especially late in life, is a doctrine which has spread of late years. Dr. Berry subscribes to it, stating that as the appendix is essentially a lymphoid apparatus and as lymphoid tissue atrophies at a certain time, this is what is to be expected. It is not quite clear, however, why an atrophy of the lymphoid tissue, through which the walls should become thinner, should lead to their agglutination. This appears to imply some additional process.

A PECULIAR CECUM AND APPENDIX, WITH REMARKS ON PERITONEAL POUCHES.²

Professor Fawcett observed a very small, pointed cecum, bent backwards behind the colon, so as to be hidden, from which a long appendix ran up behind the left layer of the ascending mesocolon, and bound by it to the whole length of the ascending colon. The ap-

pendix, separated by a slight constriction from the cecum, was three-quarters of an inch in width to near its upper extremity. (From its position and from a drawing it is clear that this means to near its blind end.) The three muscular bands extended a little more than half-way along the appendix.

This is certainly a very rare case, but it is on account of the remarks on the peritoneal pouches that we have included it in this report. There were no peritoneal pouches in this region, but a duodeno-jejunal one, large enough to receive the whole index. The author points out a very curious relation between the last mentioned pouch, and those about the cecum, namely, that the presence of one implies the absence of the other. He says, "In the last 200 subjects I have had under observation, I have always on opening the abdomen, looked at once for the cecal pouches, and am now able to predict with certainty the presence or absence of the jejunal pouch, and to form some opinion of its probable size." The clue should be sought in the history of development.

THE FORM AND RELATIONS OF THE SPLEEN AND KIDNEYS.³

Professor Cunningham has done good work in studying the shape and relations of abdominal organs by methods calculated to show them as they really are during life. Sometimes he has employed hardening injections, sometimes the process of reconstructing frozen sections. His results with the spleen differ considerably from the form which His's model has taught us to accept as the standard. This, in brief, gave us an organ pointed above and below, with a large, convex diaphragmatic surface, a concave gastric surface, and a concave renal one, the last two being separated by a strong ridge. Cunningham finds that the spleen is an irregular tetrahedon (a four-sided pyramid, one side being the base). The apex is above, pointing inwards. The phrenic surface corresponds, as Luschka showed, to the ninth, tenth, and eleventh ribs. The other three surfaces meet at what Cunningham terms the internal basal angle, from which start three ridges. One of these separate the renal surface, which, as a rule, is flat, from the concave gastric surface. The other two lines help to mark off the base, which he describes as "a very evident triangular area." This looks downward and inward. It is in relation to a varying extent with the tail of the pancreas, which may, or may not, make an impression on it. The rest of this surface is in relation to the colon.

The relations of the kidneys are much more complicated. In properly hardened ones many inequalities may be made out, but owing to the variations in the position of these organs, they are more uncertain. We do not care to discuss those made by the abdominal walls on the posterior surface, but merely mention that the impression of the last rib is often found, and sometimes also pits made by the ends of certain transverse processes. The front of the kidney has long been described as more convex than the back. It now appears that this is due to the remnants of what in life is a transverse ridge separating an upper and a lower oblique portion. In the left kidney the upper space is occupied internally by the suprarenal capsule, externally by the spleen, and between the two, in a very varying degree, by the stomach. The tail of the

¹ Anatomischer Anzeiger, Bd x. No. 24, 1895.

² Journal of Anatomy and Physiology, vol. xxix, July, 1895.

³ Loc. cit.

pancreas lies either on the ridge or just above it. The inferior field is occupied by the colon and, as a rule, by coils of the small intestine. The upper field of the right kidney is occupied by the liver and the lower by the colon. Professor Cunningham does not mention the suprarenal capsule, so we are not sure how much is on the anterior surface. The lower half is compressed by the colon. The duodenum also almost always rests against the kidney.

It may be questioned whether Professor Cunningham's views are to be accepted in all details, for the range of individual variation is considerable, and the labor of making these preparations is so great that it will be long before an adequate number is collected.

Dr. F. Helm has studied the relation of the kidneys on rather more than one hundred subjects, nearly all adults, for his inaugural dissertation, of which an abstract is given in the *Anatomischer Anzeiger*.⁴ Apparently the method employed was nothing more than simple inspection, which is very crude in comparison with Cunningham's. None the less his observations on the relations with the colon are very valuable. There is, we believe, little new in his observations on the position of the kidneys with relation to the vertebral column. He finds that the female kidney lies, on an average, half the thickness of a lumbar vertebra lower than the male, and that a remarkably low position is much more frequent in woman than in man. The following course of the ascending colon is found in the majority (56.7 per cent.) of the cases: on reaching the lower end of the right kidney the colon curls around it, apparently not crossing its anterior surface, and ascends along its inner side till it reaches the liver, where it makes the hepatic flexure. The termination of the transverse colon crosses the front of the left kidney near the top and then descends along its outer border.

Dr. Helm gives a number of diagrams of the relations he has observed. We are greatly surprised to find that the colon crosses even the lower end of the right kidney comparatively rarely, and we cannot but feel that we should like to have these results confirmed. The place of crossing the left kidney is very variable. The author figures some very curious twists of the gut in its neighborhood.

OS INTERMEDIUM ANTEBRACHII.⁵

By this name Dr. Thilenius describes a transitory cartilaginous element just above the wrist which is found in 65 per cent. of human embryos of the second month. It is then situated between radius, ulna, and the proximal row of carpal bones. The percentage drops to 50 per cent. in the third month and to 30 per cent. in the fourth. It has been observed but once in the adult and then as a bone. This element may disappear, leaving no trace, or it may be lost in the styloid process of the ulna. It apparently, however, may be fused with the fibro-cartilage or wander to the radius, near which it is usually found when it has a longer existence than usual. It is occasionally found in anthropoids and marsupials.

THE DEVELOPMENT AND SIGNIFICANCE OF THE SESAMOID BONES OF THE HUMAN HAND.⁶

The same author finds that these bones develop, without exception, from hyaline cartilage, and that they

are laid down when the joints and muscles are still incapable of acting. Indeed they are more numerous in the embryo than in the adult. The process of development is the same in man and other mammals. The best developed sesamoid bones are found in the lower mammals; those of man and the anthropoids are to be looked on as rudiments. We would remark, however, that all the larger sesamoid bones seem to be distinctly functional.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTIETH ANNUAL MEETING, BALTIMORE, MAY 28, 29 AND 30, 1895.

(Continued from No. 19, p. 472.)

ABDOMINAL SECTION FOR PUERPERAL SEPTICEMIA.

DR. J. M. BALDY, of Philadelphia, in a paper on this subject, related a case in which, last February, he had opened the abdomen and removed the uterus, two or three weeks after labor, for septicemia, the patient recovering. Discussing the general subject, he said it could be stated at once that a large number of cases in which suppuration was absent could be excluded from the list suitable for abdominal section. Where pus existed, an operation was indicated, although it might be claimed that if the peritonitis were general it would prove useless. We could not say beforehand, however, that the pus accumulation was not limited. In acute cases, if anything was to be done, it would have to be the first or second week in order to hold out any promise whatever. It must be admitted that the field for hysterectomy in puerperal cases was not a large one. There had been nineteen operations in America with seven recoveries.

DR. FERNAND HENROTIN, of Chicago, thought it was proper in some cases to remove the uterus, and it should be done by the vagina, although there might be an advantage in some instances in opening the abdomen in order to judge more accurately of the condition present. Later he would read a paper in which he would try to show that early vaginal incision would in certain cases obviate the necessity for a more radical operation later.

DR. W. GILL WYLIE, of New York, would not undertake an operation, if the case were seen at all early, before trying his plan of frequently washing out the uterus after first curetting; for this procedure had saved some cases of puerperal sepsis in which others had supposed the infection had already extended beyond the interior of the uterus. This failing, he would not hesitate to operate.

DR. A. F. CURRIER, of New York, after defining the classes of cases, expressed the opinion that there was not much chance of saving the puerperal patient by operative procedure except in tardy cases of pelvic inflammation where the pus collection was distinctly limited, not diffuse.

DR. CHARLES P. NOBLE, of Philadelphia, would bring out sharply the fact that there was a difference between early and late cases. Cases of pus collection within the tubes or elsewhere found ten weeks after labor should be treated according to well-known surgical rules. There was little hope, however, of saving

⁴ Bd. xi, No. 4, September, 1895.

⁵ Schwalbe's *Morpholog. Arbeiten*, Bd. v, Heft 1, 1895.

⁶ Loc. cit., Bd. v, Heft 2, 1895.

the woman by removing the uterus for sepsis a week after labor.

DR. H. C. COE, of New York, related a case which he thought presented the conditions usually spoken of as favorable for success, he opened the abdomen, removed the diseased adnexa, left the uterus, as he did not wish to add the shock of hysterectomy; but the patient died. The case had been a very discouraging one, and he must agree with those who had characterized abdominal section for puerperal septicemia as purely experimental.

DR. A. LAPHORNE SMITH, of Montreal, had observed pouring out of septic material from the divided small vessels in operations for puerperal sepsis, and suggested, as a preventive, that the parts be walled off. The uterus should be straightened and the canal kept free in order that pus should not be retained as in a pocket.

THE PRESIDENT'S ADDRESS.

DR. MATTHEW D. MANN, of Buffalo, chose for the general subject of his address

THE RELATIONS OF LITHEMIA TO DISEASES OF THE PELVIC ORGANS IN WOMEN.

He hoped to throw some light upon the origin of certain rather obscure diseases of the pelvic organs in which the pelvic trouble was secondary to certain general conditions. The alimentary and genital organs required particular consideration in this connection.

The class of symptoms complained of varied, but they related to menstrual disturbances, vaginal discharge, backaches, frontaches, troubles of bladder and rectum, insomnia, dyspepsia, dry skin, depression of spirits; and above all, the patients were nervous. Physical examination might show no lesion of the pelvic organs. The urine, however, was almost always below normal in quantity, was acid, and usually contained an excess of uric acid, yet the specific gravity was seldom high, thus showing a deficiency in solid excreta. In other words, there was renal insufficiency, and this was regarded by the President as of the utmost importance in its relation to pelvic diseases. We might differ as to the toxic principle of urine, but that the fluid as a whole was toxic was a certainty. The amount passed daily by a man was estimated to contain sufficient poison to kill him.

It was also important to examine the blood. Herter had shown that in neurasthenics, without apparent anemia, the hemoglobin was decidedly reduced. The President had been unable to find a better term to apply to the condition of these patients than that of lithemia, which he said might be defined as follows: A distinct disturbance of nutrition of a certain type in which there were peculiar tendencies, one of these tendencies being the output of an excessive amount of uric acid. As this disturbance of nutrition inclined to continue and to recur, we might properly apply to it the term diathesis, and hence the term uric-acid diathesis.

Such cases could not be treated simply as ovarian or uterine, although the condition of these organs might be such as to require direct interference. Wherever the trouble started, whether in the stomach, intestines or nervous system, it might lead to disturbance of the circulation, causing congestion in the uterus, this leading to catarrh, this again to purulent inflammation. Imperfect metabolism of the food products resulted in poisonous substances forming in the

system; and owing to imperfect action of the skin, kidneys and other excretory organs, they went on accumulating, producing and intensifying morbid conditions.

Particular attention was also called to the influence of the urine in renal insufficiency in producing bladder symptoms. We could not yet say just what was the irritating property of the urine, but he had found by experience that to render it neutral by alkalis overcame to a certain extent the irritative properties. Constipation was a common condition in these women, and might be accounted for by disturbance of the portal circulation, as well as by backward displacement of the uterus, and other conditions. The original starting-point might have been in the pelvic organs themselves, as in a laceration of the cervix. Special causes could be found on every hand—in climate, diet, dress, etc. Tight lacing was not the only source of mischief, but snug-fitting dresses were also capable of producing displacement of both uterus and all the abdominal viscera. The stomach and large intestine especially were often found displaced. Comparative observation had shown that these displacements were much more common in women than men. More recent observations had shown that respiration was performed the same in women as in men. The present mode of dress among civilized nations, changing as it did so important a function as respiration, must have a marked influence on the contents of the abdominal cavity. If one doubted the prevalence of waist constriction, let him apply the following test: put a tape measure around the waist outside of the clothing and note the difference between forcible expiration and inspiration. More than one-half of the women would be found to show no change at all, about one-third would move the tape one-fourth of an inch, while one in twenty-five perhaps would move it nearly an inch. Men could easily move it two or three inches. A campaign of education was sorely needed in the matter of dress reform for women.

RENAL INSUFFICIENCY IN GYNECOLOGICAL CASES.

DR. JAMES H. ETHERIDGE, of Chicago, in some introductory remarks to a paper on this subject, expressed the opinion that there was likely to be a reaction against the furor for operative gynecology. In connection with a dispensary his attention had been struck by the number of gynecological patients who complained of general symptoms. Out of a hundred of these he had taken up the symptoms relating to the kidneys alone, where there was no proof that these organs were organically affected. He had found that a great many gynecological patients suffered from renal insufficiency, and that diuretics would relieve them of many symptoms referred to the pelvis. In judging of the existence of renal insufficiency, one should take into consideration the total quantity of solids, as well as of the fluid and solids. The two extremes of the amount of solids passed in the twenty-four hours were 500 and 1,100 grains, according to the weight of the individual. When the amount of solids passed did not exceed 400 grains, the person might show only some nervousness; but when the amount fell to 300 grains, the nervousness became more serious, and on taking cold a bronchitis or a pleurisy was liable to develop. If the amount fell to 200 grains, the condition was very serious; and if to

100 grains, the patient could be regarded as dangerously near uremic convulsions. If in such a case the amount of urine and its solids were increased by appropriate diuretics, the nervousness and other symptoms would be found to ameliorate or disappear.

The author said his object in writing the paper had been to call attention to the frequency of renal insufficiency in gynecological patients, and to the necessity for overcoming this as a means of overcoming symptoms and of prophylaxis.

DR. A. J. C. SKENE, of Brooklyn, recognized in the President's address and Dr. Etheridge's paper two very valuable communications. He could corroborate the facts stated from his own observation, and appreciated the value of the suggestions made in reference to prophylaxis by paying attention to the urine and digestive tract.

DR. HOWARD A. KELLY gave an analysis of the urine in 21 cases, supplementary to that in 100 cases previously published, showing that this secretion was always diminished after operations, usually down to about 500 c.c., while the average normal amount was about 1,200 c.c. This increased after the operation took place gradually until about the tenth day, when it again reached the normal. A knowledge of the fact that the urinary secretion was always diminished after operations would relieve one of anxiety as to the condition of the kidney, obstruction of the ureter, etc.

DR. FORD, of Utica, thought the variable urinary flow in neurasthenics was often emotional, and seen in sensitive, nervous men as well as women.

DR. BALDY, of Philadelphia, thought the pelvic condition was the causative factor rather than the resultant of renal insufficiency.

DR. W. GILL WYLIE, of New York, spoke of the value of hot saline solutions in the rectum during and after operations in preventing shock, increasing the quantity of urine, relieving thirst, etc.

DR. BACHE EMMET, of New York, impressed the need of preparing patients two or more weeks for operations, relieving renal insufficiency, etc.

DR. LAPHORNE SMITH, of Montreal, had his patients drink freely of water after operations, and said his own nervousness was thus overcome, the explanation being that he lost much fluid during the operative work through perspiration. There was no diuretic equal to water, and no better means of washing the uric acid out of the muscles and joints in painful rheumatic and lithemic affections.

INDICATIONS FOR TOTAL CASTRATION BY THE VAGINA.

DR. CHARLES JACOBS, of Brussels, occupied a seat on the platform while his paper was being read by Dr. Henrotin.

Total castration by the vagina, he said, is indicated (1) in uterine cancer at the beginning, (2) in the uterine fibroid, (3) in extra-uterine pregnancy and tubal abortion, (4) in total genital prolapse. It becomes the choicest operation in bilateral, purulent or non-purulent diseases of the appendages. It finds its indications in uterine and in chronic incurable diseases of the uterus and its appendages. Total vaginal castration is not a more dangerous operation than laparotomy.

Dr. Jacobs had performed total vaginal castration since 1889, 403 times, with 391 operative cures and 12 deaths, or a mortality-rate of 2.9 per cent. For

uterine cancer, 45 cases, 1 death; 5 patients without return over four years; uterine fibroids, 38 times; 23 simple hysterectomies with 23 cures; 15 hysterectomies by morcellation, with 13 cures and 2 deaths; extra-uterine pregnancy, 3 cases, 3 cures; total genital prolapse, 19 cases, 18 cures and 1 death; inflammatory diseases of the appendages, 272 cases, 6 deaths — 142 of them pyosalpinx, 15 of abscess of the ovary, 33 of hematosalpinx, 18 of chronic ovaro-salpingitis.

Among accidents he mentioned fistulæ, 9 times in the 403 operations. One of these patients died after intestinal anastomosis with Murphy's button. In a case of vesical fistula nephrectomy was finally done successfully. He had lost no case from hemorrhage.

Vaginal castration has been criticised because it might leave suppurative pockets within the abdomen. There certainly were cases of suppuration where fusion of pockets with neighboring organs was such as to make complete ablation impossible. In 157 cases of serious suppuration he had left 21 times parts of the appendages in the pelvis, but he had never been obliged to have recourse to supplementary operation by reason of tardy complications. Besides did this not also happen in laparotomy? It was at least remarkable that it was precisely in these serious cases that vaginal castration had given its greatest successes, and which had gained to it very convinced laparotomists, such as Pozzi, Terrier, Sängers and others.

The paper gave the following unpublished recent statistics of total vaginal castration: Landau, 141 cases, 2 deaths; Leopold, 44 cases, 1 death; Sängers, 17 cases, 2 deaths; Péan, 450 cases, 12 deaths; Richelot, 219 cases, 11 deaths; Doyen, 253 cases, 18 deaths; Ségond, 200 cases, 14 deaths; Gallet, 29 cases, 2 deaths; Jacobs, 403 cases, 12 deaths. Total, 1,756 cases, 74 deaths, or 4.2 per cent. mortality.

The discussion on Dr. Jacobs's paper took place in connection with that on the following papers on related topics.

VAGINAL HYSTERECTOMY FOR UTERINE MYOMATA AND DISEASES OF THE ADNEXA.

DR. WILLIAM H. WATHEN, of Louisville, read recent statistics sent him by Péan and other operators of their vaginal work, and gave the following as some of the reasons why the vaginal route should be chosen: (1) there was more rapid and complete convalescence, the patient usually sitting up within a week and walking about a few days later; (2) in pelvic suppuration there was less danger of infection from soiling the peritoneum; (3) absence of mural abscess; (4) absence of subsequent hernia; (5) restoration to health in a greater proportion of cases. The preliminary preparation for vaginal hysterectomy and celiotomy was practically the same. The vagina should be made as aseptic as the abdomen.

CONSERVATIVE SURGICAL TREATMENT OF PARA- AND PERI UTERINE SEPTIC DISEASES.

DR. FERNAND HENROTIN, of Chicago, read this paper. He said women came to us to be cured of their symptoms — of the vaginal flow, pains, etc.; that to them a pathological cure was of minor importance. The professor and hospital surgeon sent them home after two weeks, cured of an operation, but often not of the disease. It was the author of one laparotomy who always knew the remote as well as the immediate result. Salpingectomy and salpingo-oöphorectomy had

often failed to cure the patient with peri- and parametritic septic disease, and of recent years it had become the practice also to remove the uterus. Having laid hands upon the ovaries, it did not matter what became of the uterus. The time, however, for showing sentiment was before the ovaries had been touched. Women with pyosalpinx, oöphoritis, pelvic abscess, etc., whether of catarrhal, puerperal, or gonorrheal variety, did sometimes recover completely without radical operation. The gynecologist of the future, if he had a conscience, must learn to carefully discriminate between cases. This whole subject would have to be gone over again by some master who had pathological knowledge combined with experience.

The author wished to direct attention to the management of the class of cases under discussion in their incipency. This would usually fall upon the general practitioner, since he alone usually saw the case in the first stage. The time to cure septic inflammatory diseases completely and perfectly was within the first week of their appearance. The treatment which Dr. Henrotin recommended and had practised in the limited number of cases which he had seen the past two or three years, was to make an incision behind the uterus and explore the pelvis. The vaginal incision carried with it little if any danger. He had operated on 27 cases, and all had made a satisfactory and apparently permanent recovery. Just as soon as there was evidence that the disease could not be reached from the interior of the uterus, make an incision behind, and one would have a good chance to abort the disease before it had gotten beyond control. What was the present practice? We gave a douche, put on a poultice, quieted pain with morphine, and allowed the case to go on. In contradistinction to such a hopeless policy, the author recommended vaginal incision, posterior to the cervix, parallel with the axis of the vagina and downward, introduction of the finger. If nothing but an exudate was found, the patient would get well in a few days, with freely movable pelvic organs. He urged, then, cure of the disease in the beginning by simple incision and drainage.

(To be continued.)

Recent Literature.

A Treatise on the Nervous Diseases of Childhood, for Physicians and Students. By B. SACHS, M.D., Professor of Mental and Nervous Diseases in the New York Polyclinic, etc. 8vo, pp. xviii, 666. With one plate and 162 illustrations. New York: William Wood & Co. 1895.

In spite of the importance of a thorough knowledge of the nervous diseases of childhood, special works in English upon this subject have been distinctly rare, and the consideration of it in the ordinary text-books of pediatrics has been far from satisfactory. A work, therefore, of even average merit would be desirable, so that it is with especial pleasure that we welcome the present volume, which is one of the ablest contributions that has been made to American neurological literature. Those who know Dr. Sachs's work, and especially how much he has done to place our knowledge of the cerebral infantile palsies and muscular dystrophy upon a sound basis, have awaited the book with keen anticipation; but the performance has bettered the antic-

ipation. After a careful reading of the book the strongest impression which it makes is not the author's wide knowledge of the literature, nor the richness of his own personal experience, nor his great clearness and power of condensation — in all of which, be it said, he excels — but his sound judgment and the eminently practical and sensible character of his teachings.

The clearness and condensation of the work are well manifested in the introductory chapter, where, in less than fifty pages, the methods of examination are treated in a most admirable manner. This chapter should be studied by every physician as a model not only for the examination of children but also of adults. The tables which show the action and innervation of the different muscles, the symptoms of their deficient action, and the diseases in which they are commonly involved are especially to be commended. In the discussion of the various diseases the author has "thought best to include all those diseases which either occur frequently during early life, or which, when occurring at this period, have some distinctive features." He has very wisely departed from the usual custom and discussed the functional affections first, on account of their importance and frequency, and also because of their bearing upon the entire life of the child and their close relation to many organic diseases of the nervous system.

In the chapter on epilepsy he states that "idiopathic" epilepsy is rare, and that in many cases there has been some injury to the brain, or the epilepsy is due to some cerebral disease in early life, which may have caused a transitory palsy, long since forgotten, but still manifesting itself, perhaps, only by an increase of the reflexes on the once paralyzed side. We are glad to note that he scouts the idea that ocular disturbances may cause epilepsy and that he condemns surgical treatment of the eye muscles as a cure for epilepsy. He is not an enthusiast for the surgical treatment of epilepsy. He has failed to find a single absolute cure from operation in his own cases, yet he urges that injured tissue be removed at the earliest possible moment, even before the actual development of epilepsy.

In the chapter on headache he protests with much wisdom against the too-prevalent view that the slightest error in refraction must be the cause of all ills, and thinks that eye-strain has been made too prominent as a cause of headache. "The cases that are due to eye-strain are those in which the headaches come on after reading, or in studying." He holds that Seguin's views as to the dependence of migraine on eye-strain are fallacious, that in many cases the eyes are normal, and, when there is an error, the migraine is often not relieved by glasses. Such a protest against a reigning medical opinion is characteristic of the sound and conservative judgment of the author. In the chapter on chorea, while recognizing the possibility that chorea may be of infectious origin, he admits our ignorance of its nature, and the lack of evidence as to its infectious character. In all the functional affections he lays great stress in treatment upon the rest-cure.

The sections on diseases of the brain and cord are introduced by brief but admirable chapters summing up our present knowledge of the anatomy and physiology, chapters which are models of clearness and conciseness. Within a few years several rare affections of the spinal cord have been differentiated, and this is the first treatise which has given a full classification of these affections. This portion of the book will there-

fore be especially welcome to the neurologist, for in it he will find an able and critical summing up of our present knowledge on the subject, with much in the way of elucidation of some of the more obscure points of differentiation between the hereditary spastic conditions based upon the author's own rich experience. It is, however, a difficult task to select any one chapter for special praise where all are so good. The chapters on spinal syphilis and the muscular atrophies are of especial interest. In the section on diseases of the brain, the chapter on the infantile cerebral palsies may perhaps first attract attention, as might be expected from the author's previous work on the subject. In the limits of a review we cannot discuss these chapters in detail, and we can only praise them. The final section on insanity is the poorest in the book, because it is too short. So little has been written in English upon the mental affections of childhood, that we wish that the author had gone more into detail, even at the risk of adding another hundred pages to the volume, and we hope that in the next edition he may enlarge this section.

We cannot dismiss the work, however, without a special commendation of the paragraphs devoted to treatment. They are very full, the treatment is given in detail, and is of the most practical character, and, even in the hopeless affections, the author is not a therapeutic nihilist, but he brings forward many valuable methods for relieving the patient's condition. We congratulate the author on the work, and we commend it heartily to the profession as a most admirable treatise on a very important and too much neglected subject.

Pathology and Treatment of Diseases of the Skin. For Practitioners and Students. By DR. MORIZ KAPOSI, Professor of Dermatology and Syphilis, and Chief of the Clinic and Division for Skin Diseases in the Vienna University. Translation of the last German edition. New York: William Wood & Co.

Kaposi's text-book on diseases of the skin arranged in the form of lectures to his classes, has long been one of the standard books of reference in dermatology. The large work on this subject written by Hebra and Kaposi was translated many years ago under the auspices of the Sydenham Society, and has served a most useful purpose in bringing the views of the Vienna school, at that time the centre of dermatological activity, within reach of those not proficient in the German language. The present volume is a translation of the fourth edition of Kaposi's lectures, by Dr. James C. Johnston, with a preface by Dr. George H. Fox of New York.

An extended comment on Kaposi's book, so well known to all who have any interest in dermatology, is not required here. It may be said briefly that the book in its several editions has always shown marked excellencies, prominent among them being the vivid way in which clinical appearances are described, and this power of description has been a marked characteristic of the author in all his writing. The last edition of the work is much more comprehensive than the previous ones, and most of the advances that have been made of late years have received due recognition. The writer's almost isolated position in refusing to recognize the tuberculous nature of lupus, detracts much from the value of the chapters that deal with

this affection. The edition that has appeared in Paris, translated into French and annotated by Besnier and Doyen is a far more valuable possession for the dermatologist or advanced student, in our opinion, than the original, and an English translation of this would have been more serviceable. The notes, chiefly by Besnier, fill up the voids that are left in Kaposi's book, and while detracting nothing from the admirable clinical descriptions they add the experience and criticism of the French school, which has of late years in the opinion of many, equalled or surpassed the Vienna school in its contributions to dermatology.

The translation is good, as a rule, although errors could be easily pointed out. The illustrations, which are mostly of microscopical preparations of sections of skin, vary much in merit. Many of those that have been inserted recently are of much excellence; on the other hand, there are many older illustrations still remaining that are distinctly inferior to the work that has been done of late years in depicting the histological appearances as revealed by modern methods.

The Medical News Visiting List for 1896. Weekly (dated, for 30 patients); monthly (undated, for 120 patients per month); perpetual (undated, for 30 patients weekly per year); and perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient perpetual consists of 256 pages of blanks. Each style is one wallet-shaped book, with pocket, pencil and rubber. Philadelphia: Lea Brothers & Co. 1895.

"The Medical News Visiting List" for 1896 has been thoroughly revised and brought up to date. The text portion (32 pages) contains the most useful data for the physician and surgeon, including an alphabetical Table of Diseases, with the most approved Remedies, and a Table of Doses. It also contains sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, Diagnostic Table of Eruptive Fevers, and the Ligation of Arteries. The classified blanks (160 pages) are arranged to hold records of all kinds of professional work, with memoranda and accounts.

This is one of the best of the visiting lists issued, and will be found useful by the busy practitioner, whether in town or country.

A Manual of Organic Materia Medica. Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms. For the use of students, druggists, pharmacists and physicians. By JOHN M. MAISCH, Ph.D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. New (sixth) edition, thoroughly revised by H. C. C. MAISCH, Ph.G. Philadelphia: Lea Brothers & Co. 1895.

This work ever since its appearance, thirteen years ago, has maintained its reputation as being the best hand-book upon pharmacognosy of any published in this country. This revision, by the son of the author, in one very handsome 12mo volume of 509 pages with 285 engravings, brings the work up to date and is in accord with its previous high standard. B. F. D.

DR. HARRISON ALLEN has been elected Emeritus Professor of Comparative Anatomy in the University of Pennsylvania.

THE BOSTON

Medical and Surgical Journal.

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THE SYMBOL OF MEDICINE.

RECENTLY published remarks concerning a distinguishing device for the Medical Department of the Army bring to mind the whole subject of medical symbolism, in both its civil and military application. After extended research among the histories and other records of ancient and modern times, together with observation of customs yet extant among socio-religious communities, a form has been found which appears to answer the requirements necessary to appropriate insignia by which to characterize medicine.

It is well known, to those informed in such matters, that the caduceus — the emblematic staff and serpents — also serpents in different postures and variously associated with other objects, and the cross in its many forms and combinations, are outgrowths of one and the same root.¹ Moreover, the Geneva cross, of the Red Cross Society, is now recognized, the world over, as indicative of medicine in its best practical application. We have here, therefore, a proper symbol of the healing art, fitting in its origin, significance, and actual use by civilized humanity. The ordinary design might be improved upon by lengthening, very slightly, the arms of the cross; so that the square forming the centre would be a trifle smaller than the corresponding part of the actual Geneva cross. This variation is recommended for the reason that in the common form of "red cross," the great mass of color in and about the centre causes an apparent lack of proportion, by making the middle square look larger than it really is. This optical illusion would be corrected by the suggested modification.

For use on military uniforms, the cross might be of some handsome shade of red, made of durable material set in gold.² If the red cross is used as a medical emblem, it should be recognized that it is of inter-

national significance, and a red cross with gold about the edges is ornate and might serve for a collar device to designate a medical officer. The red cross is an emblem of neutrality and should be easily distinguishable at a distance, and thus protect those who by the treaty of Geneva are classed as non-combatants, though it is probable that, with the present long-range fire-arms, non-combatants, whether medical officers or newspaper correspondents, will have to take the common chances.

It appears that the question of proper insignia has been under consideration by the Medical Department of the Army; when adopted, such insignia will probably be accepted by the militia of the different States.

In this connection, attention is naturally drawn to the fact of the insecure tenure in office, as regards medical officers in the militia. Persons of intelligence know how great is the preparation necessary to properly qualify for the duties of surgeon. In order to have good men enter the service, the position should be made permanent — not dependent upon the choice of one man, however able and honest.

Continuance in office could be made contingent upon proper moral conduct, and duty well done.

The emblem herein described appears to be significant, appropriate, easily recognizable, pleasing to the eye, and suitable for use wherever a symbol for medicine may properly appear — whether in art, literature, or other relation of life.

THE LUNGS OF ONE OF KOCH'S EARLIEST TUBERCULIN PATIENTS.

THE appearances found at the autopsy of a Finnish patient who was one of the first to undergo tuberculin treatment at the hands of Professor Koch, in Berlin, are reported by Adami, in the *Montreal Medical Journal* for September, 1895.

The patient was a highly intelligent man, thirty-three years old, who was treated by Professor Koch at the Victoria Hospital in Berlin for fifty-two weeks, in 1890. He had been suffering from hemoptysis, night-sweats and progressive emaciation. Marked improvement took place under the treatment; he returned to Finland; and his health was apparently restored. In June, 1893, he came to Canada, where he was employed as a skilled mechanic in the engineering laboratory of McGill University, and remained apparently in perfect health until January of the present year, when his cough, night-sweats, etc., returned. He was seized with severe and recurrent hemorrhages, from the effects of which he died on April 18th. At the autopsy firm adhesions were found at both apices, with extensive fibroid changes, together with well encapsulated caseous masses and small contracted cavities with dense envelopes. These changes were undoubtedly signs of the arrest of a fairly extensive tuberculous process which was coincident with the treatment by tuberculin in 1890 or 1891. That the process had only been arrested, and not cured, was evident by the

¹ Numerous other things, more or less used as symbols of medicine; such as the oak, palm, gallus, et alia, have the same origin.

² See article on "Medical Symbolism" in this Journal, vol. cxxvi, No. 16, page 380, October 20, 1892.

lesions, which were distributed through the remainder of the lungs, which consisted of rather large miliary tubercles, broncho-pneumonic in their distribution, together with a large cavity in the walls of which was found the eroded artery which had been the source of the hemorrhage. The fact that the recent tubercles were most numerous in the vicinity of the old disturbance makes it almost certain that the second attack of tuberculosis was not a second fresh infection, but a lighting-up of the trouble in one of the old foci, spread by dissemination through the air-passages.

The interesting point about the case is the fact that a tuberculous process as extensive as was indicated by caseation, tubercular pleurisy, and the formation of five or six cavities at the apices had been arrested for four years by a year's treatment in the Berlin Hospital.

MEDICAL NOTES.

THE ALVARENGA PRIZE of the College of Physicians of Philadelphia for 1895 has been awarded to Dr. Guy Hinsdale, of Philadelphia, for an essay on "Syringomyelia."

PROFESSOR VON BARDELEBEN'S SUCCESSOR.—Professor König of Göttingen has been chosen to fill the post of the late Professor Bardeleben, Professor of Surgery at Berlin.

SMALL-POX IN LONDON.—According to the latest report of the Metropolitan Asylums Board, there were 124 cases of small-pox under treatment at the various hospitals in London at the time it was issued.

THE RETURN OF INFLUENZA.—It is reported that influenza, which has lately appeared again in London and vicinity, is on the decline, and that the mortality in that city from diseases of the respiratory organs is considerably below the average.

INCREASE OF DIPHThERIA IN LONDON.—It is a fact worthy of note that during the early weeks of October there was a marked increase, not only of the number of cases of diphtheria in London, but also in the mortality. The mortality during the week ending October 19th was 76, which is nearly double the average for the corresponding week of the ten preceding years. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospitals on October 19th was 667. The reason for the high mortality which is directly at variance with the experience of other large cities where the antitoxin treatment is extensively carried out, is difficult to surmise. It is an interesting question whether it might be due to a deterioration in the quality of the antitoxin furnished the hospitals of the Asylums Board. The difficulty of maintaining antitoxin at a given strength is well known, and the fact that in order to have a supply of the agent in a sufficiently active condition on hand it is necessary to constantly test the product and perhaps resort to fresh

inoculations with the toxine. All the conditions entering into the production of the antitoxin are so variable, that a product of perfectly uniform strength is manifestly difficult to attain.

THE WILLIAM F. JENKS MEMORIAL PRIZE of the College of Physicians of Philadelphia for 1895 has been awarded to Dr. Abram Brothers, of New York, for an essay on "Infant-Mortality during Labor, and its Prevention."

SPLENECTOMY FOR INJURY.—It is stated in the *Lancet* that: "There have been recently three successful cases of excision of the spleen for injury at St. Thomas's Hospital. As these are, we believe, the first successful cases that have occurred in Great Britain the profession will look forward with interest to learning the details."

LIQUID AIR FOR COMMERCIAL PURPOSES.—It is reported that the manufacture of liquid air on a large scale for commercial purposes has recently been begun in Germany. The intense cold required for its production is secured by the evaporation of the product itself. The process is thought likely to become of commercial importance for the reason that during the process of liquifaction the air becomes richer in oxygen, until a gas is obtained which contains 70 per cent. The oxygen may be further purified from nitrogen, of which, it is said the gaseous balance chiefly consists.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, November 13, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 157, scarlet fever 31, measles 6, typhoid fever 35.

UNIVERSITY OF VERMONT, MEDICAL DEPARTMENT.—There are at present 183 students in the Medical Department of the University of Vermont. A class of 45 was graduated this year.

THE DANGER FROM ELECTRIC-LIGHT WIRES.—A recent death which occurred in Lynn from grasping a live wire, and the still more recent case of the painter who was killed by the current from an electric-light wire at the Boston greenhouses in Dorchester, emphasize anew the danger to artisans employed in buildings, to the roofs or walls of which such wires are attached. In the Dorchester case the connection is said to have been made by the man's grasping the live wire with one hand and the iron pole which supported it with the other. It is too often the case with linemen and others whose duties make it necessary to handle live wires and electrical apparatus, that familiarity breeds contempt, and fatal carelessness results, although their very knowledge of the agents with which they have to deal should render them constantly watchful. The case of the painter who was killed in Dorchester is an example of the necessity of thoroughly instructing all those whose work brings

them into close relations with live wires, of the enormous danger to which they are subjected, and of the precautions they must take.

YALE UNIVERSITY, MEDICAL DEPARTMENT.—The editors of the *Yale Medical Journal* for November, 1895, (this issue, by the way, begins the second volume of that excellent publication,) point with pride to the fact that during the last five years the number of students at the Yale Medical School has doubled, increasing from 65 in 1890 to 130 in 1895. "Many changes, of great moment to the student, have also been made in the curriculum in anticipation of the four years' course which next year will be required of students who expect to graduate from this school. The newly arranged department of practical midwifery, and other changes, cannot but help to greatly increase the clinical advantages to the student." The following men received full professorship at the meeting of the corporation last June: Prof. O. T. Osborne, Prof. F. B. Ferris and Prof. G. Lusk. Drs. L. S. De Forest and H. L. Swain were made clinical professors.

NEW YORK.

SHOULD SCHOOL RECESS BE LENGTHENED?—The question has been considerably agitated of late, whether the noon recess of the public school children should not be extended and the schools dismissed at a later hour in the afternoon. It was claimed by those advocating the change that the present recess was not long enough to enable the children to go to their homes, where they could get warm luncheons, and that in consequence grave stomachic troubles were caused. At the last meeting of the Board of Education it was decided that the present hours should be continued, and the report of the Committee on By-laws, to which the matter had been referred for consideration, was adopted. The report stated that the members of the committee, after personal investigation, had arrived at the conclusion that the health of the school children had not been impaired by reason of the fact that they were given only one hour between the morning and afternoon sessions, during which they had their mid-day meal. The few cases of dyspepsia discovered among the children appeared to have been caused by the character of the meals which they ate. "Were it not for the great number of candy, cake and pie shops near the schools," the report runs on to say, "and the inability of the children to resist these allurements, stomachic disorders among them would be few and far between." The committee further reported that more than 75 per cent. of the parents were opposed to lengthening the noon recess and extending the hour of afternoon dismissal.

TYPHOID AT WATERTOWN, N. Y. — In the city of Watertown, N. Y., there were some fifty cases of typhoid fever, and as one-half of these occurred in families served with milk by one vender, the latter has been ordered to discontinue the delivery of milk pending a thorough investigation of the facts of the case by

the local health board acting in co-operation with the State Board of Health.

INCREASE IN THE MORTALITY FROM DIPHTHERIA.—The mortality from diphtheria has increased somewhat of late, and during the week ending November 9th there were 41 deaths from the disease. Pneumonia also shows a slight increase, the number of deaths from it amounting to 117; which is 27 more than were caused by phthisis. The general mortality in the city, however, is small. During the week 721 deaths were reported; which is 38 less than the average for the corresponding weeks of the past five years.

DEATH OF DR. PEMBERTON.—Dr. John P. Pemberton, sixty-three years of age, died suddenly of apoplexy on November 9th at Long Branch, New Jersey, where he had practised for forty years.

Miscellany.

MEDICINE AND SURGERY AMONG THE AUSTRALIAN ABORIGINES.

THE Australian aborigines seem to be undergoing the fate of all savage peoples who come in contact with the fringes of civilization.

J. Steele Robertson, Secretary of the Medical School, University of Melbourne, Australia, in an article on this subject,¹ maintains that until the arrival of the white men in Australia the natives were a decidedly healthy people; but ever since the first shipload of white settlers landed, in 1788, their health has deteriorated very much and their numbers have rapidly decreased. The diseases for the introduction of which the white settlers are responsible, according to Dr. Robertson, are small-pox, syphilis and intemperance, together with their various resulting evils, and probably also scarlet fever and measles.

The savage attacks of the settlers, aided by native police taken from a tribe hostile to the one which they are endeavoring to exterminate, are vividly described by the writer. After most of the young men of a tribe have been butchered by the settlers and native police, aided of course by modern arms and equipment, the women are captured and allowed to "come in" to the settlers' homestead, the report being sent to headquarters that the tribe has been dispersed. In the end, syphilis finishes what the rifle began. "To what an extent this has happened may perhaps be realized when it is stated that the last Tasmanian died in 1876, and that in Victoria the few natives still remaining are at the government aboriginal stations, while the 'dispersal' process is still going on in other Australian colonies."

The diseases which prove most fatal to the blacks are those which are enumerated above as having been introduced by the white settlers; and the wearing of clothes during the day (they are said to always take them off at night) has caused a great extension of chest diseases and tuberculosis.

"Proximity to the towns leads to intemperance, and intercourse with the whites to venereal diseases. Farm or town life often brings on nostalgia or home-

¹ International Medical Magazine, October, 1895.

sickness, which causes the patient to mope, and if, while in this state, he catches even a slight cold, lung-disease develops and death follows. Leprosy, again, has been introduced by the Chinese, Japanese, Malays, Afghans, and other Asiatic races, and also by the South Sea Islanders on the Sugar plantations."

The spread of syphilis is ascribed partly to the lust of the white convicts and the scarcity of white women in the bush and to a curious superstition among the natives that a woman who has once borne a child to a white man will thereafter bear exceptionally strong and healthy black babies. The custom of exchanging wives, of handing over a wife, when going on a journey, to an unmarried male friend, and of providing visitors with female bedfellows, may also have a good deal to do with the spread of syphilis.

The Australian aborigines are firm believers in their native doctors, who are arrant frauds, and whose chief stock in trade consists of dances, legerdemain and incantations. The strangest thing about the business is that a doctor, although knowing well the fraudulent nature of the whole proceeding, will, when ill, call in another doctor to practise upon him, a custom which is at marked variance with that of the medical clairvoyants of civilized countries who, in case they are sick themselves, send for a regular physician.

The aboriginal therapeutics consist in the main of methods which, while extremely crude in their mode of application, are often capable of serving a useful purpose. Boils, for instance, are treated by poultices of marshmallow, snake-bites are sucked, or a ligature is tied above and below the part, and free bleeding encouraged by scarifying the part, or opening an artery. A practice which decidedly deviates from the general rule of serving a useful purpose is that adopted in uncontrollable hemoptysis, in which event the native doctor presses with his feet or even jumps upon the patient's body, usually with a fatal result. A curious approach to the modern German method of treating typhoid is seen in the aboriginal treatment of fever by continual bathing. This treatment, however, is said to be generally fatal in the hands of the native doctors.

Operative surgery among these tribes largely consists in the production of scars in various parts of the body for ornamental purposes. Wounds made for this purpose are kept open by filling with earth, charcoal, or ashes, and by these irritating substances hypertrophy of the scar is produced, so that they are sometimes half an inch high. Coming of age is celebrated by the gentle practice of knocking out one or two incisor teeth.

Circumcision is also done at coming of age to test a lad's power of enduring pain, and also to temporarily prevent the young men of a tribe from intriguing with the wives of the old men. A method of producing sterility in the male is that of slitting up the urethra from the meatus to the base, and binding it up in such a manner as to prevent its reuniting.

Amputation for severe compound fracture of a limb is performed by inserting the injured limb in a hole in the ground which is filled with earth to a point a little above the injury; The limb is then burned off by placing live embers around it.

Obstetrics among the aborigines, as is commonly the case among savage peoples, is reduced to its lowest terms, the woman suffering little pain or inconvenience from parturition. Abortion is occasionally

brought on by pressing or thumping the abdomen, the introduction of instruments into the uterus apparently not having suggested itself to the native mind.

Primitive as the methods of aborigines in medicine are seen to be, the health of these native bushmen had been strong enough to perpetuate their race for centuries, until the deadly weapons and still more deadly diseases of civilization were brought to bear upon them by the civilized invaders of their country. It has become apparent that their total extinction will be a matter of a comparatively short term of years.

Correspondence.

THE STUDY OF DERMATOLOGY IN EUROPE.

(Continued from No. 19, p. 479.)

LONDON.

LONDON is different from Paris in many ways. Paris is the type of centralization in dermatology as in all other branches of science and arts. In Paris the student goes to one building and finds all; in London he must go to many, which lie scattered over the city from Blackfriars to Paddington on the east and west, and from St. Pancras to Westminster on the north and south—an area of no inconsiderable extent. But when once the stranger has reached his destination, he is well rewarded for his trouble. The student does not see many rare cases, but rather those which are useful and which he is liable to see in every-day practice in America. The student is not so likely to hear new theories advanced as in Paris, but he is sure to see some new drug or compound which is being tried to its utmost; in fact, London is a great city for hobbies in the way of therapy, a city where the very new and the very old are seen hand-in-hand. This is not true of all the men, for the younger ones show the effect of their Parisian study. The clinics to be visited while in London are to be seen in the following table which Dr. Colcott Fox very kindly drew up for me:

Day.	Hour.	Doctor.	Hospital.
Monday . .	9.45 A. M.	Mr. Morris.	St. Mary's.
Tuesday . .	1 P. M. 2 P. M.	Perry. Crocker.	Guy's. University.
Wednesday .	1.30 P. M.	Fox.	Westminster.
Thursday .	9.00 9.30 9.45 afternoon	Mackenzie. Pringle. Mr. Morris. Mr. Hutchinson.	London Hosp. for Skin. Middlesex. St. Mary's. At his clinical museum.
Friday . . .	..	.....	..
Saturday . .	9.30 A. M.	Crocker.	University.

And also Dr. Payne at St. John's Hospital, Stamford Street, Blackfriars.

There are so many clinics that I cannot in this paper speak of them in detail, but will give my impressions only. Mr. Morris has an excellent clinic at St. Mary's and is a good teacher. He is a modern man and well known in English dermatology.

Dr. Crocker's clinic is very good also, and among his many, many cases of eczema, varicose ulcers and ringworm of the scalp he has some exceedingly rare and interesting patients—in truth it has been with him that I have seen my only cases of urticaria pigmentosa and universal scleroderma and my very best examples of morphea. Dr. Crocker is also one of England's foremost dermatologists and is an exceedingly good teacher, though a little loathe to accept new ideas and theories. He is always surrounded by students, whom he instructs by assigning them cases which they try

to diagnosticate and prescribe for. Later, Dr. Crocker speaks very fully over the case, going into all its aspects. For these reasons it is very advantageous for the young dermatologist to attend these clinical talks, for he will see useful cases and hear the method of diagnosis explained in a careful and simple manner. For the more advanced student the impromptu talks are at times, perhaps, a trifle elementary, but then one can never hear medical principles discussed too often or too fully. On Saturday mornings Dr. Crocker holds a short lecture in the amphitheatre subsequent to his clinical work.

Dr. Fox is a wide-awake man and an interesting talker. Unfortunately he holds but one clinic a week. His cases are typical of London dermatology—a great many useful examples of disease, which are enlivened several times during the afternoon by cases rarer to London clinics. Dr. Fox is extremely pleasant and cordial to the stranger, and will do all in his power to help and advise him.

Dr. Mackenzie's clinic is the largest in London, and one which should not be omitted.

At Middlesex Hospital Dr. Pringle has a bi-weekly clinic. He is the best installed of any of the London men, for his audience- and dressing-rooms are well lighted and very neat and fresh. Of course a few visits are not a fair criterion upon which to base one's ideas, but to my mind Dr. Pringle's patients seemed of a more interesting class from a dermatological point of view. He seemed to me to be almost a Frenchman in his views on dermatology, and my mornings with him were quite a pleasant reminiscence of my cherished "St. Louis." Dr. Pringle received his training in Paris not a long time ago, and is thoroughly imbued with its clinical and therapeutical teachings, past and present.

I regret exceedingly that I was never able to attend any of the Thursday afternoon meetings at Mr. Hutchinson's museum. He is perhaps one of the most interesting and famous dermatologists and syphilographers living, and fortunately I was able to hear him speak at several of the dermatological meetings held in London in June, 1894.

I must also express regret for never having attended the clinics of Dr. Perry at Guy's and Dr. Payne at St. John's.

As will be seen from the description of my London work, there is very little opportunity of studying disease in house-patients. As with us in Boston, the number of beds available for skin diseases is distressingly small, and so English dermatology must suffer from the impossibility of proper study of the etiology, progress and treatment of dermatological processes. London is also weak in the facilities for microscopical work, being hampered by the same difficulties attending biopsies and necropsies which interfere with the study of pathology with us in America.

To my mind London is valuable, dermatologically speaking, in three ways: for the character of the teaching, for making one's self familiar with the commoner diseases and their treatment, and for becoming acquainted with the English methods and their exponents.

While in London I was fortunate enough to be present at the initial meetings of the new Dermatological Society of the United Kingdom, and of the London Dermatological Society. The former was, of course, extremely interesting through the gathering of so many well-known dermatologists from all parts of the British Isles, and from the papers read and from the patients presented. In June, 1894, a great wave of enthusiasm for thyroid extract as a panacea for all dermatoses and for psoriasis in particular had taken London completely by storm. It gave one a curious feeling to see so great a furore created by a medicament, which, in the words of its greatest advocates, was dangerous and not at all a sure means of cure. Nevertheless, almost all the men present were trying it in their own clinics, and practically all were seeing their patients return one after another for advice on account of a strange feeling of weakness, anorexia, headache, palpitation of the heart and general lowering of the body tone. For my part, the whole movement seemed like an unsubstantial fanaticism. Certainly the cures which could be ascribed unreservedly to the extract of the thyroid gland were exceedingly few, and

even in these isolated instances the patients had usually undergone the usual depression following the ingestion of the drug.

The gatherings of the London Society are very informal affairs and have a social side to them. Very interesting cases are shown, and the patients are continually surrounded by a fresh group—listeners to the remarks of the original observers. The physicians do not sit down and have the cases demonstrated in turn, but go about in the large room and speak to their colleagues, who are sure to have something interesting to show them. In other parts of the room you will notice, perhaps, several groups enjoying their cup of tea and their bread or savory. The meetings are made very pleasant in this way, although perhaps not so systematic as they might be.

NORWAY.

In July my father joined me, and we sailed to Christiania, where we were most hospitably entertained by Professor César Boeck. We spent the morning in his hospital. There are, perhaps, one hundred beds devoted to the skin, and we saw many interesting cases, among which were a goodly percentage of syphilis and a proportionately large number of favus. Professor Boeck made to us the remarkable statement that mercury was never administered to his luetic patients—they received iron as their principal treatment. This method had been tried for several years, and no evils had followed. While in Professor Boeck's wards we saw an incipient case of leprosy. A young man, vigorous and sound-looking, bore over his lumbar region a pinkish-brown area the size of a double palm. This was his only visible symptom, and from the absolutely peculiar shade of this pigmentation Professor Boeck told us that the diagnosis was practically positive.

The out-patients are received in a room the walls of which are hung with the wonderful colored drawings of Danielsen, which are the truest to nature I have ever seen. They are the originals from which the atlas of Boeck and Danielsen was made, and are justly celebrated and well warrant the pride with which the present Professor Boeck showed them to us. Adjoining this room is the private room of Professor Boeck, which contains a good library and an excellent collection of dermatological drawings and photographs. I regret very much that our time in Christiania was so brief, for a student could hardly find a better or kindlier master to work under than Professor Boeck. He is thoroughly wide-awake to what is going on in the dermatological world, and is himself full of original ideas, and his deep researches with the microscope are well known.

From Christiania we travelled northward to Trondhjem, where we visited the leper establishment under the guidance and supervision of Dr. Sand. What a gloomy, disheartening place it was, with its 250 victims! But Dr. Sand gives his whole life up to them, and is illustrating all phases of the disease with original photographs, paintings and models.

The patients themselves were extremely interesting, and were of all ages from young children to old men and women, some of whom have lived for thirty years with this scourge upon them. The longevity of the patients was, I think, the most remarkable point I learned during our visit. The large number of cases made a lasting impression of the disease upon my mind. The wasting of the ulnar side of the arm, the nodes upon the ulnar nerve, the anæsthesia, the tuberosities on the face, the deformities of the fingers and toes, the atrophies and subsequent disappearance of the digits of the hands and feet, the corneal alterations and resulting blindness, the emaciation, the intercurrent diseases, the utter misery,—all made upon me an indelible picture of the anæsthetic and tubercular types of this horrible disease. The former division was far outnumbered by the latter; and in Norway the two types become mixed if the patient lives long enough, and so it was that we saw so few pure examples of the anæsthetic variety.

The patients themselves seemed very cheerful and contented. Seclusion in a lazaretto is not compulsory in Nor-

way, and the lepers are allowed to leave even after entrance; but, as a rule, most of these sufferers in Scandinavia make their homes in these hopeless retreats. Those who are physically able labor in the workroom at shoe-making and carpentering if they are men, and if women at spinning, carding wool and knitting. It was a strange and unpleasant sight, this wretched workroom, where the toilers were deformed or disfigured, all.

If one wanted to study leprosy in all its phases, surely no better place could be found than at the hospital in Trondjhem, but it would be a gloomy and dismal home, and we surely felt thankful as we once more drove over the glorious country on our way back to the city. Surely there could be no greater contrast in the world than the dark, forlorn lazaretto and the superb scenery of mountain and sea all about it.

BONN.

In mid-September I resumed my work; and as the microscope had been, through necessity, neglected during my first winter's study, I decided to do my utmost to cultivate this side of my education in the new winter opening before me. For this reason I visited Bonn, and found the place awaiting me which Professor Doutrelepon had promised my father. It was a great favor on my new master's part to allow me a desk in his own laboratory, and I greatly appreciated my position.

There are many advantages in Bonn. In the laboratory there are places for the "privat-docent" and the first and second assistants of Professor Doutrelepon. The one vacant space was allotted to me. A small but well-equipped library adjoins, where one finds many books of reference and contemporaneous dermatological magazines. The laboratory itself has a wonderfully good collection of pathological skin, which, in many instances has been carried—in regard to technique—to the stage of staining and mounting. These sections and the re-agents Professor Doutrelepon showed me, and said with characteristic kindness that all were mine to make the most of. For four weeks I worked in these rooms from morning until late afternoon, preparing a collection of slides which have since been of great value to me.

Professor Doutrelepon is exceedingly well installed in the large hospital of Bonn. He has many wards at his disposal and a large out-patient department. Every day the visit is made among the house patients, and subsequently the so-called polyclinic is held. I saw some very good cases while at Bonn, although I gave but little time to clinical work; and I am sure that during the term of the university a student could pass a most profitable three months in this charming town. Such a combination of clinical and pathological advantages as Bonn offers I found in only three other European cities. I was extremely sorry to leave Professor Doutrelepon's laboratory, but Vienna lay before me, and so I was forced to go.

CHARLES J. WHITE, M.D.

(To be continued.)

DIPHTHERIA ANTITOXIN AT THE NEWTON HOSPITAL.

NEWTON, MASS., November 7, 1895.

MR. EDITOR:—During my service at the Newton Hospital for three months, beginning on the 1st August, 1895, there were 24 cases of diphtheria under my care. Not a single case proved fatal. All, with the exception of two extremely mild cases, were treated with antitoxin. The diagnosis was based on cultures examined by Professor Ernst of the Harvard Medical School Bacteriological Laboratory.

In one instance there were for a few days severe joint pains and high temperature following the tenth day after the antitoxin injection.

There were two cases in which the nose, as well as the pharynx, was invaded.

The larynx was involved in two cases. Tracheotomy

was done in one of these latter soon after entrance, in an advanced stage of the disease. The patient was profoundly asphyxiated, yet recovery was rapid and uninterrupted. Six consecutive cases of tracheotomy have proved fatal in diphtheria at the Newton Hospital prior to this time and to the introduction of antitoxin. The favorable result in my operation is probably to be attributed largely to the antitoxin.

Albuminuria was not present in any case.

The only sequelæ were two cases of slight paralysis of the muscles of deglutition and phonation.

The average time spent by these patients in the hospital was sixteen days. The patients were not discharged till the bacilli had disappeared from the throat, as proved by repeated bacteriological examination. In one case the patient was in the hospital three weeks after the throat was entirely clean, and yet the bacilli were found present. They only disappeared when she was kept out-of-doors, and the bacilli were then either blown away or the patient ceased to be infected from the ward.

It may be argued that the cases are mild at the present time; but during about the same period as that here described the mortality in 34 cases of diphtheria occurring in this vicinity, in which the antitoxin treatment was omitted, amounted to 35 per cent. as reported to me by Dr. Curtis of the Newton Board of Health.

The antitoxin employed was that of Behring, the Massachusetts State Board of Health and of Gibier.

Can there be any better showing than this for antitoxin when one considers that no other form of treatment was used except stimulants?

Yours very truly,
KENELM WINSLOW, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 2, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	717	210	12.04	15.96	3.78	1.40	3.50	
Chicago	1,678,967	473	175	26.04	11.34	6.93	2.94	14.91	
Philadelphia	1,164,000	386	116	15.08	10.92	1.04	2.34	10.40	
Brooklyn	1,100,000	350	122	15.96	18.96	3.41	.86	8.68	
St. Louis	560,000	—	—	—	—	—	—	—	
Boston	484,005	195	60	9.69	17.34	.51	3.06	5.10	
Baltimore	409,335	186	78	13.50	10.80	3.78	3.24	4.32	
Cincinnati	336,000	110	31	6.40	12.60	—	1.80	2.70	
Cleveland	314,537	93	34	16.20	14.04	—	1.08	15.12	
Washington	275,500	—	—	—	—	—	—	—	
Pittsburg	238,617	105	38	25.20	14.25	4.75	9.50	8.55	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	44	11	13.62	11.35	2.27	6.81	2.27	
Charleston	65,165	33	12	18.18	—	9.09	6.06	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	36	13	21.93	11.08	5.54	—	13.85	
Fall River	88,020	32	10	34.43	12.62	12.52	—	18.78	
Lowell	84,359	30	11	10.00	13.32	3.33	—	3.33	
Cambridge	81,519	26	11	11.55	15.40	7.60	—	3.85	
Lynn	62,355	19	5	31.56	—	5.26	10.52	5.26	
New Bedford	55,254	22	4	13.65	4.55	—	—	13.65	
Springfield	51,534	20	2	5.00	5.00	—	—	—	
Lawrence	52,153	14	8	14.28	7.14	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	12	1	8.33	—	—	8.33	—	
Brocton	33,157	5	1	—	20.00	—	—	—	
Haverhill	30,135	6	2	16.66	—	—	16.66	—	
Malden	29,706	7	1	14.28	—	—	14.28	—	
Chelsea	31,295	11	4	45.45	9.09	—	—	27.27	
Fitchburg	26,394	5	2	40.00	—	20.00	—	20.00	
Newton	27,022	8	4	25.00	—	—	12.50	12.50	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	8	0	12.50	—	—	—	12.50	
Waltham	20,877	7	0	14.28	—	—	14.28	—	
Quincy	20,712	2	2	—	—	—	—	—	
Pittsfield	20,447	4	2	—	50.00	—	—	—	
Everett	18,578	—	—	—	—	—	—	—	
Northampton	16,738	3	1	—	33.33	—	—	—	
Newburyport	14,554	1	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,962; under five years of age 992; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fe-

vers) 497, acute lung diseases 411, consumption 391, diphtheria and croup 109, diarrheal diseases 109, typhoid fever 74, whooping-cough 20, cerebro-spinal meningitis 15, scarlet fever and malarial fever 10 each, measles 9, erysipelas 5.


From whooping-cough New York 10, Philadelphia and Brooklyn 3 each, Baltimore 2, Providence 1. From cerebro-spinal meningitis Chicago 4, New York, Somerville and Chelsea 2 each, Baltimore, Worcester, Lynn, Lawrence and North Adams 1 each. From scarlet fever New York 3, Brooklyn 2, Philadelphia, Boston, Cincinnati, Pittsburgh and Lynn 1 each. From malarial fever Brooklyn 4, New York 2, Philadelphia, Nashville, Charleston and Lowell 1 each. From measles New York 4, Brooklyn 2, Baltimore, Boston and Pittsburgh 1 each. From erysipelas New York 3, Chicago and Worcester 1 each.


In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530 for the week ending October 26th, the death-rate was 19.7. Deaths reported 4,011; acute diseases of the respiratory organs (London) 235, diarrhea 203, measles 121, diphtheria 95, fever 74, whooping-cough 47, scarlet fever 42, small-pox (London) 1.

The death-rates ranged from 32.3 in Blackburn to 13.1 in Huddersfield; Birmingham 20.5, Bradford 21.7, Cardiff 16.4, Halifax 16.7, Hull 20.5, Leeds 20.8, Leicester 15.9, Liverpool 27.8, London 17.5, Manchester 26.1, Newcastle-on-Tyne 20.4, Nottingham 18.2, Portsmouth 17.9, Salford 30.5, Sheffield 21.0, Sunderland 27.6.

METEOROLOGICAL RECORD.

For the week ending November 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...27	29.92	54	67	42	84	76	80	S. W.	S.	18	15	F.	F.	—
M...28	29.90	58	70	46	89	36	62	S. W.	W.	13	19	F.	F.	.01
T...29	30.21	43	50	36	52	44	48	W.	N.	9	6	C.	O.	—
W...30	30.52	40	45	34	57	38	48	N. W.	N. E.	11	8	C.	C.	—
Th...31	30.43	39	46	32	66	89	78	N.	E.	3	21	S.	R.	.15
F...1	29.88	48	54	42	92	58	75	W.	N. W.	16	14	O.	C.	2.67
S...2	30.19	40	44	35	65	95	80	N.	N.	12	14	O.	R.	.51
	30.35		54	38			67							3.34

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; N., snow. † Indicates trace of rainfall.  Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 9, 1895.

L. W. CURTIS, passed assistant surgeon, ordered to duty at the Indian Head Proving Ground.

JAMES STOUTON, passed assistant surgeon, detached from the Puget Sound Naval Station and ordered to duty at the Naval Hospital, Yokohama, Japan.

C. F. STOKES, passed assistant surgeon, detached from the Naval Hospital at Yokohama, ordered home and granted two months' leave.

H. D. WILSON, assistant surgeon, detached from duty at the Indian Head Proving Ground and ordered to duty at the Naval Hospital, Chelsea, Mass.

C. D. BROWNELL, assistant surgeon, ordered to duty at Puget Sound Naval Station on completion of his examination for promotion.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place on Wednesday, November 20th, at 8 o'clock P. M.

Papers: Dr. John Lovett Morse, "Typhoid Fever in Children with an Analysis of 284 Cases."

Dr. Frederick Coggeshall, "The Treatment of Severe Torticollis with Report of a Case."

JOHN L. AMES, M.D., Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, November 18th, at 8 o'clock.

Dr. D. A. Sargent, of Cambridge, will present, by invitation, a paper on "The Harvard Summer School of Physical Training, Its Aims, Its Methods and Its Work."

Dr. William James will make some remarks on "The Reaction on Mental States of Sound Muscular Power."

The following gentlemen have been asked to take part in the discussion: Prof. N. S. Shaler, Drs. H. P. Bowditch, G. W. Fitz and E. M. Hartwell.

JAMES G. MUMFORD, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lectures will be given on the evenings of November 21st and 22d, at 8 P. M., by PROFESSOR CHEEVER. Subject: "Abscess." The profession are invited.

RE-APPOINTMENT.

DR. FREDERICK HOLME WIGGIN has been re-appointed by the New York Commissioners of Charities and Correction as visiting gynecologist to the New York City Hospital at Blackwell's Island.

RECENT DEATH.

DR. ROBERT BATTEY, died Friday, at Rome, Ga. He was born at Augusta, Ga., 1828, was educated at Phillips Andover Academy and graduated from the University of Pennsylvania and from the Jefferson Medical College. In the Civil War he was surgeon in the Confederate Army. He was the first in this country to remove the uterine appendages for nervous disease, and the operation has sometimes been called Battey's operation. He was from 1873 to 1875 professor of obstetrics at the Atlanta Medical College and editor of *The Atlanta Medical and Surgical Journal*. Dr. Battey was a valued contributor to American and foreign medical journals, President of the Georgia Medical Association and member of the Atlanta Academy of Medicine, the American Gynecological Society and the American Medical Association.

BOOKS AND PAMPHLETS RECEIVED.

Two Fatal Cases of Sausage Poisoning. By Louis J. Mitchell, M.D., and John A. Wesener, Ph.G., M.D. Reprint. 1895.

A Case of Hydrosalpinx; Removal of the Right Tube and Ovary without Rupture of the Sac. By Hunter Robb, M.D. Reprint. 1895.

Certain Points in the Medico-Legal Investigation of Gunshot Wounds; Examination of Weapon, Body and Surroundings. By J. N. Hall, M.D., Denver, Col. Reprint. 1895.

Bulletin of the Harvard Medical Alumni Association, No. 8. Report of the Fifth Annual Meeting held in Boston, June 25, 1895. Boston: Published by the Association. 1895.

Mentally Deficient Children; Their Treatment and Training. By G. E. Shuttleworth, B.A., M.D., etc., Late Medical Superintendent, Royal Albert Asylum for Idiots and Imbeciles of the Northern Counties, Lancaster, etc. London: H. K. Lewis. 1895.

The Pathology and Treatment of Venereal Diseases. By Robert W. Taylor, M.D., Clinical Professor of Venereal Diseases at the College of Physicians and Surgeons, New York, etc. With 230 illustrations and seven colored plates. Philadelphia: Lea Brothers & Co. 1895.

Flat-Foot; Its Correction and Comparative Study with the Foot of the Orang, Chimpanzee, Gorilla and Baboon. Lupus Treated by Galvanism. Double Club-Foot and Hands; Treatment. Illustrated by Photographs. By B. Merrill Ricketts, Ph.B., M.D., Cincinnati, O. Reprint. 1895.

Operative Treatment in Laryngeal Stenosis due to Acute Membranous Obstruction Commonly called either Diphtheritic or Membranous Croup; The Result of Personal Experience in One Hundred Intubations and Twenty-seven Tracheotomies. By Albert B. Strong, A.M., M.D., Chicago. Reprint. 1895.

A Text-Book of Physiology. By M. A. Foster, M.A., M.D., LL.D., F.R.S., Professor of Physiology in the University of Cambridge and Fellow of Trinity College, Cambridge. Sixth American edition, thoroughly revised, with notes, additions and 257 illustrations. Philadelphia: Lea Brothers & Co. 1895.

A Treatise on Nervous and Mental Diseases for Students and Practitioners of Medicine. By Landon Carter Gray, A.M., M.D., Professor of Nervous and Mental Diseases in the New York Polyclinic, etc. Second edition, revised and enlarged, with 172 illustrations and three colored plates. Philadelphia: Lea Brothers & Co. 1895.

Two Abscesses of the Brain caused by Septic Emboli resulting from an old Gunshot Wound of the Right Lung inflicted Thirty-two Years before; Evacuation of One Abscess; Improvement; Death from Exhaustion, caused by Primary Abscess and Old Lung Trouble. By J. T. Eskridge, M.D., Denver, Col., and Clayton Parkhill, M.D., Denver, Col. Reprint. 1895.

Original Articles.

EXPLORATION OF THE LATERAL SINUS.

BY J. ORNE GREEN, M.D.,
Clinical Professor of Otology in Harvard University.

THE early and certain diagnosis of phlebitis of the lateral sinus from symptoms alone, is in all cases difficult, and in most cases impossible. As the disease is fairly amenable to surgical treatment in its incipiency, but very much less so in its later stages, it becomes important to know how far we are justified in carrying our surgical procedures on a suspected diagnosis merely. As contributions to the subject of exploration of the lateral sinus for purposes of diagnosis, I offer the three following cases: incidentally, two of them also illustrate the disease (osteophlebitis) which so closely resembles phlebitis of the sinus in its early stages that only an exploratory operation can complete the differentiation. They are the only explorations of a healthy sinus that I have done.

Sinus-phlebitis in about two-thirds of the cases, according to the statistics of nine thousand autopsies by Pitt, at Guy's Hospital, is due to suppuration of the ear and disease of the temporal bone. In the greater part of these ear diseases, it is the mastoid, which lies in direct relation to the sinus, from whence the infection reaches the sinus. Given a suppurating ear and symptoms of sinus-phlebitis, the probabilities are very great that one is the cause of the other; an absence of injury or of suppuration in any other part of the body, and the existence of mastoiditis, is almost certain confirmation of the connection between the ear and vein.

We may have symptoms of sinus-phlebitis: (1) Cerebral. (2) Externally objective. (3) Pyemic and septic.

(1) Headache, diffuse, on the affected side or in the ear. Vomiting in the beginning of the disease. Congested papillæ and optic neuritis. Psychic depression.

(2) Extension of thrombosis to veins outside the skull, which can be felt to be corded; these are the internal jugular and mastoid emissary. Injury to the nerves which pass with the sinus through the jugular foramen, vagus, accessorius, and glosso-pharyngeus; this is extremely rare.

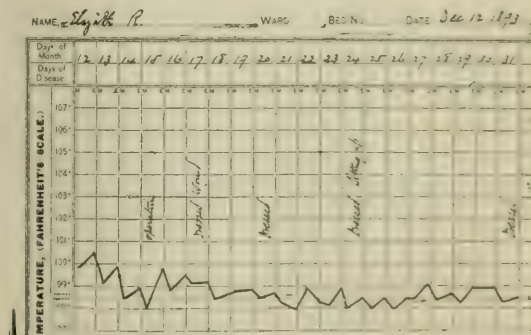
(3) Chills and a pyemic temperature; later, enlargement of spleen and metastases.

Of these symptoms, those in the last group, chills and pyemic temperature, are by far the most common in the early stages of the disease, which alone we are considering. Thrombosis of the jugular or mastoid emissary occasionally enables us to make a diagnosis, before septic symptoms appear. Chills and pyemic temperature mark an infection of the general system from an infected thrombus; the very earliest stages of phlebitis and thrombosis, before the thrombus has become infected, or before the infected material has entered the general system, may give no symptoms whatever. We see this occasionally in opening the mastoid where the sinus is found inflamed and thrombosed, and without the existence of any symptoms referable to the vein. As a rule, however, inflammation of the sinus, thrombosis, and general infection follow so rapidly, one on another, that chills and pyemic temperature can be considered early symptoms.

In two of the following cases, a chronic suppurating

tympanum was running its course without attention, and without marked temperature or any cerebral symptoms, when suddenly there was a chill, and temperature of 105° F. In the third a chronic tympanic suppuration was followed by sudden and persistent dizziness and vomiting, with a moderate rise in temperature. In all three, examination showed such a sensitiveness of the mastoid to pressure as to justify the diagnosis of mastoiditis, and a mastoid operation was advised and immediately undertaken. During the operation the lateral sinus was exposed, aspirated, and proven healthy, without any injurious effect, and phlebitis of the sinus was thus excluded. The subsequent history of all was that of a mild septic fever, which improved steadily from the time of the operation, and was over in from one to two weeks; in fact, the not unusual history of osteophlebitis in which, if the pus-focus is removed early by operation, thus preventing further septic infection, the prognosis in most cases is good. The fever had already begun before the operation and, in all probability, was not connected with that procedure.

E. R., a girl aged fourteen, with chronic suppuration of the right tympanum for years, had extreme dizziness and constant vomiting for three days, before entering the Massachusetts Charitable Eye and Ear Infirmary on December 12, 1893. The drum-membrane was destroyed entirely, and an extensive surface of carious bone could be felt in the antrum and posterior part of the meatus. There was constant headache in the frontal region, intense vertigo horizontally, from right to left, with flushing of the face on sitting up; inability to take any food. The watch was heard on contact; the mastoid antrum and tip were somewhat tender on pressure, but the external tissues not reddened or edematous.



On the 14th, under ether, I exposed the mastoid, and finding it discolored and softened, I opened the antrum, which was full of detritus and carious bone. In doing this, it was found that the inner wall of the mastoid was destroyed by caries, for more than a quarter of an inch in diameter, exposing the dura over the lateral sinus. A full Schwartze-Stacke operation was then done, and all carious bone removed in the antrum and attic. The exposed dura was white, and free from granulations, not pulsating. The sinus was soft and showed no respiratory pulse. An exploring needle was inserted but gave only dark venous blood. All the parts were thoroughly douched with boiled water, and iodoform packing used.

The headache, vertigo, and vomiting were relieved almost immediately. No symptoms followed the ex-

ploration of the sinus. The posterior wound closed by granulation in about six weeks, and the discharge from the tympanum ceased, but soon began again from the attic, and has continued since.

The general condition was good seven months after the operation, although the purulent discharge from the attic continued.

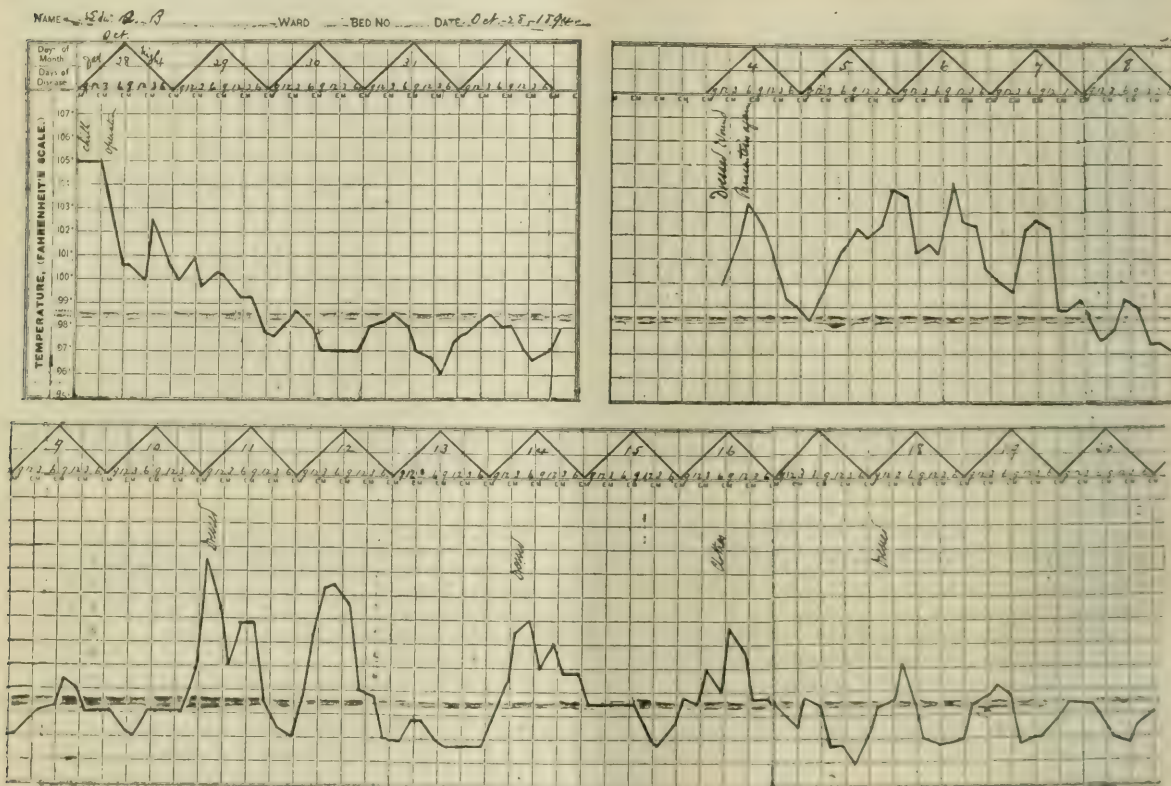
Edward A. B., aged eleven, with suppuration of the left tympanum of several weeks' duration, had complained of pain in the ear, tenderness of mastoid, and headache for three days, followed by a chill and a temperature of 105° F. He was immediately brought to the Infirmary, October 28, 1894.

The meatus contained very offensive pus, which exuded through a minute perforation, in a greatly infiltrated and inflamed drum-membrane. The whole

The case did perfectly well for one week, as is seen from the chart. There was then a sharp rise in temperature and the packing was removed for the first time, but there was absolutely no suppuration in it. The opening in the drum-membrane had closed, there was distinct bulging from retained secretion, and a fresh paracentesis was done.

The subsequent history is that of a mild septicemia, with very little discomfort, and healing of both wound and tympanum, with perfect hearing at the end of a month.

Sarah E. F., aged thirty, was admitted to the Boston City Hospital, on March 3, 1895, with an acute suppuration of the left tympanum, of two weeks' duration. The inflammation was intense, the drum-membrane greatly infiltrated, and the mastoid sensitive on



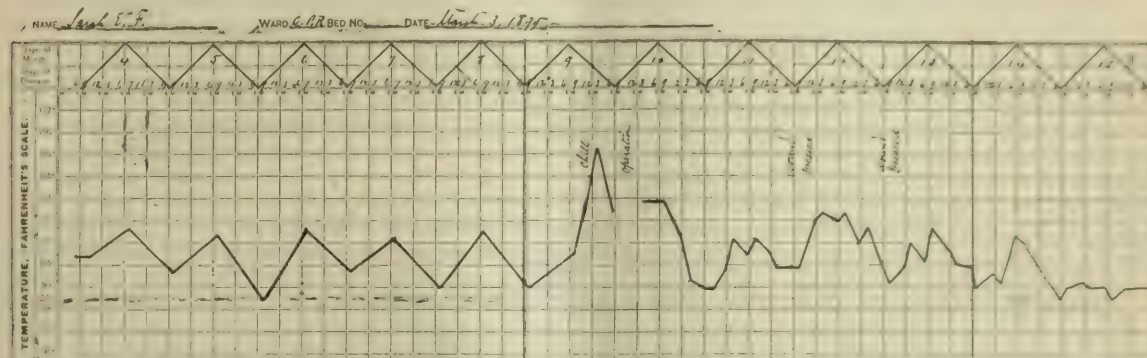
mastoid was sensitive, but particularly so along its posterior edge, and there was sensitiveness for two inches, along the edge of the sterno-cleido-mastoid muscle, but no cording of the jugular, and no swelling.

Under ether, a free paracentesis of the drum-membrane was done, the mastoid exposed, found to be darkly discolored and opened with a gouge and mallet. The cortex was thin, the bone diploetic throughout, and the diploe in a state of suppuration. With the object of exploring the sinus, the posterior inner cortex was cracked with a small chisel. In attempting to raise the piece thus broken there was immediately a profuse venous hemorrhage, undoubtedly from the lateral sinus in the upper part of its perpendicular section. The bleeding was readily checked by a tampon of iodoform gauze, and the absence of thrombo-phlebitis having been thus proved, the operation was completed by curetting all of the suppurating diploe, and by an iodoform gauze packing and an aseptic dressing.

pressure. The discharge was abundant and purulent. Paracentesis was required twice, and there was more than the usual amount of pain, till the 9th, the day after the last paracentesis, when there was a severe chill, and a temperature of 105.2° F. The next morning a mastoid operation was done; the bone was almost entirely diploetic, with a minute amount of pus in the interstices of the diploe. The inner cortex was softened and destroyed over a surface three-fourths of an inch in diameter, thus exposing the dura and sinus. The dura was white, without granulations, pulsation, or respiratory movements. The sinus could not be distinguished, and the first exploration with an aspirator was negative, but the next, a short distance further back, gave venous blood, showing the absence of thrombo-phlebitis. The suppurating diploe was removed as thoroughly as possible, douching with corrosive sublimate solution, 1-5,000, freely used, iodoform gauze packing and an aseptic dressing

applied. For the next four days there was a mild septic fever; convalescence was then rapid; both wound and ear healed with perfect hearing. The dura covered rapidly with granulations, and the wound was cleansed at each dressing with hydrogen-dioxide. At the end of about one month the patient, a nurse, resumed her duties.

The interior of the gall-bladder was curetted, and the bladder stitched to the abdominal wound with a rubber drainage-tube inserted. A sterilized dressing and swathe were applied. The patient made a good recovery from ether. On November 14th the tube and gauze were replaced, and the bile conducted into a bottle. On November 22d the tube was removed. On



The accident of tearing the sinus in removing the first piece of the internal cortex of the bone, as occurred in the second case, has happened to me also in one case of abscess of the temporal lobe of the brain, which I was endeavoring to locate by following the diseased bone inwards, all other means of localizing being absent, from the unconsciousness of the patient. As in the case here given, an attempt to raise the first fragment of bone was followed by a violent venous hemorrhage, which was, however, readily checked with a gauze tampon.

Since these two experiences, I have used a round burr on a surgical engine to grind down the bone to a thinness which allowed it to be removed without any violence, and I have been much pleased with the method. The difficulty is in getting the first small opening through the bone without injury to the dura. Having once accomplished this, the opening can be enlarged to any extent by curettes, or a small rongeur.

CLINICAL EXPERIENCE IN ABDOMINAL SURGERY AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY J. COLLINS WARREN, M.D.

(Continued from No. 20, p. 491.)

Gall-Stones, Cholecystotomy, Recovery.—A woman, married, thirty-four years of age, entered November 5, 1893, with a history of a sudden attack of epigastric pain combined with vomiting. These symptoms came on thirty-six hours before, and were preceded by twenty-four hours by a chill. Obstinate constipation. Convulsions night before entrance. Has had similar attacks during last seven years. She was very hysterical. Poorly nourished. Induration and tympany in right hypochondrium. There was no jaundice. During the next two days the pain and tenderness increased, the appearance of a tumor became more marked and on November 8th she was prepared for operation.

A five-inch incision was made over the gall-bladder region along the line of the linea semilunaris. An enlarged edematous liver presented, with gall-bladder adherent to the intestines. After aspiration the bladder was opened, and 150 stones removed from the cystic

duct. The interior of the gall-bladder was curetted, and the bladder stitched to the abdominal wound with a rubber drainage-tube inserted. A sterilized dressing and swathe were applied. The patient made a good recovery from ether. On November 14th the tube and gauze were replaced, and the bile conducted into a bottle. On November 22d the tube was removed. On

December 9th, having done perfectly well, she left the hospital, refusing operation to close a small slowly healing sinus.

Gall-Stones, Cholecystotomy and Choledochotomy, Death.—This patient entered the medical ward November 21, 1893. She was a working girl, single, twenty-two years of age, a native of Newfoundland. She complained of indigestion for several years and had been treated in the Out-Patient Department of the Massachusetts General Hospital. About a month ago her distress after eating became real pain, and in the past three weeks she has suffered from vomiting and itching of the skin. She has been jaundiced, with dark urine and clay-like stools, and is greatly emaciated. Occasional chills. Spirits not low. Upon examination the chest was negative. The liver dulness extended from the fifth rib to one inch below the costal border; the edge was not felt. On January 2, 1894, on account of progressively increasing severity of symptoms, she was transferred to the surgical ward for operation. After entering the surgical side she improved greatly; but as the attacks from which she suffers incapacitate her from regular work, she desired an operation.

A five-inch incision parallel to the right costal border exposed a distended gall-bladder, which was opened by a transverse incision through the fundus. The intestines were walled off with gauze. About an ounce of normal bile and five small stones were removed from the cystic duct, which was tortuous and thickened. It was necessary to incise the cystic duct to remove one large impacted stone. This wound was closed with silk Lembert sutures. The gall-bladder was sewed to the abdominal wound with silk sutures, which passed only through the peritoneum. The external wound was partially closed with a rubber tube in the bladder and a gauze wick draining the wound of the cystic duct.

The patient made a good recovery from the anesthetic.

The wound drained well, and on the fourth day the gauze drain was withdrawn and the rubber was replaced by gauze. She vomited constantly, however, retaining no nourishment either by mouth or rectum; there was not at any time tympanites or other symptoms of peritonitis. Finally, an excessive diarrhea set in and on February 8th, ten days after the operation, she died.

At the autopsy the diagnosis was made of septicemia, probably following necrosis of liver.

This case is of more than usual interest, as but comparatively few cases of suture of the gall-ducts have been attempted.

EXPLORATORY LAPAROTOMY.

Exploratory laparotomy was performed in six cases. In one case, not reported at length, the operation was performed for the purpose of determining the possibility of hysterectomy for carcinoma uteri. The explorations clearly showed, what could not be determined by a vaginal examination, namely, the futility of such an operation, the disease involving both broad ligaments and extending along the linea pectineæ. The case of E. F. C. shows the obscurity attending some types of abdominal disease. It seemed possible that the abdominal symptoms were but an accompaniment of some acute febrile disturbance.

Fibrous Polyp of Cervix Uteri, Exploratory Laparotomy, Recovery.—M. W., entered November 10, 1894. Fifty-six years old, of rather dwarfish stature, married. Two children and two miscarriages. Last August, acute retention relieved by the catheter. Twice since relieved in same manner. Six years ago had "falling of womb"; returned by hot douches. Climacteric nine years ago. Has foul leucorrhea and considerable backache. By the vagina a rounded mass, nearly filling the small pelvis, could be felt, but no cervix could be made out. Bimanually a small mass was felt above the pubes. She was etherized November 26th, and on account of the unsatisfactory examination it was thought best to open the abdomen to be sure that the uterus was not inverted. The organ was found in normal position and of normal size, but firmly held by the mass in the vagina. The diagnosis of polypus being thus confirmed (and it could be felt below Douglas's fossa), the abdominal wound was protected, and in the lithotomy position the tumor was delivered through the vulva, the pedicle rupturing during manipulation. The wound on the anterior cervical lip was sutured and the vagina packed with iodoform gauze. The polypus was the size of a cocoanut. The abdominal wound was then closed with interrupted silkworm-gut, and a dry dressing applied.

The patient made a most excellent recovery, and three weeks later, on December 20th, was sent to the Convalescent Home, much relieved. In the latter part of February, owing to flowing, the uterine cavity was curetted.

Reports, July, 1895, that she feels much better than when she went to the hospital, though sometimes pains occur in the back. Since curetting has flowed three or four days on one occasion.

Cancer of Peritoneum, Laparotomy, Recovery.—S. P., age fifty-seven, a widow, entered January 7, 1895. Menopause at forty-five, and since then has grown stout. She has had rheumatism for several years. Last summer, after hard work, she experienced a sudden sharp pain in the left side, and shortly after the belly swelled. The swelling continued for three or four weeks with occasional pain, finally relieved by free catharsis. She has had several attacks of this nature, and the abdominal swelling has persisted. There is no history of specific lesion. Lately the bowels have been constipated, but she has never vomited. She has lost flesh lately.

The abdomen was found enormously and evenly distended. Tympanitic, save in left flank. Hard masses could be felt below and to right of umbilicus. Tender only below and to left of ensiform cartilage. Edge of liver not felt.

January 14th, the abdomen was opened giving escape to about six pints of clear serous fluid. The omentum, mesentery and intestines were studded with nodules, one of which was removed and found by Dr. Whitney to be cancerous. The wound was closed and a dry dressing applied.

She felt relieved by the operation, although the fluid rapidly re-accumulated; and, as no operation was deemed feasible, she was discharged on February 1st.

July 1, 1895. Now at St. Elizabeth's Hospital, where she is failing slowly.

Peritonitis, Laparotomy, Death.—E. F. C., thirty-nine, a sail-maker, born in Massachusetts and living in Boston, entered hospital January 4, 1894. His general health had always been good. Alcohol had been taken to excess at times, and he had had gonorrhea. For about a week there had been some pain in the right side but this had been severe for only three days, causing him to give up work first and then take to bed. There had been no vomiting, no chills. The bowels had moved two days before. Very little urine had been passed for forty-eight hours, and none for twenty-four. At the time of entrance there was general abdominal distention and tympany and tenderness, particularly in the right iliac fossa. There was dullness in the hypogastrium extending about four inches above the pubes. The pulse was 135 and very compressible. The temperature was 102.5. There was marked leucocytosis. The expression was dull, the color of the skin dusky, the condition of the patient appeared extremely grave.

After consultation, immediate exploration was advised. An incision five inches long was made over McBurney's point. A small amount of serous fluid escaped from the peritoneum. The large and small intestines were much distended and congested in several areas about a foot in length. The appendix was normal. No constricting band was to be seen or felt. The small intestine was incised at its middle, and stripped of its contents from both ends. The bladder was emptied by catheter. A large opening was made in the cecum for an artificial anus. The intestines were thoroughly irrigated with sterile water and replaced, the wound of the small intestine being first closed.

During the operation and after it there was fecal vomiting. The vomiting increased until a black fluid without fecal odor was repeatedly regurgitated. In spite of the most vigorous stimulation the patient failed rapidly, and died about fifteen hours after entrance.

At neither the operation nor autopsy was the cause of the peritonitis found.

Obscure Abdominal Tumor, Laparotomy.—W. S., age thirty, a veterinary surgeon, born in Maine and living in Boston, entered the hospital on January 7, 1894. His grandfather had died of phthisis. He had been subject to rheumatism for six years, but had otherwise always been well till nine months ago. He had a sharp pain accompanied by an induration in the right iliac fossa at that time, which confined him to bed for six weeks, and which was attributed to appendicitis.

About three months ago he first noticed a tumor about the size of a lemon in the left iliac region, which was tender but not painful. In the last three weeks it had grown rapidly. During the last six months there had been rheumatic pains in the abdominal muscles, worse on the left side. In the last three months there had been four or five attacks of chills. There had been night-sweats, loss of strength and of twenty-five pounds in weight in two months. The tumor filled the left iliac region, extending two inches to the right of the median line, as high as the umbilicus and within two inches of the symphysis. It was very movable, did not fluctuate, could not be felt by rectum, and was somewhat adherent to the skin.

On January 12th a vertical incision, three inches long, was made over the middle of the tumor. The overlying tissues were porky. On cutting through them about three drachms of thick pus was evacuated from a large cavity about an inch below the surface, the walls of which were lined with cheesy tissue which was curetted away. The peritoneum was thoroughly walled off. The cavity was packed with iodoform gauze. The wound granulated well. In two weeks he was up, and discharged relieved, with a small granulating area.

An inoculation of guinea-pigs with the contents of the cavity gave a negative result. A careful search was made for actinomycosis, but no evidence of that disease could be found, although the great thickness of the abscess wall and the great amount of induration suggested it.

W. S. writes me, under date of August 10, 1895: "There is no enlargement or soreness; and were it not for the scar and the fact that I get tired on that side when I ride much, I should never know that I had been troubled there."

An examination of the cicatrix, August 14th, shows a slight hernial protrusion at one point. It seems, on the whole, probable that the patient's theory, that the present cold abscess was a sequel of his attack of appendicitis nine months before, is the correct one.

RADICAL CURE OF HERNIA.

The method which I have adopted during the last few years is that known as the Bassini method. The object of this operation is to restore the normal anatomical relation of the parts as nearly as possible. An incision four or five inches long uncovers the anterior wall of the canal and the external ring. The anterior wall is slit open and the exposed sac is separated from the cord, ligatured, excised, and the stump dropped back into the peritoneal cavity. If there is a large amount of omentum in the sac, it is usually cut away. The cord is now gently dissected (not stripped) from the canal and held on one side by a soft strand of gauze. The most important feature of the operation is the next step, which consists in uniting the conjoined tendon to the salient and glistening edge of Poupart's ligament. This can be done by silk, chromicized gut or kangaroo-tendon sutures. It is necessary to take from three to six interrupted sutures. The cord is now laid down upon this new floor, and the edges of the aponeurosis of the external oblique are brought together again over it. I take the liberty of rehearsing the steps of this well-known operation, as I have seen so many imperfect operations performed

under its name. I have only seen a small percentage of the cases thus operated upon by me, but have not seen a case yet in which this method was carried out faithfully in which the hernia had returned.

The case of B. O'C. is the last case in which I attempted the Macewen method, the sloughing of the dissected sac being a calamity which seemed likely to repeat itself owing to the extreme thinness of the sac wall in most cases after dissection. In cases of umbilical hernia it is often difficult to bring the edges of the ring together so as to make a vertical scar. In this case the wound can be closed readily and without tension so as to form a transverse cicatrix.

Inguinal Hernia. — B. O'C., age forty-six, entered the hospital February 21, 1894. She was married, but had never had any children. Four years previously she had been operated on by me for a left inguinal hernia of six years' standing, due to a strain in lifting. At that time there was an omental hernia filling the labium, the size of the fist. The sac was folded according to the method of Macewen, and made to plug the inner ring, which easily admitted two finger-tips. The edges of the ring were snugly united and the tissues overlying them stitched together. The entire sac thus folded eventually sloughed away, and the wound healed by granulation. She was discharged with a firm, thick cicatrix.

Two months later the hernia re-appeared. She then wore a truss, but for three years it has failed to hold. Is now half the size of the fist, contains bowel, and is easily reducible. It fills the labium.

On February 23d an incision four inches long was made over the old scar. The bowel was exposed and replaced. The internal ring admitted four finger-tips. The sac was dissected out, and cut off at its neck, the edges of the peritoneum being inverted and stitched together by a continuous silk suture. The conjoined tendon and Poupart's ligament were then united by several interrupted silk sutures; and then the anterior wall of the canal was stitched together by another row of silk sutures. The skin was then united by silkworm-gut sutures. A dry dressing was applied.

Three weeks after operation she was up, with a light truss and soft pad. The scar was solid, and there was no impulse on coughing. She was discharged well.

This patient was seen by me eighteen months after the operation. There had been no return of the hernia. A light truss was still used.

Ventral Hernia following operation for Appendicitis, Operation, Recovery. — J. C., a man about fifty years of age, had his appendix removed three months ago. During his convalescence from the operation he was afflicted with a persistent cough, and two weeks ago noticed a bulging in the cicatrix. This has grown steadily, nearly doubling in size during the first week.

On November 14th, an incision was made along the scar into the peritoneal cavity. The edges of the aponeurosis of the external oblique were found widely separated. The intestinal adhesions to the wound were freed; the separated and retracted peritoneum, aponeurosis and muscles were dissected out and sutured in layers. Interrupted silk to peritoneum and to fascia, silkworm-gut to the other tissues. Dry, sterile gauze and long strips of adhesive plaster across wound were applied, and a swathe. The patient still suffered from a considerable cough, but the wound healed by first intention and without a symptom.

On November 29th, fifteen days after the operation, he was discharged well. He was seen December 15th, and the wound found to be solid, with no impulse on cough.

July, 1895. Has been in good health. No return of hernia.

Umbilical Hernia, Operation, Recovery.—H. M., age fourteen months, entered November 12, 1894. He has a congenital navel hernia, varying in size from a walnut to a small orange.

November 13th. The umbilicus was excised by an elliptical incision. The fascia and peritoneum were dissected out and the bowel returned to the abdominal cavity. The peritoneum and fasciæ were closed in separate layers by interrupted silk, and the rest of the wound by interrupted silkworm-gut. A dry dressing and straps of adhesive plaster were applied.

On the second day the bowels were moved by enema of suds and glycerine. On the sixth day the sutures were removed. The wound had healed by first intention, and there was no impulse on cough or crying. The adhesive straps were re-applied, and he was discharged well, fifteen days after the operation.

His diet for the first two days was malted milk in hot water. After the second day he was given milk and soft solids, care being exercised.

July, 1895. Scar perfectly solid. No sign of any recurrence.

In three other cases in which answers have been received to my inquiry there has been no return of the hernia at periods varying from six to eighteen months. In one case in which the sac of the hernia being small, it was left untouched, the patient writes that he is more troubled than before, as the opening is smaller and there is more difficulty in returning the hernia. The hernia reappeared a few weeks after the operation.

(To be continued.)

SUGGESTIONS IN REGARD TO THE OPERATIONS FOR THE CURE OF INGUINAL AND FEMORAL HERNIA.

BY A. T. CABOT, A.M., M.D., BOSTON.

THE success of hernia operations depends upon the nice adjustment of the parts to stand a strain which has already once overcome the barriers offered by nature. Niceties of technique make or mar this success, and any suggestion which may perhaps make the closure of hernial canals more sure, has, therefore, a certain importance, even when it proposes but slight alterations in previous methods.

It is on this account that the following modifications of existing methods are brought to the attention of operators, with the hope that they may contribute something to increasing the chances of cure in this difficult class of cases.

INGUINAL HERNIA.

All operations for the radical cure of inguinal hernia showed themselves to be of but uncertain value until the plan of transplantation of the spermatic cord was suggested and carried out by Halsted and, in a different form, by Bassini. While it is perhaps, even yet, too soon to speak positively of the measure of success which will follow these new methods of operating, still, enough experience has been accumulated

to show that the spermatic cord is indeed the key to the lack of success by the older methods, and to demonstrate the value of putting the opening through which this cord emerges at a point where it is more out of the line of pressure than in its natural position.

By Halsted's method the cord comes through all of the layers of the abdominal wall in one straight canal and then runs downward beneath the skin. By Bassini's method the somewhat valvular arrangement which normally obtains in the inguinal canal is reproduced. The cord perforates the muscular wall, then runs downward between the muscles and the aponeurosis of the external oblique to finally emerge through this dense fibrous layer at about its usual normal point.

If the future history of these cases is to show that the short, direct canal furnished by Halsted's operation is not liable to dilatation, and that this method affords a reliable cure, then it is quite unnecessary to trouble ourselves to re-establish an oblique canal.

If, however, it is found to be of advantage to have the canal more or less valvular in arrangement, it may well be doubted, I think, whether we should follow Bassini and produce a replica of the canal furnished by nature, for the unsatisfactory nature of that canal is attested by the frequent occurrence of hernia. Its downward direction makes it rather easy for the abdominal contents to force down into and along it. It would, therefore, seem better to make the new canal run upwards and outwards so that the downward pressure of the bowels would act at right angles to its axis and so would tend to force its walls together. Made in this way it would work in a more perfectly valvular way than the natural inguinal canal.

The operation which I propose, and which I have carried out in one instance,¹ is to slit the aponeurosis of the external oblique muscle well up towards the anterior superior spine of the ileum, exactly as is done in Bassini's operation, to tie or suture and cut off the sac on a level with the peritoneal surface; then to suture the internal oblique and transversalis muscles and transversalis fascia on the inner side to Poupart's ligament on the outer side. These stitches may include the edges of the slit in the external oblique aponeurosis thus closing the old inguinal canal.

Finally, to close the upper remaining part of the slit in the external oblique aponeurosis with a continuous buried suture, which shall also include the upper edge of Poupart's ligament. This closure is to be done from below upward, and the spermatic cord is to be brought through at the highest point that it can be made to reach with moderate traction. Usually, it emerges at about the point where it would perforate the abdominal wall by Halsted's method.

By this operation the muscular wall of the abdomen is not weakened by any incision except that through the aponeurosis. The cord is entirely diverted from the old canal which is obliterated by stitches. The new canal pursues an upward and outward course through the abdominal wall, which, as I have pointed out above, seems to have decided advantages over the canal running downwards and inwards; and it would seem possible, too, that this method of closure would afford a canal of greater strength than the short, straight one afforded by Halsted's operation.

¹ Since writing the above I have heard from Dr. J. H. Harte, of Philadelphia, that he has carried out this plan in about fifty cases, with entire satisfaction as far as the immediate result went.

FEMORAL HERNIA.

The difficulties attending the radical cure of femoral hernia arise from the shortness of the canal, from the proximity of the femoral vein, which interferes with the extensive placing of stitches about the femoral ring, and, lastly, from the fact that it is made up of tendinous structures that do not readily adhere by a permanent union when sutured.

The healing together of the fibrous walls of the canal is made more difficult by the necessary tension of the stitches pulling upon rigid portions of the fascia and ligaments. This tension is not great enough to prevent the approximation of the walls of the canal, as is shown by the very complete closure which Dr. Cushing² obtained by his double method of suturing;

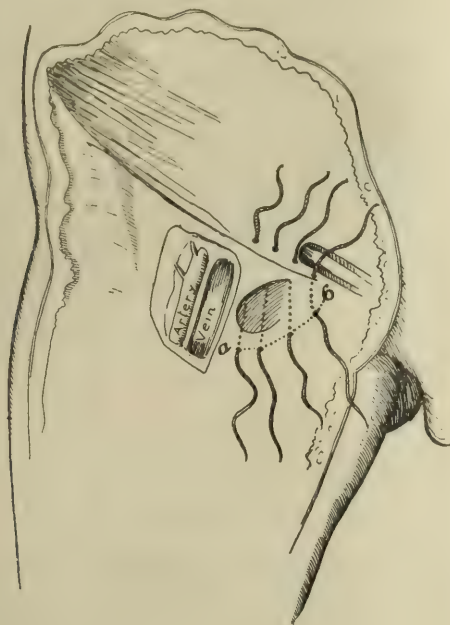


FIG. 1.

The curved dotted line *ab* represents the line of incision through the fascia. The dotted parts of the sutures run beneath the fascia, and, when knotted, they lift the flap of this fascia and attach it firmly to Poupart's ligament in the manner seen in Fig. 2.

but when rigid tissues are pulled together in this way, it is well known that the sutures are apt to cut through quickly.

The suggestion I have to offer is that previous to applying sutures, a semicircular incision shall be made through fascia lata just beneath the saphenous opening, the saphenous vein having been previously tied and cut away. The fascia can now be separated beneath so that the lower wall of the canal can be readily drawn upward against the unyielding portions of Poupart's ligament where it can be held with buried sutures without the least tension, and the whole canal is thereby tightly closed.

The following case illustrates the benefit of this method of operating: Miss A. O'N., aged twenty-six, was seen by me in January, 1894, in consultation with Dr. Joseph Williams, of Charlestown. She had a troublesome femoral hernia which could not be kept in place by any truss which she could wear, and,

which, on several occasions, had become incarcerated with symptoms of strangulation and had only been reduced with considerable difficulty. Radical operation for its cure was advised and consented to. This was done January 29, 1894.

The sac of the hernia was pulled down, and tied off on a level with the peritoneal cavity. In order to allow of the approximation of the walls of the canal without tension, the pubic portion of the fascia lata, just beneath the saphenous opening, was incised. Stitches of silkworm-gut were then passed deeply through the lower wall of the canal coming out beneath this flap of the fascia lata so as to hold it up firmly against Poupart's ligament. This completely obliterated the canal. The skin was then united by another row of interrupted sutures.

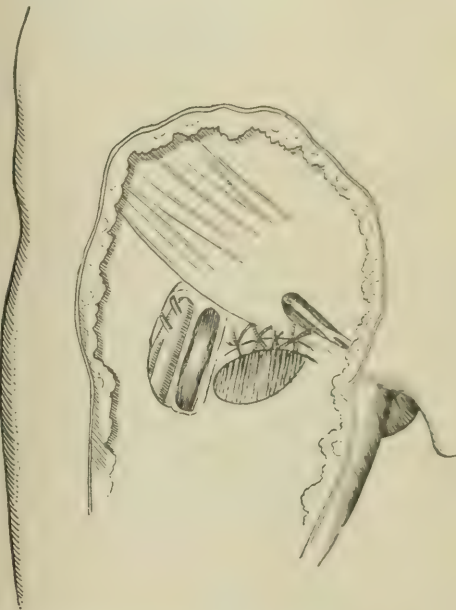


FIG. 2.

This diagram shows the manner in which the flap of fascia is pulled up against Poupart's ligament. Through the opening left below where the sutures are knotted, the fibres of the pectineus and the tendon of the adductor longus come in view. The surface of the muscle uncovered is so small and is so near to its attachment, that there would seem to be little danger of hernia of the muscle through this opening in its sheath.

Healing was by first intention; but about a month later a little abscess formed at the seat of operation, and, breaking, left a small fistulous opening. This was doubtless due to the irritation of the silkworm-gut. The suture material that I prefer is kangaroo or whale tendon, and this is the only case in which I have used silkworm-gut. I did so in this case hoping to have the support of the stitches for a longer time than with any of the more absorbable materials. I saw Miss O'N. a year later. She had still a very minute discharging sinus, which gave her little or no annoyance and had no sign of any return of the hernia.

MEDICAL MEN AS CABINET MINISTERS.—The new French Ministry includes three representatives of the medical profession. M. Berthelot, the Minister for Foreign Affairs, M. Viger, the Minister of Agriculture, and M. Combes, Minister of Public Instruction, are Doctors of Medicine.

² Boston Medical and Surgical Journal, December 6, 1888.

Clinical Department.

A CASE OF TRICHINOSIS: DEATH, AUTOPSY.

BY EDGAR GARCEAU, M.D.,

Surgeon to Out-Patients Free Hospital for Women, Boston.

O. R., a German thirty years old, an engineer in a brewery, was a married man of strong physique. In the spring of 1892, while at a sort of picnic he ate some raw smoked ham. Many of his friends who also ate some of the same ham were taken violently ill the day after, with severe vomiting and purging, but they all eventually recovered. He himself was not taken ill at once, which fact he thought was accounted for because he ate only a very small piece. For two weeks afterwards, however, he was not himself. He felt miserable; his appetite was gone; he had backache and pains in the limbs; was weak and listless and disinclined to work.

As these symptoms increased and as he began to feel feverish, he sent for me (April 12th). This was exactly two weeks after eating the ham. He mentioned the circumstance particularly because he had learned of the illness of his friends, and was afraid that he might have been "poisoned" also. He was very restless, and had not slept for three nights. There was no great pain anywhere, but the muscles of the calves of his legs and of the arms and back were sore and lame. He could, however, move them about freely without much inconvenience. There was some sensitiveness to light, and it hurt him a little to move his eyes. The bowels had been regular, and there had been no symptoms of intestinal irritation. The mind was anxious. On examination a few red spots were seen on the abdomen, which disappeared on pressure; the bowels were soft and not tender and there was no gurgling; the spleen was of normal size; the pulse was somewhat dicrotic, and its rate, 120; temperature, 103.5°; face, red; eyes, bulging in the sockets, and the conjunctivæ red and swollen and raised above the level of the corneæ, giving the latter a punched-out appearance.

The next day, April 13th, he was worse. He had not slept at all. There had been three very loose movements from the bowels, watery and of pea-soup consistency, and odorless. The pain in the muscles had increased, and motion began to be painful. His face was livid; the pulse, 130; temperature, 104.5°. He was very restless, and insisted on getting some sleep. There had been some vomiting.

On April 14th there was a slight improvement. He had slept a little and the temperature had dropped; there was less pain in the limbs, and there had been profuse sweating. On the whole he looked brighter. The loose stools continued. The eyes were still bulging, but were not so sensitive to light. In the afternoon there was some vomiting and also some coughing. The voice also began to get a little husky. Temperature, 104°. Towards evening, after giving a subcutaneous injection of morphine, he dozed a little.

Dr. P. O'M. Edson was now called in consultation. He thought the diagnosis lay between typhoid fever and trichinosis, with the presumption in favor of the former disease for the following reasons: (1) the prodromata of malaise, backache, pain in the limbs, uneasiness; (2) the sleeplessness; (3) the gradually rising fever; (4) the characteristic typhoid dejections; (5) the rose spots. But, on the other hand,

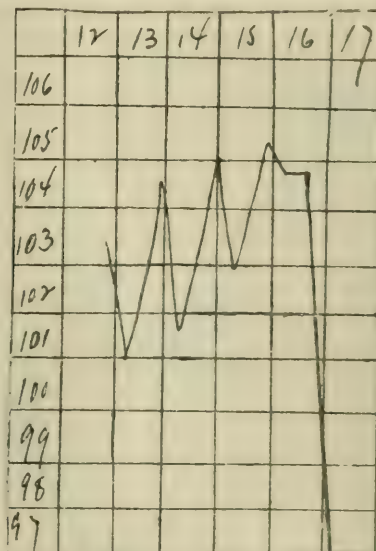
trichinosis is suggested by (1) the well-marked history of severe illness in others who ate the same ham; (2) the ocular and laryngeal symptoms.

April 15th. Much the same. The pains are more severe. Mind is clear.

April 16th. Much worse. Voice is now husky and cracked. Pulse very weak and somewhat irregular. Morphine has to be given freely to control the pains in the muscles which have become intolerable. The disease looks more like trichinosis.

April 17th. Completely collapsed. He died in the afternoon.

The treatment was merely palliative. Narcotics were used with great freedom, and controlled pain only moderately. Stimulation was pushed to the utmost limit.



A partial autopsy was allowed. An incision was made over the muscles of the calf of the leg and a small portion of muscular tissue examined. No difficulty was experienced in finding the characteristic trichinæ.

This case was interesting from its rarity. While it was perfectly typical, yet at the same time, on account of its rarity and its great resemblance to typhoid fever, the diagnosis was masked for a considerable while. Towards the end, however, there was little doubt about its nature.

To sum up, we have in the first place the history of the case and the period of incubation, two weeks, during which time the trichinæ were migrating from the intestines to the muscles. If the patient had eaten a good deal of ham it is probable that he would have escaped as the others did, by the violent vomiting and purging. This suggests that a cathartic be given in these doubtful cases to clear out the trichinæ. In this patient's case all the trichinæ swallowed had a chance to propagate, and the number propagated may be inferred when it is said that a single female trichina may produce more than a thousand embryos. The next symptom somewhat characteristic of trichinosis was the fever; it was high and had marked remissions. The severe muscular pains are also characteristic, but still it is by no means rare to meet with the same pains in typhoid. Strongly suggestive of trichinosis was the implication of the laryngeal muscles

as evidenced by the husky voice; this appeared late in the disease. The ocular symptoms were still more suggestive, and were noticed early in the disease. The edema of the conjunctivæ was very marked. It generally affects the eyelids, but in this case, curiously enough, the conjunctivæ were affected. It was this symptom which first aroused my suspicions as to the nature of the disease. The intestinal symptoms deserve mention. Purging is usually of common occurrence in trichinosis. The insomnia and rose spots need not be considered; they are met with in both diseases. The normal spleen furnished valuable negative evidence. Taken as a whole, these symptoms are, in connection with the prodromata, very much similar to those of typhoid; and, indeed, it was not until I had made the autopsy and had seen the trichinæ that I felt absolutely sure that the disease was not typhoid but trichinosis.

Fourteen per cent. of the Massachusetts hogs killed for food are infested with trichinæ. Of the Western animals which feed in the fields and have, therefore, relatively clean food only two per cent. are infested. The examination of these animals in the Massachusetts pork-packing establishments is very rigid and is regulated by law, so that the inspected pork may be said to be fairly safe. In this case the trichinosis was caused by eating ham which was not inspected; it was from an animal which was killed by a local butcher. As the ham was not boiled but merely smoked, it is not surprising that it caused trichinosis.

THE NEW SURGICAL SPLINTING.

A FURTHER REPORT OF CASES EXEMPLIFYING IT.

BY EDWARD A. TRACY, M.D., BOSTON,
Fellow of the Massachusetts Medical Society.

AT the Baltimore meeting of the American Medical Society last May, I reported cases illustrating the efficiency of four new splint forms devised by me: a latero-posterior splint for knee-joint fixation, a splint for hip-joint fixation, an external lateral elbow-splint, and a splint for the treatment of rib injuries. All of them were moulded on the patients; the material used being that devised by me for surgical splints and spinal jackets, and fully described in an original paper read before the Pan-American Medical Congress in Washington, 1893. Concisely defined, the new splint material is crushed wood-fibre rolled in a rugose manner, and in which layers of a loosely-meshed fabric is embedded during the rolling process. It is manufactured by the American Wood-Pulp Company, Boston. This material gives a most efficient and scientific surgical splinting, as demonstrated by the splints constructed from it for a variety of surgical injuries by brother practitioners and myself.

I say "a most efficient and scientific surgical splinting" for the reason that each splint is moulded upon the patient, and meets all the indications of the individual case at the will of the surgeon, who, in fact, creates the splint.

A number of such splints demonstrating this statement were shown at the annual meeting of the Massachusetts Medical Society in June last; at the Baltimore meeting of the American Medical Association last May; at the meeting of the Southwestern Arkansas Medical Society, through the courtesy of

Dr. Wilson; and to the Philadelphia Academy of Surgery (in the beginning of the year), through the kindness of Dr. Wm. J. Taylor. In this paper I shall report briefly three cases for which splinting was devised.

CASE I. The first is a case of fractured humerus, at the junction of middle and upper third, communicated to me orally by Dr. M. F. Gavin (surgeon at Boston City Hospital).

The case was in Dr. Gavin's private practice, and the splinting was devised and applied by him. The details of the progress in this case I do not recall, except that the result was excellent. The splinting consisted of a shoulder-cap extending to the elbow, and a small splint moulded over the inner surface of the arm, its middle laying over the seat of the fracture. A diagram of the shoulder-cap, indicating its construction, is shown in Fig. 1.

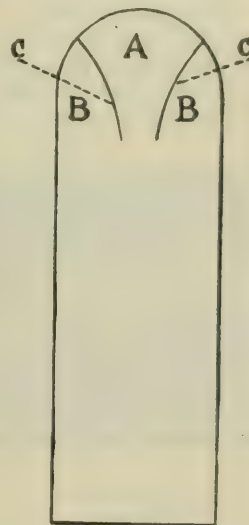


FIG. 1.

Diagram of shoulder-cap. Explanation: *cc* are the lines of incision in the splint-blank, starting from the upper part of the cap and converging towards the portion made to lie over the head of the humerus. After moistening the splint-blank, the part *A* is moulded over the shoulder and the parts *BB* are moulded over the part *A* and the arm. After drying—which can take place upon the arm—the moulded splint retains its form, because of the rigidity of the splint material.

The splinting was made from my wood-fibre splint material having a thickness of two millimetres. It was moistened with water and allowed to dry upon the arm. The process of splinting occupied but a few minutes. The splints were omitted after three weeks' application. This case illustrates a very simple method of making a shoulder-cap which for efficiency, lightness and cheapness I believe cannot be excelled.

The remaining cases, a compound fracture of the forefinger, and compound fracture of the toes, were treated by the writer; the splinting is original.

CASE II. T. L., laborer, entered my office with distal phalanx and tissues of left forefinger covering it crushed by machinery. The finger was dressed antiseptically, and a splint blank cut from a thin sheet of the wood-fibre splinting. It was cut so as to cover the forefinger except its internal, that is, ulnar aspect, and also sufficient of the dorsum of the hand to immobilize the proximal joint of the finger and also to secure the splint's better retention by a bandage over the hand. The accurate shape for the splint blank

was gotten by cutting a paper pattern so as to cover the parts as described, and by following this pattern for a guide when cutting the blank. The splint-blank was moistened with a solution of potassium silicate (the ordinary pharmacal solution, further diluted with its bulk of water).

The splint was omitted after twelve days. Result, excellent.

CASE III. F. P., with crushed toes, treated by me at the Boston City Hospital, through the courtesy of Dr. Paul Thorndike. The larger toes of the patient's right foot had been crushed. After thorough antiseptic treatment it was deemed desirable to immobilize the toes. This was readily accomplished by constructing a somewhat slipper-shaped splint. The pattern for the splint blank was cut so as to extend from above the heel along the sole of the foot to about two inches beyond the toes; laterally the pattern extended on each side about three inches beyond the outline of the anterior half of the sole. The splint blank was cut in accordance with this pattern from a sheet of the splint material two millimetres thick. The splint blank was moistened with a solution of potassium silicate, and moulded over the foot

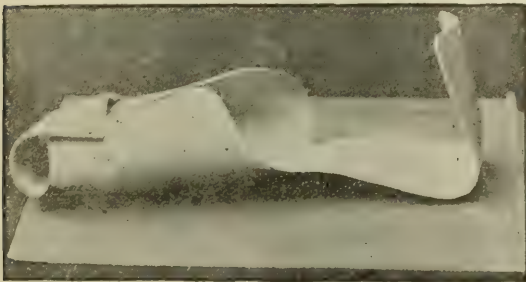


FIG. 2.

after the toes had been covered with a moist antiseptic dressing. The lateral projections of the blank were folded over and moulded upon the anterior half of the foot, while the projection in front of the toes was brought (lifted) upwards and folded over the others. The moulded splint was removed, and dried over a gas jet. Before applying it permanently a piece of oiled paper was folded over the moist antiseptic dressing, and it effectually prevented the moisture from softening the splint.

The natural resiliency of the splint material permitted the piece moulded over the heel to be bent downwards, so that the splint was readily drawn over the toes on applying it and as readily removed whenever the toes required dressing. This splint immobilized the toes effectually, and gave comfort to the patient by protecting the foot from injury while healing took place. It can readily be understood that this splint form would serve as well for fixation of the metatarsal bones. The splint is illustrated in Fig. 2, from a photograph of the splint.

CONTAMINATED OYSTERS.—About twelve ladies and gentlemen who attended a ball in Sterling County, England, on October 1st, have since been seized with typhoid fever, the result, it is alleged, of eating contaminated oysters, and three of the company have died.

Medical Progress.

REPORT ON THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D.

TANNIGEN.

SUBSTANCES now in common use as astringents, such as tannin and astringent salts, are disagreeable to take and begin to exert their action as soon as they reach the mouth. Professor Hans Meyer, of Marburg, has undertaken the task to make a compound of tannin which should have little or no action while in the mouth or stomach, but should become active in the intestine. The substance which he has succeeded in making synthetically and which is now manufactured he has called tannigen. It is a yellowish powder without taste or odor. It is soluble in alcohol in a solution of phosphate of sodium or of borax. Slightly alkaline solutions containing phosphate of soda have an astringent taste and other astringent properties. His theory of its action is that though insoluble in the stomach it dissolves slowly in the alkaline fluids of the intestines, and thus is capable of exerting an astringent action along the whole length of the small and large intestine. Experiments on animals showed that the substance was without harmful action and it was given to Professor Müller by his colleague for clinical trial and the anticipation that it would prove useful was confirmed. The dose used was 0.2 to 0.5 though it was harmless in doses even up to 3. It was found serviceable as an astringent in diarrhea, especially in children and in the diarrhea of tuberculosis. [A limited trial of it leads me to think that we probably have in tannigen an excellent astringent where such action is desired upon the intestinal mucous membrane. F. H. W.]

A RATIONAL DIABETIC FLOUR.

Dr. Heinrich Stern, of New York,¹ discusses, in *Food and Sanitation* (August 17th), the importance of suitable breadstuffs for use in diabetes, and states that the complete and sudden deprivation of breadstuffs undoubtedly produces more harm in a diabetic patient than a moderate use of that article. It is alleged that the so-called diabetic flours are free or nearly so from carbohydrates; but Dr. Stern says that all these flours contain large quantities of starch, and in fact if a complete extraction of the starchy principle could be accomplished, there would be very little left to make a satisfactory article of food.

After a series of experiments the author came to the conclusion that an inexpensive food and one containing only a small percentage of carbohydrates could be obtained from the peanut. Peanut meal, as known in commerce, contains about 52 per cent. of protein, 8 per cent. of fat and 27 per cent. of carbohydrates, and is therefore a most concentrated and valuable animal food. It is of a quite agreeable taste and not very hard to digest.

Dr. Stern describes his method of preparing what he calls the diabetic peanut flour, in which the smell and taste characteristic of the peanut are overcome. He has made use of this flour in different ways, the most simple of which is in the form of porridge, milk being added. Bread and biscuit can also be made from it, but he thinks the German pancake the nicest and most easily digestible form in which to use it.

¹ New York Medical Journal, September 14, 1895.

The author has used the flour with four diabetics and a number of other patients. Its use was a failure at the outset with the first diabetic; but a more careful and rational preparation of the flour and its employment in smaller quantities increased its digestibility, and to-day this patient is in as good a state of health as circumstances permit. The other three patients thrived well on this flour, the German pancake being the usual form in which they employ it.

THE TREATMENT OF DIPHTHERIA BY ANTITOXIN.

Dr. William H. Welch begins his most noteworthy article on this subject by a brief historical introduction, and then says that there are two prominent theories as to the mode of action of the diphtheria antitoxin. The one may be called the chemical and the other the vital theory. The chemical theory is that the antitoxin directly neutralizes in a chemical sense the toxins. This seemed to be the natural interpretation of the fact that the injection into susceptible animals of a mixture in suitable proportion of the antitoxin and the toxin is harmless; but Buchner and Roux have shown that this earlier view is incorrect, and that by selecting animals of greater susceptibility or by increasing the natural susceptibility of an animal, the presence of active toxin in the mixture can still be demonstrated. The experimental evidence, therefore, is in favor of the other theory, namely, that the antitoxin acts through the agency of the living body, and probably in the sense that it renders the cells tolerant of the poison. The results of the treatment of human diphtheria with antitoxin speak also in favor of this vital theory.

Antitoxic serum exerts no bactericidal effect upon the diphtheria bacillus. Virulent bacilli may persist in the throat days and even weeks after recovery following injection of antitoxin.

One of the most important characters of antitoxin is that it requires a definite quantity of this substance to neutralize the effects of a definite quantity of toxin. In animals the curative dose of antitoxin stands in a definite quantitative relation to the size and susceptibility of the individual and to the amount and intensity of the poison in the system. We have no precise method of determining how much and how virulent the poison may be in a given case of human diphtheria, nor how susceptible to the toxin the patient may be. The dosage of antitoxin, therefore, in human diphtheria is empirical, the main factors determining it being the age of the patient, the assumed duration of the disease up to the time of administering the remedy, and the apparent severity of the disease. As the healing serum is expensive and is capable of inducing unpleasant symptoms, it is desirable not to give an excessive quantity. Under these circumstances it may readily happen that an insufficient dose is given, and that the administration must be repeated. This matter is spoken of to indicate that because a patient may have received a dose, or even two or more doses of antitoxin, furnishes no absolute guarantee that a quantity of antitoxin adequate to neutralize the effects of the toxin has been given. It is now known that in the early period of its use entirely insufficient doses were given.

Both experiments on animals and clinical experiments demonstrate that the earlier antitoxic serum is administered after the inception of the disease, the better are the chances of recovery. The evidence is

conclusive that the superiority of serum treatment over all other methods is most strikingly manifested in the results of the cases in which the antitoxin is given not later than the third day of the disease. Although in many cases the treatment is beneficial when the antitoxin is administered in larger doses at a later period of the disease, the importance of beginning the treatment at the earliest possible date, without waiting to determine by cultures whether or not the Löffler bacillus is present, cannot be too strongly emphasized.

The Löffler bacillus has been found in healthy throats, although only very exceptionally, unless the person has been exposed to diphtheria. This same bacillus may cause all grades of inflammation of the throat, from a mild erythematous angina to the gravest pseudo-membranous inflammation. There has resulted a conflict, not yet settled, between the clinical and the bacteriological diagnosis of diphtheria. The conditions pertaining to the diphtheria bacillus are in no way different from those relating to many other pathogenic bacteria, as for example, the pneumococcus, the streptococcus, the cholera bacillus, and even the tubercle bacillus, all of which may be found on healthy mucous membranes and may exert their pathogenic activity with all degrees of intensity. It would, of course, be absurd to say that a person has diphtheria because Löffler bacilli were found in his healthy throat, just as it would be equally ridiculous to consider a person infected with the pneumococcus or streptococcus, when these latter bacteria are present under similar conditions; but it is no less absurd to limit the application of the term "diphtheria" only to those higher degrees of pathogenic action of the Löffler bacillus characterized by spreading pseudo-membranous inflammations and general toxemia.

The statement is sometimes made, that twenty-five to thirty per cent., or even a larger percentage of the clinical diphtherias are not genuine diphtheria in the bacteriological sense. These figures are based upon the bacteriological examination of large numbers of cases in which there was simply more or less suspicion of diphtheria. They do not relate generally to a large number of cases presenting unmistakable anatomical and clinical characteristics of diphtheria. They are derived from the routine examinations, for boards of health and children's hospitals, of suspected cases of diphtheria. When one considers that in some cases of diphtheria repeated, painstaking examination, microscopical and cultural, by a skilled bacteriologist, is required for the detection of the diphtheria bacillus, it is evident that less reliance is to be placed upon these statistics *en gros* than upon many smaller series reported by bacteriological experts. Of the statistics of the latter character there are many which show that in the series of cases examined (including in each series reported from a dozen to over three hundred cases) from ninety to one hundred per cent. of the clinical diphtherias are due to the Löffler bacillus. The experience in Baltimore has been that not over five per cent. of the cases which the clinician would confidently diagnose as diphtheria are false diphtheria or diphtheroid. These latter figures relate, of course, to primary diphtheria.

There is an important difference between experimental diphtheria and many cases of human diphtheria, a difference of great significance in determining the scope of efficiency of treatment by antitoxic serum. Experimental diphtheria is a pure, uncomplicated in-

fection in which only the diphtheria bacillus and its toxin are concerned. On the other hand, in many cases of human diphtheria there are complications and mixed infections due to other micro-organisms, against which, when fully developed, the diphtheria antitoxin is powerless. The most common and dangerous complicating micro-organism is the streptococcus pyogenes. Without doubt the remedial rôle of diphtheria antitoxin is materially restricted by its inability to combat developed streptococcus sepsis, broncho-pneumonia and other complications referable to secondary infection, or to stop impending suffocation by immediate removal of mechanical obstacles in the form of false membranes in the air-passages; but the antitoxic serum is the most powerful agent which we possess to prevent the development of these complications and secondary infection. The timely administration of the healing serum, by antagonizing the effects of the Löffler bacillus, antagonizes in large part the causes of the increased susceptibility to secondary infections and thus greatly lessens the frequency of their occurrence.

In considering the obstacles in the way of cure of diphtheria by antitoxin, the self-evident fact should not be forgotten that this remedy cannot restore cell life which has already been seriously damaged by the action of the diphtheria bacillus or its poison.

Concerning the efficacy of the antitoxic treatment the evidence is of two kinds: first, the general impression of clinicians who have had opportunity to observe the effects of antitoxin administered in a number of cases of diphtheria; and second, the fatality statistics of cases treated with antitoxin. The published testimony of those who have had the largest opportunity to study the therapeutic effects of antitoxin is overwhelmingly in its favor; such men as Baginsky, Heubner, von Widerhofer, von Ranke, Ganghofner, Escherich, Bokai, the physicians of the Hôpital des Enfants Malades and Hôpital Trousseau in Paris, speak of it in high terms. These observers have reported already in detail over 2,300 cases of diphtheria treated with antitoxin.

It is to be expected that there should be wide diversity in the percentage of cures in reports of different observers when the varied character of the cases treated and the importance of the early administration is considered.

If antitoxin really exerts any specific curative action in diphtheria this must be apparent in the figures of fatality statistics of this disease. The possible fallacies of interpretation, belonging to fatality statistics in general, apply in no small measure to those of diphtheria. The case mortality from diphtheria varies within wide limits, according to the more or less severe character of the prevailing epidemic, according to the season of the year, the age, the method of treatment in cities and country districts, etc. Statistics of case mortality from hospital practice will differ widely from those of private practice, and each of these will differ widely from the general case mortality returns from cities. Nor does each of these three classes of statistics represent a uniform material.

In about ten months, more or less, definite reports of the results of treatment in at least 15,000 cases have been published. Eighty-two reports have been collected from 80 different sources containing 7,166 cases; these are presented in a table (I) and are analyzed. The reports are of unequal value; some

are based upon the bacteriological control of the clinical diagnosis, others upon the clinical diagnosis uncontrolled by bacteriological examination. Although only the former can lay claim to entire accuracy, the benefits of antitoxic treatment are clearly apparent in the latter.

It appears from Table I, that, of 7,166 patients with diphtheria treated with antitoxin, 1,239 (or 17.3 per cent.) died. Among these cases are included many treated during the early period with entirely insufficient doses. The natural interpretation of the statistics in over 7,000 cases, of which at least five-sixths are from hospital practice, treated with antitoxin (an extraordinarily low percentage of deaths for this class of cases, and showing an apparent reduction in fatality of from 50 to 60 per cent., by the use of antitoxin), is that antitoxin exerts a specific curative power over diphtheria.

It has been claimed that the observations on which this statistical evidence was based were made during the prevalence of an unusually mild diphtheria; but no proof has been brought forward to support this opinion in any large measure. In a few cases this may in part be the explanation.

Another criticism is that in the hospitals where the serum treatment is carried out a proportionally larger number of cases are received now than formerly in the earlier stages of diphtheria; but if all due allowance is made for this possible increase — and some allowance must be made — this factor is still altogether inadequate to explain the great reduction in fatality of diphtheria treated with antitoxin.

A third criticism, namely, that the bacterial test operates in favor of a low mortality in antitoxin statistics, has already been discussed.

With all possible allowance made for the above-mentioned criticisms, he believes that the statistics collected show that antitoxin is a specific curative agent for diphtheria; and he goes over the ground very carefully and in a good deal of detail, taking the statistics from private as well as hospital practice. He shows the value of this treatment in cases requiring tracheotomy or intubation and likewise the substitution of intubation for tracheotomy in a larger and larger proportion of the laryngeal diphtherias requiring operative interference when treated by the serum and the shortening of the period during which the tube or tracheal canula is required to be kept in the air-passage.

Behring claims that no death will occur from diphtheria if antitoxin is injected in sufficient dose at the beginning of the disease, and that the fatality will fall under five per cent. if the treatment is begun in a proper manner before the third day of the disease. Dr. Welch gives tables showing the mortality according to the day of the disease in which antitoxin was injected, and adds that it is noteworthy that in 814 cases in which treatment was begun before the third day the percentage of deaths was only 5.5 per cent, and if the doubtful deaths attributed to the first day be excluded the percentage falls a trifle short of five. If, furthermore, allowance is made for the fact that the assigned duration of the disease can scarcely be shorter but may readily be longer than the actual duration, then the tabulation of 1,702 cases of diphtheria according to the day of beginning treatment verifies Behring's original prediction; but Dr. Welch thinks it unjustifiable from so small a number of cases and

from material of the kind composing the table to draw any definite conclusions as to the exact percentages of deaths according to the date of beginning treatment.

The percentage of deaths according to the table is much lower in cases where treatment is begun on the first and second days than when begun on the third and fourth days; but it is not to be inferred from these results that antitoxin may not be beneficial when administered after the third and fourth days of the disease.

Most writers approve the continuance of such local and general treatment as has hitherto been found to be useful, but recommend the avoidance of all irritating and caustic local applications.

The injection of the serum may be followed in a few hours by local pain, swelling and redness, but there is no danger of abscess formation if the serum is uncontaminated and proper antiseptic precautions are taken.

In twenty-four to forty-eight hours after the injection, the general condition of the patient is remarkably improved in the great majority of those patients who are in a condition to be benefited at all by antitoxin. In the favorable cases, the local diphtheritic process is arrested, usually within the first twenty-four hours after the injection. Membrane may appear upon spots previously inflamed and invaded by the bacilli, but otherwise there is no extension of the membrane in the majority of the cases benefited. The membrane may disappear by rapid separation or by gradual softening. Sometimes it persists for several days after disappearance of all other local disturbance. Large membranous casts are coughed up from the larynx, trachea and bronchi under the serum treatment more frequently than under former methods. The rapid separation of the membrane in the lower air-passages may cause sudden increase of stenotic symptoms.

The most uncertainty prevails as to the influence of antitoxin in preventing the three most important complications or sequelæ of diphtheria — nephritis, heart-failure and paralysis. The weight of evidence is that genuine nephritis is far less common in cases treated by antitoxin sufficiently early than under other methods of treatment, but it is questionable whether albuminuria is less common.

Many writers emphasize the favorable influence of antitoxin on the heart, but some have observed that with decided improvement in all other symptoms the force of the heart may still remain weak and occasion anxiety.

Post-diphtheritic paralysis may occur in cases treated with serum as early as the second or third day of the disease. Whether they occur in cases treated within the first twenty-four hours is uncertain.

It is apparent from what has been said that antitoxin is most strikingly beneficial in progressive fibrinous diphtheria, and especially in the prevention and cure of laryngeal diphtheria. In septic diphtheria the serum treatment is of little avail.

Antitoxin may produce unpleasant effects, but these do not involve danger to the patient. They are in all probability referable to the serum as such and not to the healing so-called antitoxic substance contained in the serum. The most common undesired effect is some form of exanthem, usually erythema and urticaria, sometimes an eruption like measles or scarlatinal rash.

There have been a few cases reported in which the

writers without any satisfactory evidence whatever, have referred the death of the patient to the use of the serum. The essential harmlessness of the serum has been demonstrated by over one hundred thousand injections, and if future investigations should show that through some idiosyncrasy on the part of the patient death ever is attributable to the injection of the serum, this would probably count for about as much as the rare deaths from the use of ether or chloroform.

The principal conclusion Dr. Welch draws from his paper is that the study of the results of the treatment of over 7,000 cases of diphtheria by antitoxin demonstrates beyond all reasonable doubt that anti-diphtheritic serum is a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it.

Better results may be expected a second year, and improvements in the method of preparation and preservation of the serum; and possibly the separation of the healing substance, at least from other ingredients that produce undesired effects may likewise be expected.

The discovery of the healing serum is entirely the result of laboratory work; and it should be brought home to those whose philozoic sentiments outweigh sentiments of true philanthropy, that these discoveries which have led to the saving of untold thousands of human lives have been gained by the sacrifice of the lives of thousands of animals, and by no possibility could have been made without experimentation upon animals.

THE DECLINE OF HYPNOTISM.²

The *Lancet* says there seem many signs that we are witnessing the decay of hypnotism. Its claim to take rank, not as a curious psychological phenomenon, but as a recognized branch of therapeutics, is now pressed with much less insistence and sincerity than a few years ago. While admitting that modern hypnotism presented some new developments and refinements, we have always maintained that in essence it was identical with the mesmerism, Braidism, animal magnetism and electro-biology of former times, and that in due course it would be found to be barren, if not noxious, in the field of medicine. The dangers of the proposed new departure were evident and grave, the advantages at best problematical, at worst illusory and deceptive. Let us recall some of the salient features of the controversy.

First, are hypnotic phenomena normal or abnormal, physiological or pathological? It has been alleged that the phenomena were perfectly normal and some of the apostles of the movement have asserted that more than ordinary strength and balance of mind were necessary to constitute any one a thoroughly good subject for hypnotism. It was said that the power of sustained concentration of attention was the most essential point in securing the success of the experiments and that such a power was the very best antithesis of hysteria or morbid neurosis; on the other hand, the more general and gradually prevailing opinion has been that the hypnotic trance and all the curious attendant phenomena were of the nature of disease, and showed a mind not abnormally strong or even normally sane, but to a greater or less extent temporarily off its balance. This latter view is in our judgment

² New York Medical Journal, July 13, 1895.

most in accord with the facts and most consistent with theory. Ordinary experience of life teaches us that one of the most potent forces in human nature is the love of notoriety and the desire to become the centre of interested attention. Granted an atmosphere of excited interest and a strong expectancy of certain results on the part of subjects and operators, and the most astonishing effects can easily be produced. Again, if it is of the essence of hypnotism that the subject should yield his will to that of another individual, we think such a condition much more likely to be associated with mental weakness than with mental strength. The most probable theory of the causation of hypnosis has always seemed to us the view that was put forward by Heidenhain and other good physiologists, namely, that the hypnotic trance is the result of an inhibition of some portions of the cerebral substance, the remaining portions acting abnormally and giving an extraordinary response to ordinary stimuli.

Second, granting that hypnosis is real and can be evoked according to definite rules, is it capable of being turned to useful account in the field of therapeutics? Strong claims were put forward for hypnotism as an anesthetic, an analgesic and a nerve stimulant. There was a stage in the annals of this curious history where even grave organic maladies, for example, hemiplegia, Bell's paralysis, etc., were alleged to be submissive to hypnotism; but by degrees one claim only was insisted upon, namely, that hypnotism was a potent remedy for 'functional' nervous affections. These maladies constitute the most illusive of all fields for therapeutic experiment. The victim of functional nerve disorder not infrequently gets well with any treatment or no treatment. Above all it is clear that any strong impression on the nervous system, whether produced accidentally or by deliberate therapeutic endeavor, frequently results in the cure of such cases. Hypnotism is one way of producing such an impression; and its good effects might be freely admitted if there was no reason to suspect that the cure might be worse than the disease. To drive out neurasthenia by inducing the hypnotic state is a procedure fraught with so much peril, both on the moral and physical side, that it can only be undertaken with grave apprehension. The broken-down nervous systems that form the bulk of neurasthenic cases are bad material for doubtful psychical experiments. Rather should we commend in such cases the old and well-tried methods of treatment by rest, change, fresh air, diet, tonics, modifications of unwholesome environment, suitable occupation, and recreation. These methods often succeed, and it can at least be said that their failure does not make the last case of the patient worse than the first.

Hypnotism is undoubtedly worthy of study, but we suspect that more and more it will be handed over to the psychologist, perhaps sometimes to the alienist, and that its interest for the practical physician will steadily wane.

ANOTHER POST-GRADUATE SCHOOL.—A post-graduate school has recently been established in Washington, D. C. According to the prospectus there is no post-graduate school south of New York and Philadelphia. Among the faculty, according to the *National Medical Review*, are Dr. Samuel C. Burey, Dr. W. W. Johnston, and Dr. J. Ford Thompson.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTIETH ANNUAL MEETING, BALTIMORE, MAY 28, 29 AND 30, 1895.

(Concluded from No. 20, page 496.)

SPECIMENS REMOVED BY VAGINAL AND ABDOMINAL HYSTERECTOMY.

DR. R. STANSBURY SUTTON, of Pittsburgh, presented a number of smaller uterine fibroids removed with the uterus *per vaginam*, and some much larger removed by suprapubic hysterectomy, the entire number of cases so operated upon from the 1st of November, 1894, to the 1st of May, 1895, having been 12, with 12 recoveries. In one of the cases the appendages had been removed twenty months previously, but the woman had not been cured; and he might say that in this and several of the other cases the only procedure which offered a cure was total castration. Dr. Sutton had removed the uterus, with fibroid and fetus, in three cases, all of the women recovering. He was always willing to sacrifice the life of the fetus in order to save that of the mother.

DR. MONTGOMERY, of Philadelphia, thought the complication of fistula which arose nine times in Dr. Jacobs's list was fully offset by this or other accidents occurring in laparotomy. He would not go as far as Dr. Jacobs and advocate total castration in every case of bilateral disease of the adnexa, since in some instances conservative measures would be successful. He did not believe, either, that in every case of ectopic gestation the appendages on both sides were diseased and called for hysterectomy. He believed in vaginal hysterectomy for malignant disease and fibroids, although in the latter condition hysterectomy might not be necessary at all.

DR. J. M. BALDY, of Philadelphia, upheld laparotomy *versus* vaginal hysterectomy. He would admit hernia as an objection to the abdominal incision; but it rarely occurred, and was not to be compared with various forms of fistula encountered nine times by Dr. Jacobs, and which had led him to resort to two of the most dangerous operations in surgery, namely, intestinal anastomosis and nephrectomy. He claimed that the mortality was in favor of the abdominal route, for Dr. Jacobs had given 4.6 per cent. for vaginal castration, while he could quote 224 operations through the abdomen by such men as Polk, Pryor, Krug, Penrose, Kelly, and himself, with a mortality of about one-half, or 2.7 per cent.

DR. W. M. POLK, of New York, claimed that even conservative work on the appendages could be done through the vagina, provided the incision were made in the anterior cul-de-sac where the appendages could be drawn down within easy reach. It might be questioned whether the appendages should be sacrificed in all cases of hydrosalpinx and hematosalpinx, but not in pus collections. Inasmuch as the uterus was no longer of service without the appendages, many believed it should also be removed. The cases could be divided into two classes: (1) Those in which there were few adhesions in connection with diseased appendages, and vaginal hysterectomy was comparatively easy; (2) Those in which there were pus sacs and wide adhesions, and the operation was very difficult.

In the latter class of cases drainage could be established through the vagina, and the more radical operation be postponed. In puerperal cases, where operative interference was indicated, the vaginal route would be attended by less shock, a very important point in women suffering from this condition. He appreciated very highly the suggestion of Dr. Henrotin to make vaginal incision and drainage a prophylactic measure in pelvic inflammation when done early. He differed from Dr. Jacobs in one operative step, for he preferred to use ligatures at the beginning of vaginal hysterectomy rather than clamps, leaving the latter for the higher steps when they would be less in the way.

DR. S. C. GORDON, of Portland, Me., conceded the brilliant results claimed by Dr. Jacobs and other experts in operating from below, and he had practised that method to some extent himself, but must express his preference for the suprapubic operation. He thought one could do better by sight aided by touch than by touch alone. He thought it was objectionable to pull down the ovaries and examine them as Dr. Polk had recommended; they could not be returned to their former position if one should decide not to remove them. Then one could repair existing fistulæ much better from above.

DR. W. GILL WYLIE, of New York, said he had not performed vaginal hysterectomy in a very large number of cases, about 55, and the results had been better so far as the mortality was concerned than by suprapubic hysterectomy, there having been only one death, but he did not believe they would have been better had the cases been of a similar nature. In private practice his mortality-rate by the suprapubic method would at present hardly exceed one per cent.; even in Bellevue Hospital it would not exceed three per cent. He regarded the vaginal procedure as much more difficult where the adhesions were high, and he doubted whether he should ever adopt it in that class of cases. The future would have to decide which method would give the best results. General surgeons would probably prefer the abdominal method.

DR. JOSEPH E. JANVRIN, of New York, had limited most of his vaginal work to cancer of the uterus and to removal of such fibroids as did not require hysterectomy. He thought that in tubal pregnancy, if the condition were recognized early, there should be no disease in the opposite tube, and hence there could be no necessity for its removal and with it the removal of the uterus.

DR. MCGONIGAL, of California, maintained that it was not justifiable to remove the uterus for salpingitis without pus. Where pus existed, it was justifiable to do complete castration either from below or from above, but he had only practised the latter method. He thought it was a matter of personal judgment as to which route should be chosen. He agreed with Dr. Baldy, that fistula was much more likely to occur in operating from below, for out of 72 suprapubic hysterectomies the speaker had not had fistula of the bowel once.

DR. WILLIAM T. LUSK, of New York, thought that all were agreed as to operating from below where it was necessary to remove the uterus for cancer and for fibroids of medium size. In the case of pus tube, as long as there was a probability in a given case of its being unilateral, he would prefer to follow Dr. Polk's practice of saving the appendages on one

side, together with the uterus. Regarding tubal pregnancy, he had operated upon a good many cases, and could not recall one in which the tube and ovary which had been allowed to remain had undergone disease, with the exception of one case in which carcinoma developed three years afterward quite independently of the tubal pregnancy. Not approving, then, of Dr. Jacobs's recommendation to remove the uterus in tubal pregnancy, he would prefer to operate from above.

A great deal has been said about operating from below in inflammation with supposed collection of pus. In talking to the family physician, he found this gentleman was afraid to give morphine through fear it would mask symptoms; he was afraid to give an antipyretic for the same reason; he must not apply a blister; he must not use alcohol; he must only give something with a view to killing bacteria or preventing the development of streptococci until a gynecologist could be sent for and operate on the patient. Dr. Lusk thought he should remember that in this class of cases, cases recently confined and having little afternoon temperature would, ninety-six times—he might have said ninety-nine times—in a hundred recover if left alone, whereas if we undertook an operation we assumed a great responsibility.

DR. H. C. COE, of New York, said he had been requested three times the last few weeks to operate through the vagina in case he should deem an operation necessary. We were no longer always at liberty to choose our route. None of the speakers had referred to supplementary hysterectomy, yet it was just here that the vaginal route had one of its chief indications, for where the appendages had been removed previously and the woman complained afterward, it was very easy to remove the uterus from below.

DR. ELY VAN DE WARKER, of Syracuse, thought Dr. Henrotin had done a great service in directing attention to early vaginal incision as a prophylactic measure in pelvic inflammation, and said he had reported such a case in his own paper.

DR. JACOBS made some closing remarks in French, expressed much pleasure at his kind reception, and stated that American operators were much in advance of those in Europe in taking up new procedures. This was especially true of the vaginal method of operating in disease of the pelvic organs.

DR. WATHEN AND DR. HENROTIN also made some closing remarks.

THE TREATMENT OF PUERPERAL ECLAMPSIA.

DR. THADDEUS A. REAMY, of Cincinnati, in a paper on this subject, related about half-a-dozen cases of puerperal eclampsia which were treated successfully by large doses of Norwood's tincture of veratrum viride, or by this agent combined with morphine. Most of the patients had been treated unsuccessfully by other means before he was called. Nothing could have been more striking than the promptness with which the convulsions had been arrested as soon as the veratrum viride had had time to act upon the heart and vaso-motor system. It had been shown by Dr. Jewett, in 1887, to be one of the most potent spinal and arterial depressants. It produced general vaso-motor paralysis. The advantage of the agent went further than to arrest the convulsions, for it produced copious perspiration and diuresis and thus rid the system of the toxic ingredients producing the convul-

sions. The patient could take half a drachm of the tincture without danger, and he had given twenty-five minims hypodermatically. If alarming symptoms developed, they could be counteracted by morphine. It had been said that blood-letting would accomplish the purpose, but it was less effectual, was not without danger, and deprived the patient of blood which she would need afterward.

THE ULTIMATE RESULTS OF TRACHELORRHAPHY.

DR. WILLIS E. FORD, of Utica, discussed in this paper the ultimate results of trachelorrhaphy in relation to the nervous symptoms. The operation had often been done for the cure of so-called reflex nervous disorders; but the author held that the term reflex was appropriate only where the symptoms were of a spasmodic character, and that the suffering of most of these and other patients was due to a neurasthenic tendency or disorder of the general health. A well-marked nervous disorder which had become established would not be removed by trachelorrhaphy, and the operation, if it had no other definite indication, would be about as likely to aggravate the nervous state as to ameliorate it. Mental impression might work either way. Hysteria and neurasthenia were of deeper origin than peripheral irritation, or irritation of a lacerated cervix; and while the latter might require treatment, we might be disappointed in curing the patient of her nervous disorder.

The paper was discussed by DRs. CLEVELAND, C. J. ENGLEMAN, A. F. CURRIER, S. C. GORDON, G. T. HARRISON, A. P. DUDLEY and HOMAN. Drs. Dudley and Gordon at present hardly ever performed secondary trachelorrhaphy, but treated the uterus and general pelvic condition. The other gentlemen expressed appreciation of trachelorrhaphy, but it had often been abused.

THE PROPHYLAXIS AND TREATMENT OF PUERPERAL ECLAMPSIA.

DR. EDWARD P. DAVIS, of Philadelphia, read the paper. Three or four cases were related in which, as soon as nervous symptoms, headache, etc., developed, pointing to toxemia, which was likely to result in eclampsia if allowed to go on, he instituted treatment by calomel, hot pack, etc., increased the flow of urine and the function of the skin and bowels, and thus obviated eclampsia. There might be no albumin in the urine, yet the diminished secretion, resulting in retention of toxins, would lead to headache, restlessness, sleeplessness, apprehension, even melancholia and mania, and finally to eclampsia. Physicians should learn that no progress could be made in the treatment of such cases by bromides. The excretions must be augmented. One should make a careful study of the urine during pregnancy, especially as to the quantity of urea and entire solids. It was a great mistake to suppose that the pregnant woman could be in no danger as long as the urine was not highly albuminous. In many cases of eclampsia or threatened eclampsia it contained no albumin or very little. As soon as eclampsia set in, there were two indications, one being to promote copious elimination, the other to empty the uterus. The poison which threatened the mother often killed the child.

DR. W. T. LUSK said his own experience in puerperal eclampsia had been chiefly of interest in speedily emptying the uterus.

DR. LAPHORNE SMITH, of Montreal, thought that as soon as there was the slightest danger of puerperal eclampsia, the uterus should be emptied. Whenever the urine was much diminished in quantity and was loaded with albumin, he thought it was almost criminal for us to remain idle when we had a means of putting the woman's life in safety. The best diuretic was plenty of water.

DR. GEORGE J. ENGELMANN, of St. Louis, highly approved of prophylaxis. The urine should be examined frequently, and appropriate treatment adopted for increasing its quantity if necessary. He had seen it contain so much albumin as almost to completely coagulate, yet the woman was carried to term with safety without inducing labor.

The PRESIDENT thought the question was one of renal insufficiency rather than of albuminuria. In many cases the urine contained no albumin until after the first convulsion, but it had contained a much smaller amount of solids than it should. In other words, the kidneys were not doing their work, and he knew no better plan than that recommended by Dr. Smith, of having the patient drink large quantities of water. This was the best prophylactic. The President also related some interesting experience with *veratrum viride*, which confirmed Dr. Reamy's views of its efficacy and safety in large doses.

A FEW CASES OF TRUE PELVIC CELLULITIS: A PLEA FOR MORE THOROUGH PELVIC SURGERY.

DR. ELY VAN DE WARKER, of Syracuse, said if he had known there was going to be so much said against the furore for operative gynecology at this meeting he might have hesitated to put in the sub-title to this paper. The cases related were intended to show that pelvic cellulitis might exist independent of inflammation of the other pelvic tissues, or in connection therewith. The time had come when we knew what pelvic cellulitis was, and also what it was not. Its occurrence in connection with inflammation of other structures in the pelvis was often overlooked. It might exist in the upper pelvic cellular tissue, or it might extend down between the vagina and rectum. When the latter occurred it could be appreciated by touch with one finger in the rectum and the other in the vagina. In one case related a posterior vaginal incision was made early, and thus suppuration was obviated, being in line with the suggestion contained in Dr. Heurotin's paper.

Among those who discussed this paper, was Dr. J. W. WILLIAMS, of Baltimore, who said that while independent pelvic cellulitis was not of frequent occurrence, and it was still less frequently proven at autopsy, yet he had made a post-mortem in two instances where its existence independent of other pelvic inflammation was shown.

THE PREVENTION OF UTERINE DISEASE DUE TO CHILD-BEARING.

DR. W. GILL WYLIE of New York read this paper. The points which he wished to bring out were: (1) that the induction of labor could now be induced with little risk compared with fifteen years ago when practical antisepsis had not reached such a high degree of perfection; (2) that there was an efficient method of preventing extension of sepsis after labor; (3) a method of favoring involution.

The genital organs of women were first to suffer

during growth, since they received their nourishment, as it were, from the surplus vitality, for they were not themselves essential to the existence of the particular individual. Many women came to the lying-in room with an imperfectly developed pelvis and pelvic organs. He fed them well and put them into as good condition as possible; and if the pelvis were not well developed, or if the cervix were hard, he induced labor at a time more or less in advance of full term. The position of the child was first rectified by external version. In bringing on labor he preferred a gum catheter introduced up into the uterus and left over night. These days we should seldom see sepsis, but in the event that it occurred it would be found limited in nearly all instances to the interior of the uterus for three or four days; and if treated at this time the patient could nearly always be saved. After washing out the vagina and cauterizing any lacerations with pure carbolic acid, unless there was rapid and continued improvement within a few hours, he began by washing out the uterus with a solution of carbolic acid (1-40 or 1-100), then with the fingers or forceps cleared the uterus of all clots. If it was an old case, he first dilated the canal with steel dilators, but never used tents of any kind because they were liable to force septic matter up into the tubes. After cleansing the uterus, it was swabbed with pure carbolic acid, then the cavity was washed out with a hot solution of carbolic acid (1-60). If the improvement did not continue, he now washed out every hour. He did not hesitate to operate when such measures failed.

Dr. Wylie used boro-glyceride pledgets about the tenth day to keep the uterus up and favor involution, leaving them in twenty-four hours and repeating twice a week. Tears were sewed up if necessary. Involution would surely be secured within six weeks to two months. Now, if necessary, a laceration of the cervix could be repaired.

Dr. A. P. DUDLEY, of New York, opened the discussion on Dr. Wylie's paper, and said he thought it was not advisable for this Society to recommend frequent induction of premature labor, for those who saw most cases of labor were not as proficient in anti-sepsis as gynecologists should be, and much mischief might arise from the practice. Dr. Dudley thought subinvolution and many pelvic troubles could be prevented by always sewing up lacerations immediately, whether of the perineum, vagina or cervix.

Dr. H. P. C. WILSON, of Baltimore, advocated the use of the finger-nail in preference to the curette when it was necessary to clear the uterus after labor. He had never in such cases used the curette; nor would he introduce gauze. Leave the canal wide open, and thus obtain the freest possible drainage. If it were necessary, the uterus should be washed out every four or five hours, observing in all things the strictest cleanliness. To these measures add the best nourishment.

Dr. WILLIAM T. LUSK, of New York, spoke warmly against interfering with the uterine cavity in cases of slight rise of temperature after labor. Nature's method was to throw out white corpuscles and form a barrier against the development of streptococci in the uterus, and if we entered with the curette we would break down this barrier and favor extension of the infection. Let these cases alone, and thirteen out of thirteen, instead of only nine, would recover.

Dr. J. W. WILLIAMS, of Baltimore, agreed with

Dr. Lusk in the class of cases to which the latter had referred. In the other class, with putrefactive germs and necrotic material, remove this and wash out with boiled water. There was no danger of poisoning the patient where simple water was used.

Some further remarks were made by Dr. J. M. McCoble, an invited guest, and the author.

DECIDUOMA MALIGNUM.

Dr. J. WHITRIDGE WILLIAMS, of Baltimore, described a case of malignant disease at the site of the placenta following labor, which he had had opportunity to observe in connection with Dr. Harris. It was the first case of deciduoma malignum fully described in this country. The condition was first fully appreciated by Sanger, in 1889, since which time about 34 cases had been reported altogether. In some cases the malignant process seemed to extend from the fetal side, in others from the maternal, in the former constituting a carcinoma of the uterus, while in Sanger's case it started in the decidual cells and was a sarcoma. The disease was rapidly fatal, and hence the necessity for examining all cases of supposed hydatidiform mole, retained placenta, etc., and at once removing the uterus in case it proved to be deciduoma malignum.

SOME POINTS IN SYMPHYSEOTOMY.

Dr. WILLIAM T. LUSK demonstrated some diagrams, illustrating the method of performing symphyseotomy as he had observed it in Paris, how to prevent hemorrhage, etc.

Dr. HOWARD A. KELLY presented a paper by Dr. ROBERT P. HARRIS, of Philadelphia,

SYMPHYSEOTOMY IN CANADA AND THE UNITED STATES,

which was read by title. In a letter Dr. Harris gave reasons for preferring the spelling "symphyseotomy" to that of "symphysiotomy."

THE VALUE OF GAUZE DRAINAGE.

Dr. H. C. COE, of New York, in a paper with this title, referred to the history of drainage in general, and the fact that the indications were now more strictly defined than formerly. He would consider only two applications of drainage, namely, of the uterus and of the pelvic cavity. Having been led to believe that the value of gauze as a drain had been exaggerated, he had addressed circulars to a number of prominent gynecologists and had found that there was a wide difference of opinion among men whose results were equally good. Many had the utmost confidence in gauze, which they used almost exclusively; others preferred tubes; and a third class rejected drainage entirely. But it was curious that some of the latter always inserted the gauze into the uterus after curettage even in non-septic cases. It was not the writer's purpose to seek to depreciate the value of gauze in pelvic surgery, but rather to seek to decide the question what it accomplished, whether it acted as a true drain or merely as a tampon.

The action of gauze when introduced into the uterine cavity differed according to the size of the cavity and the condition of the muscular walls. If the latter were flabby, it stimulated the organ to contract. After curettage and irrigation of the non-septic uterus this was its principal function. There was certainly

nothing to drain away except blood and serum; and so far from maintaining patency of the canal it rather plugged the os and prevented fluid from escaping, so that drainage was more free after removal of the gauze.

As a hemostatic in abortion and after removal of neoplasms, the gauze acted purely as a tampon, besides favoring uterine contraction. In septic cases, puerperal and non-puerperal, it was only serum which escaped through capillary drainage. Fragments of decidua membrane, etc., were expelled after removal of the gauze. It was frequently noticed that the hoped-for fall of temperature after curettage only occurred after the tampon was withdrawn.

Dr. Coe believed that thorough irrigation with peroxide of hydrogen after curettage was followed by as good results as when the tampon was used, or even better.

With regard to drainage of the pelvic cavity with gauze he believed it had grown in favor on account of the increasing popularity of the vaginal route. In vaginal hysterectomy, however, gauze was to be regarded as a tampon rather than as a drain. It was used in abdominal surgery for three purposes, namely, (1) to cover extensive raw surfaces, both to check obstinate oozing and to prevent intestinal adhesions; (2) to isolate septic foci from the general peritoneal cavity by favoring the formation of adhesions; (3) to drain away septic fluids.

That septic material was removed to any extent by capillary drainage was doubtful. Certainly thick pus, fibrinous exudates and sloughs were rather prevented from escaping by the presence of tampon. Drainage took place the first twenty-four or thirty-six hours of thin, serous fluid which might constitute a favorable nidus for germs. The most rational way of favoring such drainage was to maintain a free opening in the vaginal roof. Thorough drainage through the abdominal wound could not be expected.

In short, the reader believed with Sawyer, that the expression "gauze drain" was a misnomer, since we should rather speak of the "gauze tampon." The following practical deductions were made: (1) The introduction of gauze into the non-puerperal uterus as purely a drain is unnecessary and even objectionable; (2) the gauze tampon, with a large, flabby, septic uterus after curettage promotes contraction of the organ, but often prevents the escape of septic matter which is expelled only after removal of the gauze; (3) tamponade of the pelvis with gauze is an invaluable means of arresting obstinate general oozing; (4) the gauze not only prevents the formation of intrapelvic intestinal adhesions, but favors the development of plastic lymph around septic foci, thus shutting them off from the general cavity; (5) capillary drainage with gauze, especially *per vaginam*, serves to remove a certain amount of serum which might form a nidus for germs, but little septic material beside.

Dr. William M. Polk, of New York, was elected President of the Society, Dr. H. C. Coe, Secretary, and Dr. J. M. Baldy, Treasurer.

A MONUMENT TO DUCHENNE.—A monument to Duchenne by MM. Desvergues and Debie is shortly to be erected in the Salpêtrière. It is also proposed to erect a memorial to Duchenne in his native city of Boulogne.

Recent Literature.

The Care of the Baby. A Manual for Mothers and Nurses, containing Practical Directions for the Management of Infancy and Childhood in Health and in Disease. By J. P. CROZIER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Professor of Clinical Medicine in the Philadelphia Polyclinic and School for Graduates in Medicine; Physician to the Children's Hospital, to the Methodist Episcopal Hospital, and to the St. Agnes Hospital, Philadelphia; Member of the American Pediatric Society and of the Association of American Physicians. Philadelphia: W. B. Saunders. 1895.

As is stated in the preface, the author has endeavored in this book to furnish a reliable guide to mothers anxious to inform themselves with regard to the best way of caring for their children in sickness and in health.

He begins with a chapter on the hygiene of pregnancy, which gives practical and thoroughly common-sense information such as ought to be in the possession of a woman who is for the first time about to become a mother. In treating of the disorders of pregnancy, the author is careful to define the symptoms which should lead to a consultation with a physician; and, indeed, throughout the book evident care has been taken to give only such information as will help the mother in the care of her baby and herself, without leading her to assume too great responsibility in the situations where medical advice should be sought.

The peculiarities of the new-born baby and its growth are discussed, in chapters on those subjects, in a manner which will prove of great use to mothers who otherwise would become needlessly alarmed over a variety of matters not inconsistent with the perfect welfare of their offspring, and prevent their sending for the physician, perhaps in the middle of the night, to have their minds set at rest on some utterly insignificant matter. The baby's bath, toilet and clothes are discussed in a manner thoroughly practical, common-sense and free from prejudice. The same holds true in the chapter on infant feeding. Where more than one method of clothing or feeding the baby has advantages, those advantages are set forth in an unprejudiced manner and the choice left to the mother. "Exercise," "Training," and "The Baby's Rooms" are the subjects of excellent chapters.

The chapter on "The Sick Baby" is one of the longest in the book, and necessarily one of the most difficult to write, as the author has to keep carefully between the extremes of making the mother foolishly confident of her ability to treat the sick baby herself, and rendering her likely to send for the physician unnecessarily on account of imaginary ailments. In the main we must admit that the doctor has succeeded admirably in his object, which is, as he states, to enable the mother to know "whether the child is ill, what is the probable nature of its ailment, whether she shall send for a physician, what she shall do before he arrives, and how she shall carry out his directions afterwards." The mother who reads this chapter carefully will get much help in solving these questions, be enabled to care for her sick baby more intelligently and efficiently, and consequently to help the physician in his part of the work.

To discuss the description of the various diseases of infancy and childhood in detail, would be beyond the scope of this review. It will perhaps suffice to say that they are in keeping with the rest of the book, which certainly ought to fill an important and helpful place in many households, during that peculiarly interesting and often anxious period which follows the advent of the first baby.

A Textbook of Chemistry. Intended for the use of Pharmaceutical and Medical Students. By SAMUEL P. SATLER, Ph.D., F.C.S. and HENRY TRIMBLE, Ph.M. Philadelphia: J. B. Lippincott Co. 1895.

The first hundred pages of this book contain a summary account of elementary physics. The authors give a description of the properties of solid, fluid, and gaseous substances, and then pass on to heat, light, magnetism, and electricity. The subjects are in general clearly treated, but their range is so wide that they cannot well be compressed into so small a space, and at the same time be presented suitably to the beginners for whose benefit the book is primarily intended. For such a one, one of the larger standard text-books of physics could be more easily assimilated.

The chemistry of the non-metallic and metallic elements is treated of in Parts II and III. In the case of every element its history, modes of occurrence, preparation, physical and chemical properties, and finally its combinations with other elements are described. Some practical exercises are added in the case of the non-metals. This part of the book (over 400 pages) contains sufficient of what is worthy of knowledge for the readers for whom it is intended.

In Part IV organic chemistry is treated of. The authors proceed after an introductory chapter to a description of the aliphatic hydrocarbons and their derivations, after which comes a cursory description of the furfuranithiophene and pyrrol groups, leading to a consideration of the aromatic compounds containing one or more nuclei. The concluding chapters on organic chemistry are devoted to the alkaloids, terpenes, glucosides, bitter principles, and proteids.

Analytical chemistry and pharmaceutical assaying are contained in Part V. Such a succinct account of analytical chemistry as is here given, intended for use in the laboratory, would have been better omitted from a text-book.

No more than 280 pages are devoted to organic chemistry! Condensation to this extent of the enormous amount of material now existing should only be obtained by the rigid separation of the less from the more important. In their attempt to do this the authors have only been partially successful. They are in many places needlessly prolix, and in others important matters are only superficially mentioned or else omitted altogether. In the chapter on organic analysis, for example, a combustion is described at great length, as are also the different methods of determination of vapor density, but there is not a word about Raoult's method of determining molecular weights. The authors occupy three pages with starch, one containing illustrations alone, while only eleven pages in all are devoted to the proteids. In the case of "terebenum" the authors give seven lines to discrepancies between the U. S. P. and the results of a chemist in regard to boiling-point and composition, whilst "physostigmine" with its salts is done with in four lines, and "muscarine" in one, etc.

A more careful revision would have prevented such oversights as the statement on page 777 that choline is "quite poisonous" whilst on page 680 it is called "non-poisonous." An example of unnecessary repetition is the introduction both on page 637 and on page 900 of the directions of the U. S. P. for the preparation of Fehling's solution; in neither place, however, is its liability to decomposition mentioned, with the consequent necessity of always testing it before use.

The majority of the numerous illustrations in the book could have been omitted without loss; they contribute mostly nothing to the elucidation of the text. The general get up of the book is excellent.

Practical Dietetics, with Special Reference to Diet in Disease. By W. GILMAN THOMPSON, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the University of the City of New York, Visiting Physician to the Presbyterian and Bellevue Hospitals. New York: D. Appleton & Co. 1895.

In the first part of this book the writer presents what it is indispensable for physicians to know of food and food preparations, that is, the composition and uses of water, salts, meats, etc., as well as fruits and fats. In the second part stimulants, beverages and condiments, including the action and use of alcohol and wines are considered. In the third part the cooking, preparation and preservation of food is discussed, and the amount required for healthy persons. Following this, he gives foods required under special conditions, such as age, climate, etc., and the general relations of food to special diseases. The writer's appreciation of the importance of every practical detail is evidenced by the chapter on the administration of food for the sick, in which he takes up regularity in feeding, quantity of food needed, feeding in helpless patients and nutrient enemata. The writer gives the views of many practitioners in regard to the dietetic treatment of many special diseases, including infectious diseases, those of the respiratory and nervous systems, diseases of the alimentary canal and of the skin, diet after anesthesia and after various surgical operations. Finally, he gives dietaries of institutions, those used for athletic training, etc.

Fewer subjects in medicine present greater difficulties to an author than that of dietetics; and Dr. Thompson has done the profession a service in collecting so much information on this subject and presenting it in so systematic and attractive a manner.

Syphilis. By ALFRED COOPER, F.R.C.S. Eng. Second edition, enlarged and illustrated by twenty full-page plates, twelve of which are colored. Edited by EDWARD COTTERELL, F.R.C.S. Eng. Philadelphia: P. Blakiston, Son & Co. 1895.

The first edition of Dr. Cooper's work appeared in 1884. At that time he had been surgeon to the Lock Hospital for nearly twenty years, which experience, together with a private practice extending over a still longer period, had given him ample opportunity for the study of various forms of venereal disease. A second edition has now been published in which many important additions have been made, rendered necessary by the progress made in this branch of medicine during the last ten years. The chapters have all been revised, and some of them entirely rewritten and a

new chapter on the Relationship between Syphilis and Insanity has been introduced. The illustrations are new. The colored plates representing the various cutaneous lesions caused by syphilis, may be regarded as fair. Ten or fifteen years ago they might have been classed as excellent, but so great advances have been made in this line of work of late years, by the aid of colored photography and by the newer processes, that Dr. Cooper's illustrations cannot compete in accuracy and in artistic finish with many of the modern French, English and American reproductions. The microscopic photographs also are not on a par with the best work that has been done of late years.

With regard to the subject-matter of the book, it is, as was that of the first edition, safe and sound in the main. There is no pretence to great scholarship, nor to striking individuality, but the author's experience, which has been large, entitles him to a respectful hearing, and his views, although not always the same as our own, are never without logical support. The book cannot be regarded as a distinct contribution to the literature of syphilis. As a "reliable guide and help to all who are engaged in the study of syphilis," it may be looked upon as fulfilling its mission, although its value will be more apparent to those who have not as yet progressed very far in that study than to the more advanced student.

Physical and Natural Therapeutics. By GEORGES HAYEM, M.D., Professor of Clinical Medicine in the Faculty of Medicine of Paris. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Philadelphia: Lea Brothers & Co. 1895.

One-half of this book is devoted to the remedial uses of electricity and this subject is profusely illustrated; the other half, less than 200 pages, discusses atmospheric pressure as a therapeutic agent, likewise climate, thermic agents, hydropathic measures and mineral waters. These topics are, of course, viewed largely from an European standpoint. The editor has added a few pages on American climatic treatment, but fails to present, as fully as is desirable for the American physician, the resources of his own country. There is also a short supplement on American mineral waters.

Portions of the work are valuable; but its excellences are not such as to make it indispensable to the practitioner whose shelves are already supplied with books relating to these subjects.

Eyesight and School Life. By SIMEON SNELL, F.R.C.S. Ed., Ophthalmic Surgeon to the Sheffield General Infirmary; Lecturer on Diseases of the Eye at the Sheffield Medical School, etc. With numerous illustrations. Octavo, pp. 70. Bristol: John Wright & Co. 1895.

This is an excellent little book, evidently intended for the use of non-medical readers who are interested in schools and education; nevertheless, it could be profitably read by every family practitioner who has the best interests of the children under his charge at heart. Technicalities have, as far as possible, been avoided; and in the case of those employed, foot-notes have been inserted to render the meaning clear to non-medical readers.

After a short and clear description of the refraction of the eye and its abnormalities there follows an attractive presentation of the statistics of the increase of

myopia in school children and more advanced students.

The proper lighting of school-rooms is well illustrated by a series of reproductions of photographs of properly and improperly lighted school-rooms. The question of school furniture is considered and illustrated, as are also good and faulty positions assumed by the pupils while reading and writing.

The book contains a strong plea for the teaching of a vertical handwriting instead of slanting writing, and concludes by urging upon both teachers and parents more attention to the question of the eyesight of young children.

The work is a short but admirable presentation of the subject of which it treats.

Politzer's Text-Book of the Diseases of the Ear and Adjacent Organs. Third Edition. Translated by OSCAR DODD, M.D., edited by SIR WILLIAM DALBY, F.R.C.S., M.B.

Between the publication of the first English translation of Politzer's text-book in 1883 and the present date, the advances in aural surgery have been considerable, and it is to these that attention is especially called in the present edition, which embodies also, with the modifications necessary, the substance of the first edition translated by Cassells.

The additions which occupy the greatest space in the new edition are those referring to the middle-ear operations, to the intracranial complications of suppurative middle-ear disease and their treatment and to the recent contributions to our knowledge of the structure and functions of the labyrinth and to its pathology.

There are 73 additional illustrations, including reproductions of the more recent of Politzer's admirable sections of the labyrinth, and both the translating and editing of the work have been carefully and painstakingly done.

Diseases of the Ear. By EDWARD BRADFORD DENCH, Ph.B., M.D. New York: D. Appleton & Co. 1894.

Dr. Dench's text-book of 634 pages, with eight colored plates and 152 illustrations in the text, shows much careful work and is on the whole well arranged and well printed, the division of the subjects into sections with large headings facilitating its use for purposes of reference. With the author's individual views in regard to the surgery of the middle-ear, especially in chronic non-suppurative cases, the reviewer believes that the majority of aural surgeons of larger experience than the author are not likely to agree.

The Lumleian Lectures on Certain Points in the Ætiology of Disease. Delivered before the Royal College of Physicians. 1892.

The Harveian Oration. Delivered before the College in 1893. With a Bibliographical Notice of Harvey and an Appendix of Statistical Tables.

By P. H. PYE-SMITH, M.D., F.R.S., Senior Physician to Guy's Hospital. London: J. & A. Churchill. 1895.

These pages are pleasant reading and give evidence of the well-considered experience and ripe scholarship which are known characteristics of their writer. Dr. Pye-Smith's Lumleian lectures on "Certain Points in the Ætiology of Disease," contain many suggestive observations and reflections; the Harveian oration, sound advice which the profession may profitably lay to heart.

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THE ECONOMICS OF PROSTITUTION.

DR. WOOD HUTCHINSON, in an address before the Tri-State Medical Society of Iowa, Illinois and Missouri at its last meeting, gives the results of his studies of the economics of prostitution.¹

He reviews the unsuccessful attempts to stamp out prostitution, as in the Papal dominions for more than two centuries. The utmost that ecclesiastical, civil and military authority has been able to do is "to change the form and increase the extent of prostitution." He believes that the attempt at regulation (in Paris, St. Louis and other cities) has been equally futile. Among the results which he alleges, is "the decline of the brothel and the enormous multiplication of the grisette"; "the diminution of the marriage-rate of the community" (by rendering concubinage in some form safe, popular, and economical); the ratio of illegitimate births is increased; venereal diseases are not lessened but promoted (1) because the seeming protection which supervision gives is often a snare and a delusion; (2) because the number of clandestine prostitutes is increased, and the most fruitful breeding-ground for venereal diseases is among these "clandestines." This last contention is also affirmed by Yvon Gyon and others.² All these writers concede a certain economic utility in prostitution, that is, with society as at present constituted, it is "a necessary evil."

As to the dominant motive which induces women to enter this profession, the following is the average obtained from the answers (some thirty in all), from representative men in various great metropolitan centres:

Love of display, luxury and idleness	42.1%
Lack of employment	9.4
Seduction (in which they were innocent victims)	11.3
Bad family surroundings	23.8
Heredity	7.8
Primary sexual appetite	5.6

100.

This makes a showing strikingly similar to that of the criminal classes who are recruited mainly from the idle and shiftless among all classes, and from the defective classes, these two causes, including heredity, accounting for nearly 75 per cent. in the above table. Prostitution may be regarded as emphatically a trade, chosen from love of idleness, of luxury, and absence of a sense of honor and decency.

In a second series of questions as to secondary and remote causes, the answers (some twenty in number) were signally concordant with the above: Love of display, bad family surroundings, heredity and lack of employment were the main causal factors alleged.

The next question relates to the class of society from which the mass of our prostitutes come. Out of twenty-one answers to this question, eighteen reply "lower," "lowest," "poor and defective," "factory-girls," or some equivalent term. One replies "lower middle," and two "middle."

As to the grade of education of these recruits, seventeen reply "very low," "uneducated," "analphabets," etc., and four only reply "fair," and "average." This corresponds with the results of Du Chalelet, who found that the prostitutes of Paris practically all come from the laboring or artisan class, and especially from those whose lack of intelligence and perseverance makes them mere day-laborers. By an elaborate examination of their certificates, he also found that out of 4,470 prostitutes, 2,332 could not sign their names (55 per cent.), and 1,781 could sign but badly, leaving only 110, or barely 2.5 per cent., who could write at all, or legibly. In short, the prostitute possessed of a spark of refinement, education, or intelligence is extremely rare.

From a somewhat extensive experience with prostitutes in the general hospitals of London, Paris and Vienna, and a systematic study of the physiognomies of thousands of them upon the streets of the above cities and of New York, Philadelphia and Chicago, the author has no hesitation in declaring that a handsome or even attractive-looking prostitute is rare, and that the average of beauty is lower among them than in any other class of woman. The only important exception to this statement is the unchaste class among actresses and artists' models, who are no real exception, as they are almost forced into vice from the extreme exposure and pressure of their occupation. "Whatever other evils the fatal power of beauty may be responsible for, it has nothing to do with prostitution." "As everywhere else, so even here, beauty is a sign of purity and wholesomeness, a safe guide in nine cases out of ten."

The next question is: "What class furnishes the largest proportion of its own members to the ranks of vice? The unanimity upon this point is practically complete. Of twenty-two answers, sixteen say "factory-girls," "shop-girls," "saleswomen," "waitresses," etc.; four say "domestic servants," and two, "those too idle to have any occupation." In short, it is the women engaged in public occupations who are most in

¹ American Gynecological and Obstetric Journal, September, 1895.

² See Westminster Review, January, 1870, "Governmental Experiments in Controlling Prostitution."

danger. Again, we have the commercialization of women as a powerful factor in the production of this vice. It is based on a trade-instinct, pure and simple.

As to the life expectation of the prostitute, twenty-two observers give the life duration at nine and five-tenths years. The same method gives the death-rate as seventy-five per cent. greater than that of normal women of the same station; the causes of death are alcohol (which holds the first place), venereal diseases (which comes second), morphine, chloral, cocaine, etc.; suicide has a fourth place.

As to the question of the effect of prostitution upon the propagation of the species, it has been again and again shown that women of this class seldom have descendants. Barely three and one-tenth per cent. of prostitutes bear children at all during the ten years of their career. Like all other evils, prostitution is self-limiting. The reason for this sterility is obvious. Disease of the sexual organs, syphilis, "preventions" of every description, abortions and infanticide easily account for it. Of the children born alive, very few survive (ignorance, disease or neglect). As to the proportion who marry, the average is 13.2 per cent., but upon this point there is substantial agreement, namely, that those who do are practically sterile. The proportion who permanently reform is variously estimated; the average is low, 6.8 per cent.

Dr. Hutchinson concludes that from the female side of this institution (prostitution) "we are concerned principally with the most worthless varieties of women, the degenerates, or criminals, and the idle, the mercenary, and the shameless of the working classes — women, in short, whom the community can well afford to spare; that these women, when fairly launched in their career, are practically absolutely prevented from propagating their kind while remaining in prostitution, and rapidly destroyed if they remain in it; that very few marry, and those who do so are barren in a high degree; in short, prostitution is an eliminative agency of high value and wonderful efficiency for first sterilizing and then rapidly destroying the worst specimens of the sex."

THE CASE OF MISS LANCHESTER.

THE case in question has attracted a great deal of attention in England, and been the subject of comment in both the medical journals and the daily papers, especially in connection with a pronounced tendency to social radicalism in much recent English fiction. In brief, the case is that of a young lady who for some time had been living an independent life, who had made up her mind that women should be emancipated, and had openly declared her intention of disregarding social rules and living with a man below her in station. Such conduct was considered by her parents as evidence of insanity, and they wished to save the lady from her own act. The lady was forcibly seized by her relations after having been seen, and certified as of unsound mind, by a leading physician;

and on an urgency order she was taken to an asylum. She was seen by the Commissioners, who, according to one evening paper, expressed regret that they could only advise the lady but could not control her acts. They were convinced that her symptoms did not represent any definite mental disease, and that therefore they must order her discharge. No complaints of any kind are made against the asylum. The point remains for consideration, whether the physician was justified in signing a certificate of lunacy under the circumstances.

In commenting upon the case the *British Medical Journal* says editorially:

It is possible that the conduct of Miss Lanchester appears to be highly unreasonable; but everything depends upon the way in which a change in character has developed. No one will deny that the disregard of moral and social laws is among the earlier symptoms of insanity; therefore, if a person who has always led a strictly conventional life suddenly gives rein to his feelings, we are prepared to watch for other symptoms of loss of control. If, on the other hand, the change in character and in acts follows a slow course of development which bears a direct relationship to the surroundings, it cannot be considered or treated as disease.

It would be a reversion to the long past to treat individual disregard of social conventions as criminal or lunatic. Dr. Blandford, who gave the first certificate, is an alienist physician of long experience, eminence and high character. He studied at Oxford and graduated M.A. and M.D. in 1854, when this distinction was rarer than it is now. He is lecturer on psychological medicine at St. George's, and the author of the article "Insanity" in Quain's *Dictionary of Medicine* and has filled more than one high office in his department of medicine.

All who know Dr. Blandford are certain that he has been influenced solely by conscience and conviction as to the act he performed in signing an urgency order. We feel very strongly, however, that the urgency order is a very powerful weapon which must not be used recklessly, or it may be distrusted by the public. It is a most valuable means for rapidly placing very violent patients under control, but it is not intended for the speedy removal of persons who may have followed a course of conduct offensive to the opinions of their relations.

With the statement that individual disregard of social conventions should not be regarded as evidence of lunacy we must certainly agree. Moreover, such a disregard of social conventions as this young woman expressed to her father and brothers her intention of indulging in, namely, cohabiting with a man whom she refuses to marry, would not be regarded in England as illicit or criminal. In this State fornication is against the law, and is liable to punishment as such.

In committing her under the lunacy act Dr. Blandford states that he was partially actuated by the fact that there was insanity in her family. Other considerations which influenced him were the following:

She had always been eccentric, and had lately taken up with Socialists of the most advanced order. She seemed quite unable to see that the step she was about to take meant utter ruin. If she had said that she contemplated suicide a certificate could have been signed without question. I considered I was equally justified in signing one when she expressed her determination to commit this social suicide. She had a monomania on the subject of marriage, and I believed that her brain had been turned by Socialist meetings and writings, and that she was quite unfit to take care of herself.

Miss Lanchester is the product of the same sociological tendencies and movements as produce writers of and a public for such books as "The Woman Who Did" and "Jude the Obscure."

OUR CORPULENT POLICEMEN.

IN recommending for retirement a certain patrolman weighing over three hundred pounds, who has lost two hundred and thirty days on account of illness during the last two years, Police Surgeon Nevin, of Jersey City, in a communication to the Board of Police Commissioners of that place, calls attention to the prevalence and bad effects of obesity among policemen. He states that too many of the men of the force are over weight to an extent that unfits them for the active duties that a policeman is at all times subject to be called upon to perform, and goes on to say: "The life of a policeman is at best a very inactive one. They are not often called upon to take much active exercise, and in consequence there is but little muscular development. Any active criminal could make his escape very readily so far as most of our policemen are concerned. Any one can notice that as soon as a man is appointed on the force he begins right away to increase in weight and abdominal measurement, his muscles become flabby, and as a result of all this he moves more slowly than was his wont. If this change is progressive, he becomes actually unfitted for police work."

The thought has probably occurred to many of our readers, as it has to us, on seeing some of the corpulent members of our police force on patrol, how easily an active crook could escape the pursuit of such a protector of our lives and property! The tendency to obesity and general decrepitude among policemen has been noted in other cities than that of New Jersey, and it is well that the effects of the inactive life of many policemen upon their effectiveness as officers of the law should be considered. Perhaps it would be a little too much to demand that our policemen should be kept in as good physical training as the members of a college crew or team; but their training might at least include long distance running, and there might be a weight limit. The reasons for these suggestions are sufficiently obvious.

MEDICAL NOTES.

A NOBLE EPITAPH.—The scientific record of Pasteur is thus summed up on a marble tablet which was recently set up by order of the Paris Municipal Council in the old laboratory of the *École Normale*:—

Ici fut le Laboratoire de Pasteur.
 1837.— Fermentations.
 1860.— Génération spontanée.
 1865.— Maladies des vins et des bières.
 1868.— Maladies des vers à soie.
 1881.— Virus et vaccins.
 1885.— Prophylaxie de la rage.

A WOMAN PHYSICIAN RECEIVES OFFICIAL RECOGNITION IN AUSTRIA.—Dr. Georgina Roth has been formally appointed, with the sanction of the Austrian Emperor, to a government post, that of medical adviser to the home for the daughters of deceased army officers. Dr. Roth is herself the daughter of an Austrian gen-

eral, but was compelled to take her medical degree in another country, Switzerland, for the reason that the Austrian universities still refuse to open their doors to female students.

THE EFFICIENCY OF ELECTRIC HEATERS.—The German Hygienic Association has offered a prize of 12,000 marks for a paper on the efficiency of electric heaters. The essays must be written in German and sent to Professor Konrad Hartmann, Charlottenburg, not later than July 1, 1896. In these fall days when we are subject to the usual attacks of colds, headaches, and tonsillitis due to the overheating of our houses by the furnace fire, which in spite of its attendant discomfort we do not dare to do without, such an announcement may lead us to hope that a practical result will be achieved in the shape of an electric heater which can be regulated to the variations of outside temperature with greater accuracy than has been attained with the furnace. Freedom from leakage of coal gas would be an advantage also of no small moment.

THE LATEST FAITH-HEALER.—A faith-healer named Schlatter lately appeared in the city of Denver, and shortly afterwards disappeared therefrom, whose methods are decidedly different from other modern Christian Scientists and the like, in that he makes no charge for his services. He stands by the roadside, and extends the healing touch to all who come to him, and he is said to be busy all day, the queue of his waiting patients reaching far down the road. On his arrival several prominent physicians noted the disappearance of many of the chronic cases from their clientele, but it is reported that now they are beginning to return. Imaginary ills have been in many instances cured, and the fact so inexplicable to the Colorado mind that no charge has been made for the healer's services, has probably had a good deal to do with arousing the credulity of the public. Zouave Jacobs, Schlatters and their prototypes appear on the medical horizon about so often, and go through about the same developmental stages.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, November 20, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 134, scarlet fever 27, measles 5, typhoid fever 19.

FATAL COASTING ACCIDENT ON THE BICYCLE.—The recent accident in Brookline in which a fall from a bicycle, while coasting, resulted in the death of a lieutenant of the police force, calls attention to the very real danger of coasting on the bicycle, especially for the heavy and middle-aged. The list of fatal and serious accidents from this cause has grown very rapidly of late.

ANNUAL MEETING OF THE ALUMNÆ ASSOCIATION OF THE BOSTON TRAINING-SCHOOLS FOR NURSES.—The first annual meeting of the Alumnæ Association

of the Boston Training-school for Nurses attached to the Massachusetts General Hospital, was held in Perkins Hall, Boylston Street, Boston, Tuesday, October 29th. Seventeen members were present at the roll-call. Miss Alice O. Tippet, Vice-President, presided in the absence of Miss Brown, the President. The Treasurer, Mrs. D. H. Kinney, was unable to be present. Miss Blanche M. Thayer, matron of the City Hospital, Quincy, was elected Second Vice-President of the Association. A paper on "Organization" was read by Miss Sophia F. Palmer, of Washington, D. C. A committee of five members was appointed to draw up a "Code of Ethics" to serve as a standard by which members of this Association may be judged, also to serve as a guide to members when in doubt. Miss Martha A. Parker, matron of the Salem Hospital, was appointed chairman of this committee, the other members appointed are Miss Annie L. Fox, Miss Elizabeth McPhail, Miss K. L. Davis, Miss Caroline N. Cayford. The next meeting of the Association will be held in February.

MEDICAL REGISTRATION IN MAINE.—The time for registration of all physicians and surgeons in Maine who are entitled to register under the new law expires December 31st. After that date all applicants for registration will have to pay a fee of ten dollars, and be examined in each of the seven branches mentioned in the act, before a certificate can be granted. Out of the first 186 applications for registration under the law, only one applicant was rejected.

THE SEVENTH SON OF A SEVENTH SON.—A man claiming divine healing powers in virtue of the peculiarity of his line of descent on his father's side, which is indicated in the heading of this note, is reported to have recently administered a compound containing whiskey to the patient of a regular physician in Salem, Mass. The dose was forced upon the patient against his will, and without the knowledge, of course, of his physician. The patient died soon after taking the dose. The impostor who gave the dose, named John Reed, was promptly arrested in Salem. The peculiar feature of the case is, however, that a second John Reed, also claiming to be the seventh son of a seventh son, and possessed of divine healing powers, was arrested in Southbridge on the same warrant. The man arrested in Salem, however, confesses to have given the dose.

NEW YORK.

AN UNFORTUNATE COMBINATION.—On November 14th a coroner's inquest was held in the case of a very mysterious death last month from a dose of Epsom salts. The victim was Otto Odendahl, a lad fourteen years of age, and the salts were purchased at a reputable druggists on Bible House Square. The symptoms pointed to strychnia poisoning, and the inquest was delayed in order that a full investigation of the case might be made. Dr. Ernest J. Lederie, assistant chemist to the Board of Health, who had

charge of the analysis of the contents of the boy's stomach and of the package of salts from which the dose was taken, reported that the salts taken contained ten grains of sulphate of strychnia to the ounce. No other samples of Epsom salts at the shop where the package was purchased were found to contain any strychnia, but as the testimony taken at the inquest showed considerable laxity in the handling of medicines in that establishment (although it could not be ascertained how the strychnia got into the salts), the coroner's jury brought in a verdict censuring the firm of druggists "for the careless manner which, it appears from the evidence, they have been in the habit of putting up Epsom salts for public sale, and for the employment of incompetent persons to do work of like character."

NEW BATHS FOR THE BELLEVUE HOSPITAL.—A system of fine new baths, Turkish, Russian and medicated, is now being erected at Bellevue Hospital at a cost of \$10,000.

BEQUESTS TO A HOSPITAL AND SANITARIUM.—By the will of the late Samuel Inslee, a wealthy merchant who died recently, bequests of \$5,000 each are left to a number of charitable objects. Among them are the Manhattan Eye and Ear Hospital and the sanitarium for consumptives at Saranac Lake founded by Dr. E. L. Trudeau.

A SUIT WITH DAMAGES FOR VACCINATION.—Some time since Emil Schaefer brought an action against Dr. H. L. Schelling, of the Brooklyn Board of Health, to recover \$10,000 for alleged personal injuries sustained. He claimed that Dr. Schelling entered his house and compelled him by force and violence to submit to vaccination, and that he suffered severely from loss of blood and the effect of the vaccine lymph. The trial of the case came up in the Circuit Court, Brooklyn, before Justice Gayner, on November 15th, and at its conclusion the jury awarded a verdict of \$1,500 to the plaintiff.

AN APPOINTMENT BY CIVIL SERVICE RULES.—Dr. Robert M. Elliott, of Rochester, has been appointed from the civil service eligible list as Medical Superintendent of the Long Island State Hospital for the Insane at a salary of \$150 a month.

DEATH OF DR. ZABRISKIE.—Dr. John Lloyd Zabriskie, a member of the Brooklyn Board of Education and a well-known and popular physician of Flatbush died suddenly of cardiac disease on November 10th. Dr. Zabriskie was sixty-four years of age. He was a graduate of the University of the City of New York and the old New York Medical College, and at the time of his death was one of the trustees of the Long Island College Hospital. He was also a consulting physician to that institution and to the Kings County Hospital. He leaves a widow, two sons and a daughter.

A REMARKABLY LOW MORTALITY.—The report of the Registrar of Vital Statistics presents a re-

markedly good showing for the week ending November 16th. It is not often that the weekly mortality of the city gets below the 700 mark; but last week the number of deaths reported was 676; against 721 for the previous week and 706 for the average of the corresponding weeks of the past five years. The deaths from diphtheria decreased from 41 to 26, those from pneumonia from 117 to 96, and those from typhoid fever from 15 to 5.

PHILADELPHIA.

THE PENNSYLVANIA COLONY FARM FOR EPILEPTICS.—The project of establishing a colony for epileptics, where country living and farm work, judiciously apportioned, would constitute the principal therapeutic treatment, which has been under consideration for some time, has at length assumed a definite shape. The court has granted a charter for the "Pennsylvania Colony Farm for Epileptics" and the incorporators have organized November 13th by the election of Dr. Wharton Sinkler, President. Among the Directors are Drs. Charles K. Mills, James C. Wilson and Wharton Sinkler. A charitable gentleman of Philadelphia has offered to give \$50,000 for the erection of suitable buildings provided that the farm be secured before January 1, 1896.

SCHLEICH'S METHOD OF LOCAL ANESTHESIA.—Dr. Theophilus Parvin at the last meeting of the County Medical Society, 13th inst., read a paper on "Schleich's Method of Local Anesthesia" by subcutaneous and parenchymatous injections of weak cocaine-morphine solutions, and demonstrated the effect in his own person, by allowing an incision of an inch in length to be made in his forearm and to be stitched up, under its influence, in the presence of the Society. He declared it to be an absolutely painless procedure and predicted great future usefulness for this method in surgery, and that at least fifty per cent. of the operations now done under general anesthetics, will ultimately be done by this method, which he declared suitable even for major operations.

CHANGES IN THE STAFF OF THE PHILADELPHIA HOSPITAL.—At the Philadelphia Hospital some changes were made in the attending staff, on the 12th inst., by the Department of Charities and Correction. Dr. Wm. G. Porter's resignation was accepted and a complimentary vote given him in acknowledgment of twenty-five years' service on the surgical staff, Dr. Alfred C. Wood was chosen to succeed him. The Board then increased the number of surgeons from nine to ten, and appointed Dr. J. Chalmers DaCosta to the position thus created. Dr. Ernest B. Sangree was appointed Pathologist, to succeed Dr. Coplin who recently resigned to accept a chair in Vanderbilt University at Nashville. Dr. Clara Marshall resigned from the obstetrical staff and Dr. Elizabeth L. Peck was elected to fill this vacancy.

RADICAL CURE OF HERNIA.—Dr. G. G. Davis read a paper at the November meeting of the College of Physicians, on "The Radical Cure of Hernia, with

Especial Reference to the Treatment of the Sac," in which he suggested a novel method of utilizing the sac as a plug to close the internal opening of the ring, a method which he had tried clinically and which he had found to be satisfactory.

Miscellany.

VIRCHOW ON PASTEUR.¹

At a meeting of the Berlin Medical Society, held on October 16th, being the first since the recess, Professor Virchow, in speaking of the members who had died since they had last met, referred to the late M. Pasteur as the most eminent of them all. That Society, he said, had conferred its honorary membership on the departed French *savant* in 1892. Professor Virchow emphasized the universal importance of Pasteur's proof of the inadmissibility of the theory of autogenesis. Pasteur was not friendly to the German Empire, but that had not affected the Society's opinion of his merits. In order to understand his feeling towards the German Empire it was necessary to remember that he earned his first title to fame at Strassburg University, now a German seat of learning. Professor Virchow concluded by remarking that a final judgment as to the value of Pasteur's inoculations against hydrophobia was not yet possible, but it was already necessary to admit that it had formed the starting-point of a new departure in medicine.

Correspondence.

THE STUDY OF DERMATOLOGY IN EUROPE.

(Continued from No. 20, p. 503.)

VIENNA.

ABOUT the middle of October I arrived in Vienna, the city of all Europe to which I had looked forward with the greatest eagerness, but which in the end proved to be the bitterest disappointment.

The wards of the skin department contain many very interesting cases; in fact, no hospital in Europe in my knowledge, save Paris, can offer so much material for study. But it is not the material which is at fault in Vienna, it is the instruction. Kaposi, to my mind, occupies a more important position than any dermatologist in the world. It is to him that by far the greatest number of foreigners flock for instruction, and to him is granted the privilege of teaching this cosmopolitan audience the supreme results of the world's past and present investigations with the priceless aid of the Vienna patients and the Vienna collection of dermatological paintings, but unfortunately this valuable trust is not satisfactorily fulfilled. Kaposi's teachings represent the dermatology of his greatest mental activity, that is, the dermatology of a previous decade, and in his lectures, *his* work is the principal, in fact, the only theme, for he recognizes the labors of no other dermatologist living or dead, save of Hebra. To all fair-minded men modern dermatology is the product of the labor of all countries, and modern lectures should be a *résumé* of these combined studies; but Kaposi's lectures are a repetition of Kaposi's published works, and little attention is given to the immense strides which the study of dermatology has made during the last ten years—a progress due almost wholly to men who do not live in Vienna.

¹ British Medical Journal.

For these reasons Vienna proved a great disappointment to me.

The cause for this state of affairs is the absence of competition. There is only one purely dermatological clinic of any size in Vienna; there is only one head to this department—a head which has been allowed its own rein, unchecked for years, and now remains the autocrat of Vienna dermatology. It is a great pity that such is the case. The many dermatologists of Paris and of every other large city are a help to each other—a healthy stimulus for work and a rich source of knowledge in cases of doubt.

I have spoken perhaps a little plainly in my judgment of Vienna, but it was with the fixed purpose of helping my successors who go abroad with the intention of studying the diseases of the skin. For the most part Americans go to Europe, or rather to Vienna, for this purpose, and there they remain, apparently believing that there is no other city of any consequence for the pursuance of their studies. If I show in this paper that such is not the case, and that several cities should share the precious time previously allotted blindly to Vienna, then I shall feel that I have not written in vain. With these words of warning as a peroration, let me now describe the bright side of my winter in Vienna. There are certain great advantages to be enjoyed there, and if it were not for the peculiarities (above referred to) of the master, Vienna would be an excellent, if not the best, school for the first months of study abroad.

The lectures of Kaposi are given every morning, save Saturday and Sunday, at eight o'clock. Perhaps I have been too severe, and should say that the lectures are almost unrivalled except for one who wants to go deeply and thoroughly into modern dermatology, and it is for the general student, after all, perhaps, that they are intended. The lectures are very broad in their scope and comprise talks upon the patients presented, upon the history, pathology, clinical features, therapy and prognosis of the disease under discussion. Many colored plates and microscopical drawings are passed about the room, and Kaposi himself draws upon the board the principal pathological features of his subject. On some diseases Kaposi spoke at great length and minuteness; but as the end of the semester approached many were touched upon only slightly, and others were hardly mentioned. This fault was due to the great number of patients which were presented from day to day. It would be the lecturer's intention to speak of a certain disease on the morrow. The following day would come, and with it an interesting new patient whose case would occupy perhaps a large portion of the hour, and then the promised lecture was deferred or else forgotten. A perfect series of lectures is certainly always difficult to deliver, but it seemed to me that Kaposi was trying to accomplish too much in the time allotted to him.

One great drawback in Vienna is the length of the vacations and the frequency of the fête-days. Three weeks at Christmas and six weeks in spring, with a church holiday every third week, cut into the precious working time and leave the lecturer and the foreign student perplexed as to how to compensate for the loss of time which may never come again. The vacations in Vienna are an especially heavy deprivation to the foreigner, for with their advent Kaposi disappears from the lecture-room, the out-patient department, and, with a few exceptions, from the wards, and all is left in charge of the first assistant whom Americans and English do not follow.

Professor Neumann's lectures are wholly clinical, and pertain chiefly to gonorrhea and syphilis, but very often an exceedingly interesting dermatological case creeps in. It was surprising to me how monotonous the cases were, for with one hundred beds and an out-patient department to choose from, Neumann devoted weeks and months even to presenting case after case of gonorrhea and of soft and hard chancres, and neglected almost entirely the later forms of syphilis. As might be supposed, such a selection of subjects was not especially edifying or instructive, and was rendered all the more unattractive by the brutally

coarse and disgusting treatment which the patients received.

After Christmas I found that I was not gaining much knowledge of syphilis from Neumann's lectures, but simply seeing drop after drop of gonococci, and so I decided to go to the out-patient department of Kaposi, which is under the charge of his first assistant. Here, again, I was disappointed. By the subjoined list one can well see what the out-patient department provides. This is a list which I made during the winter of the cases presenting themselves from Monday to Saturday inclusive. By its side I will place a list of the patients whom I saw in *one day* in Paris, and while the Vienna one means all the patients who appeared during the six days, the Paris one signifies only those men, women and children who came before one of the three physicians holding the clinic on that particular Saturday. Both lists were made quite hap-hazard, and are not selected ones in any way.

VIENNA.
One week in January.

Acne	8
Acne rosacea	5
Alopecia areata	2
Combustio	1
Dermatitis	4
Dysidrosis	1
Eczema	23
Epithelioma	2
Erythema multiforme	1
Erythema nodosum	1
Favus	1
Herpes progenitalis	2
Herpes zoster	3
Impetigo	3
Ichthyosis	1
Lupus vulgaris	8
Pediculi capitis	2
Pediculi vestimentorum	1
Pernio	3
Prurigo	2
Pruritus senilis	1
Psoriasis	5
Scabies	33
Syphilis	10
Sycosis	1
Seborrhea	2
Ulcers cruris	2
Urticaria	7
Verruca	3
	127

PARIS.
One day in June.

Alopecia areata	4
Balanitis	3
Dermatitis (professional)	8
Dermatitis (medicamentosa)	2
Dysidrosis	1
Eczema	8
Eczema of nails	1
Eczema of the lip	2
Eczema seborrhoicum	2
Epithelioma	1
Erythema multiforme	4
Erythema bullosum	1
Herpes zoster gangrenosus	1
Impetigo	4
Pediculi capitis	3
Pediculi vestimentorum	6
Pityriasis rosea	2
Pruritus senilis	3
Psoriasis	1
Scabies	2
Serofulosis	3
Seborrhea	2
Stomatitis mercurialis	1
Syphilis:	
Chancre of lip	2
Chancre of cheek	1
Syphilis palmaris	1
Tertiary syphilis	4
Secondary syphilis	13
Tinea trichophytina:	
Scalp	4
Body	2
Beard	1
Tuberculosis lingualis	1
Tuberculosis of tonsils	1
Urticaria	1
	96

Such superiority in the quantity and the quality of the material of Paris over Vienna is indeed surprising, and I hope will serve to convince the future American student of

the skin of the advisability of devoting some time at least to Paris, for at present he seems little inclined to do so. But to return to the Vienna out-patient clinic. There is no regular system adopted there. A house-patient to be cauterized for lupus comes in for treatment between two out-patients, and while he is screaming under the hot platinum, the new-comers are listening in awe to his cries. Then several out-patients are brought in, and these are followed again by house-patients whose warts or lupus are to be scraped out or burned. Such is the method, if method it can be called, pursued in Kaposi's out-patient department; and so it is that the time from nine until half-past ten is consumed, and at the end the student finds that he has seen but very few rare cases among the many examples of scabies and of eczema.

On Saturdays, Kaposi allows the students to make the visit with him, and here at last the foreigner finds a reason for the fame of Vienna. In the one hundred beds lie many good cases—many rare ones to study, and many commoner ones upon which the results of Vienna therapy can be watched from week to week. The celebrated perpetual bath of Hebra can also be seen, and it surely is an extremely valuable palliation, even in the cases where an absolute cure can never be accomplished. Frightful cases of decubitus and of burns form the principal cases which fill the water-beds, while very often cancer in its last stages adds to the horrors of this living mortuary. I think I learned more of the therapeutics of the skin in Vienna than elsewhere, and some of Kaposi's methods were magnificently successful. I only wish that less cruelty were practised in his department. Sex and age mean nothing to his assistants, and cannot save the unfortunate victims of lupus from frequent, prolonged and deep Paquelinization with absolutely no anesthesia.

Every city has some one especially good cure for one or more diseases, but I think Vienna and Paris stand forth most conspicuously in this respect. The emplastrum saponatum salicylicum of Professor Pick of Prague accomplishes wonders in the cure of the old eczemas at Vienna, while the prolonged local or general baths with frequent use of the nitrate-of-silver stick for the exuberant granulations serve the same purpose for the burns; and I shall never forget the result of Kaposi's modification of Wilkinson's ointment (followed by β naphthol and later by fatty inunction) upon a well-marked case of generalized ichthyosis. These are some of the most successful cures which recur to my mind now, and which emphasize Vienna in connection with the amelioration of these diseases.

In addition to the great public courses of Kaposi and Neumann, there are the private courses, which in other branches of medicine in Vienna are so deservedly popular and instructive; but, alas, in skin these courses cannot be turned to such advantage, save that given by Dr. Rille, the first assistant of Neumann. Of Rille's course I cannot say too much in praise. He appears to be the most progressive dermatologist in Vienna, but even he is over adherent in some instances to the doctrines of the great Hebra. His course, like the others, covers twenty hours usually, and is generally attended by fifteen or twenty Americans and English, who thus can see the patients or material in the closest proximity, and who can hear lectures and ask questions upon the subjects which are of greatest interest to them. Rille presents about fifteen cases each day, and speaks of each one carefully and scientifically, but neglects the therapeutic side. The patients are the selected ones from Neumann's one hundred beds, and, although mostly venereal, are interspersed with many purely dermatological ones. The women's wards are peopled as a rule by "puellæ publicæ," who are practically prisoners until cured, and the gynecological table there forms one of the best places for the study of venereal sores in women that I have ever seen—in fact, I know of but one other in Europe which is superior, and that is Professor Pick's in Prague.

And now, before leaving the subject of Vienna, I must not fail to speak of the pathological side of dermatology. On my arrival, I asked Kaposi whither I should turn to

find a good master in this branch of my work. Kaposi kindly gave me a card to Professor Paltauf, who, with his assistant Riehl, has done the best microscopical work in Vienna in recent years. I went to Paltauf's laboratory several times unsuccessfully, and finally spoke to a stranger who had been in Paltauf's laboratory for several months, and he advised me to go elsewhere if I was seeking instruction, for Paltauf seldom came, and had but a few moments to give to students. I then found a place in Dr. Albrecht's laboratory, where I remained for six months, and where I worked for five or six hours each day. Here I received several new specimens every evening which I hardened, cut, stained and mounted in their turn, and finally showed to Albrecht, who would tell me all he could about them. Unfortunately he had never done any special work on the skin, and so could not give me much minute knowledge, but he provided me with a good deal of material, and the technique and study of these specimens occupied the time until I was ready to leave. Albrecht is a delightful, quick and bright man, and one who knows general pathology wonderfully well for his age. From what I learned of laboratories in Vienna, no other is better for one who is hunting for dermatological material in combination with instruction.

When one turns to bacteriological work in Vienna one must be again disappointed. The course given is very primitive compared with its prototype of the Pasteur Institute. The lectures and instruction are very brief, the apparatus almost niggardly, the demonstrations feeble, and the course, as a whole, very expensive considering what one receives in return.

With the advent of May I left Vienna with mingled feelings of regret and gladness. From Kaposi's lectures and wards and from Albrecht's laboratory and Neumann's wards, I had undoubtedly absorbed more good than I was willing to admit, and yet I was sorry that my last two months were spent in Vienna, for subsequent experience verified only too plainly how much better I could have been employed elsewhere.

CHARLES J. WHITE, M.D.

(To be continued.)

MEDICAL FEES IN RUSSIA.—The Russian Government is nothing if it is not parental. How wisely the "Czar of all the Russias" looks after his "children" has been aptly illustrated by his government taking in hand the question of medical fees. Medical men in Russia have now to charge according to a fixed scale, of which the following are the chief details. The towns are divided into three classes: those having more than 50,000 inhabitants, those having between that number and 5,000, and those having fewer than 5,000. The patients are also divided into three classes, according to the amount of their worldly possessions, their official position and social standing. The fees for the first class have been fixed at five roubles; for the second, three roubles; and for the third, thirty kopecks. According to the official register of medical practitioners in Russia, the total number of women licensed to practise medicine in the domain of the Czar was 691. In the medical faculties of Switzerland there were, in 1891-92, 114 Russian women studying medicine; the majority of these are described as "politically untrustworthy" from the official point of view. There is also a considerable number of Russian women—for the most part Jewesses—at present studying medicine in Paris.—*The Sanitarian.*

METEOROLOGICAL RECORD,

For the week ending November 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr. *		Rainfall in inches.
	Daily mean.		Daily mean.		Daily mean.		Daily mean.		Daily mean.		Daily mean.		
S...3	30.38	40	48	33	82	63	72	N.W.	W.	5	6	O. C.	.11
M...4	30.65	42	49	36	77	80	78	N.W.	S.	6	9	O. C.	—
T...5	30.56	50	63	38	85	87	86	W.	S.W.	9	15	O. C.	—
W...6	29.40	58	49	48	86	75	80	W.	S.W.	13	10	O. C.	—
T...7	30.26	62	73	51	95	78	86	S.W.	S.W.	12	17	O. C.	—
F...8	30.02	64	72	57	93	92	92	W.	S.W.	14	10	O. C.	—
S...9	29.88	66	66	47	90	96	93	S.	N.	5	6	O. R.	.07

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 9, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,892,332	721	230	13.44	21.00	1.96	2.10	5.88	
Chicago . . .	1,678,967	209	140	48.48	30.72	1.20	10.56	19.68	
Philadelphia .	1,164,060	423	124	16.56	15.12	1.44	2.88	10.32	
Brooklyn . .	1,100,000	350	110	11.60	17.69	1.16	.87	7.25	
St. Louis . . .	560,000	—	—	—	—	—	—	—	
Boston	494,205	195	48	14.79	15.30	2.55	2.04	10.20	
Baltimore . .	495,315	187	60	14.58	12.42	3.78	4.32	5.94	
Cincinnati . .	336,000	102	28	11.76	16.66	1.98	3.96	6.86	
Cleveland . .	314,537	95	—	13.65	13.65	2.10	4.20	6.30	
Washington .	275,500	—	—	—	—	—	—	—	
Pittsburg . .	238,617	84	25	17.85	10.01	1.19	10.01	4.76	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	27	—	18.50	18.50	11.11	—	3.70	
Charleston . .	65,165	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,687	30	8	10.00	20.00	3.33	—	3.33	
Fall River . .	88,020	25	8	20.00	20.00	16.00	—	4.00	
Lowell	84,359	47	19	6.39	12.78	—	—	2.13	
Cambridge . .	81,519	28	8	27.44	10.29	6.86	—	20.58	
Lynn	62,355	17	1	23.60	17.70	—	—	17.70	
New Bedford .	55,254	24	15	8.32	8.32	—	—	8.32	
Springfield .	51,534	13	2	—	6.97	—	—	—	
Lawrence . .	52,153	14	—	14.28	14.28	7.14	—	—	
Holyoke . . .	40,149	—	—	—	—	—	—	—	
Salem	34,437	16	5	16.50	24.75	—	8.25	8.25	
Brookton . .	33,157	14	7	14.28	—	7.14	7.14	—	
Haverhill . .	30,185	9	4	—	22.22	—	—	—	
Malden . . .	29,706	11	1	9.09	—	—	9.09	—	
Chelsea . . .	31,255	19	10	42.56	—	—	—	31.92	
Fitchburg . .	26,394	10	5	—	30.00	—	—	—	
Newton . . .	27,722	8	3	12.50	12.50	—	—	12.50	
Gloucester . .	27,663	—	—	—	—	—	—	—	
Taunton . . .	27,093	4	1	—	—	—	—	—	
Waltham . . .	20,877	6	3	—	16.66	—	—	—	
Quincy	20,712	6	1	50.00	—	—	33.33	16.66	
Pittsfield . .	20,447	3	0	—	33.33	—	—	—	
Everett . . .	18,578	4	0	50.00	25.00	—	25.00	25.00	
Northampton	16,738	5	1	—	20.00	—	—	—	
Newburyport .	14,564	—	—	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,844; under five years of age 898; prin-
cipal infectious diseases (small-pox, measles, diphtheria and
croup, diarrheal diseases, whooping-cough, erysipelas and
fevers) 478, acute lung diseases 490, consumption 360, diphtheria
and croup 235, diarrheal diseases 87, typhoid fever 84, whoop-
ing-cough 18, scarlet fever 17, measles 13, cerebro-spinal menin-
gitis 12, erysipelas 7, malarial fever 5.

From whooping-cough New York 5, Philadelphia 4, Chicago 3,
Brooklyn and Lowell 2 each, Cleveland and Chelsea 1 each.
From scarlet fever New York and Pittsburgh 5 each, Brooklyn
2, Chicago, Philadelphia, Cincinnati, Providence and Lynn 1
each. From measles New York 9, Chicago and Philadelphia 2
each. From cerebro spinal meningitis Chicago 5, New York 3,
Nashville, Worcester, Lawrence and Chelsea 1 each. From
erysipelas New York and Chicago 2 each, Philadelphia, Brook-

lyn and Baltimore 1 each. From malarial fever Brooklyn 3,
New York and Charleston 1 each.

In the thirty-three greater towns of England and Wales with
an estimated population of 10,591,530, for the week ending
November 2d, the death-rate was 21.9. Deaths reported 4,454;
acute diseases of the respiratory organs (London) 366, measles
150, diarrheal 136, diphtheria 108, fever 83, whooping-cough 56,
scarlet fever 53, small-pox (West Ham 3, London 1) 4.

The death-rates ranged from 12.3 in Croydon to 35.5 in Liver-
pool; Birmingham 20.6, Bolton 24.9, Brighton 17.4, Cardiff 20.8,
Halifax 15.0, Hull 21.7, Leicester 18.3, London 21.2, Manchester
27.5, Newcastle-on-Tyne 20.4, Nottingham 17.5, Portsmouth 17.3,
Sheffield 19.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND
DUTIES OF OFFICERS SERVING IN THE MEDICAL
DEPARTMENT, U. S. ARMY, FROM NOVEMBER 9, 1895,
TO NOVEMBER 15, 1895.

THOMAS JELLIS KIRKPATRICK, JR., and JOHN HAMILTON
STONE, appointed assistant surgeons with the rank of First-
Lieut., to rank as such from November 6, 1895, and ordered to
report to the president of the Army Medical School for instruc-
tion.

The leave of absence granted CAPTAIN EUGENE L. SWIFT,
assistant surgeon, is extended one month and he is authorized
to go beyond sea.

MAJOR LOUIS W. CRAMPTON, surgeon, granted leave of ab-
sence for three months, to take effect on or about December 1,
1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS
OF THE U. S. NAVY FOR THE WEEK ENDING NO-
VEMBER 16, 1895.

T. OWENS, surgeon, detached from Naval Station, Port Royal,
S. C., and granted three months' leave.

J. R. WAGGENER, surgeon, detached from the "Independ-
ence" and ordered to the Mare Island, Cal., Navy Yard.

GEO. P. BRADLEY, surgeon, detached from the Mare Island,
Cal., Navy Yard and ordered to the "Indiana."

GEO. ROTHGANGER, passed assistant surgeon, detached from
Naval Hospital treatment and ordered to the "Independence."

J. E. GARDNER, surgeon, ordered to Port Royal, S. C. Naval
Station.

SOCIETY NOTICE.

NORFOLK DISTRICT MEDICAL SOCIETY.—The Roxbury Fel-
lows of the Norfolk District Medical Society are able by the
courtesy of Dr. W. P. Bowles, to entertain the Society at the
University Club, 270 Beacon Street, Boston. The meeting will
be held on Tuesday, November 26th, at 8 P. M.

Communications: "Infantile Paralysis," J. W. Courtney, M.D.
"A Case of Interstitial Pregnancy," George E. Mecuen, M.D.
J. C. D. PIGEON, M.D., Secretary.

EXCURSION TO BERMUDA.

Dr. J. B. Mattison, of Brooklyn, N. Y., is arranging an ex-
cursion of medical men to Bermuda, sailing December 12th and
returning the 2d or 13th of January.

BOOKS AND PAMPHLETS RECEIVED.

Eyesight and School Life. By Simeon Snell, F.R.C.S., Edin.,
Ophthalmic Surgeon to the Sheffield General Infirmary and to
the School for the Blind; Lecturer on Diseases of the Eye at
the Sheffield Medical School; Consulting Ophthalmic Surgeon
to the Rotherham Hospital; Author of "The Electro-Magnet in
Ophthalmic Surgery," etc. With numerous illustrations. Bris-
tol: John Wright & Co. 1895.

A Text-Book of Practical Medicine, designed for the use of
Students and Practitioners of Medicine. By Alfred L. Loomis,
M.D., LL.D., Professor of Pathology and Practical Medicine in
the Medical Department of the University of the City of New
York; Visiting Physician to Bellevue Hospital, etc. Revised
and enlarged with 207 illustrations. Eleventh edition. New
York: William Wood & Co. 1895.

The Pathology and Surgical Treatment of Tumors. By N.
Senn, M.D., Ph.D., LL.D., Professor of Practice of Surgery and
Clinical Surgery, Rush Medical College; Professor of Surgery,
Chicago Polyclinic; Attending Surgeon to Presbyterian Hospital;
Surgeon-in-Chief, St. Joseph's Hospital, Chicago. Illus-
trated by 515 engravings, including full-page colored plates.
Philadelphia: W. B. Saunders. 1895.

Original Articles.

STUDIES IN ANESTHESIA AND ANESTHETICS.¹

BY DANIEL E. KEEFE, M.D., SPRINGFIELD, MASS.

THE necessary limits of a paper for an occasion like this precludes a complete discussion of all the points of interest and importance relating to anesthetics. I shall content myself, therefore, with drawing your attention to the relations of ether and chloroform, incidentally mentioning nitrous oxide. I shall consider their relative strength, desirability and danger, as well as the best method for their administration; also the value of the statistics of fatal cases, concluding with a few statements more or less dogmatic, which I formulate as the result of some study, but more particularly from my own observations.

The two most important contributions to the subject of anesthetics during the last ten years are the report of the Second Hyderabad Commission² and the able paper of Dr. H. C. Wood before the Tenth International Medical Congress at Berlin, 1890. The conclusions of both agree on most points; but while Dr. Wood maintains that death from chloroform may take place either from primary respiratory paralysis or cardiac arrest, the latter being the usual mode; the Commission insists that respiratory paralysis is always primary and cardiac arrest always secondary. Undoubtedly the experiments of the Hyderabad Commission are the most accurate, extensive and far-reaching ever performed, and perhaps will never again be equalled so far as the inferior animals are concerned, for it used about 600 animals in the work, and availed itself of the most exact methods for recording its observations. So its conclusions are to be taken with great confidence. Dr. Woods's methods were equally scientific; and he quotes Dr. Chisholm of Johns Hopkins Hospital, Dr. Hare and others, whose experiments and conclusions agree with his own. He admits, however, that although chloroform is very fatal to dogs, cats show great tolerance of it. This very admission proves that there is nothing essentially lethal in the chloroform, but that the element of individual susceptibility is a very important consideration.

The only other paper on the general subject of anesthetics presented at the Tenth International Medical Congress was read before the Surgical Section by myself. Although when it was written I had no knowledge of the report of the Commission, for it was not printed, nor of the substance of Dr. Woods's paper, yet it is wonderful how near to the conclusions, especially of the former, I arrived.

I there said, regarding chloroform, A. C. E. mixture and ether: "For the purpose of discussion, as I do for practical purposes in their use, I shall treat them as uniform in their physiological effects, for the difference is not of such a character, nor is it so pronounced that it can be recognized by the senses."³

This was said in answer to the dictum of the leading text-books on materia medica and of anesthesia, to the effect that ether stimulated the heart and accel-

erated the pulse, while chloroform after first accelerating the pulse, acted as a cardiac depressor.

I insisted that neither acted as a *stimulant per se*, either primarily or secondarily; that it was the unusual situation, fear of the inhalation and operation that excited the pulse. I furnished reports of 178 inhalations in support of my statements, and my subsequent experience has convinced me more and more of the correctness of this contention. Now, if chloroform is just as free from tendency to produce cardiac syncope or paralysis as ether, as the Hyderabad Commission claim, and as I am disposed to think, the beliefs held by the vast majority of the profession must be revised. Professor Wood, while finding that in a large majority of his experiments on dogs the heart stops first, admits that respiration frequently is the first to do so, and that death may take place in either manner. He also states that the American dog is very sensitive to the lethal effects of chloroform as compared with the pariah dog of India; and indeed, Brown-Séquard, who was probably better qualified than any one else to speak on this subject, some years ago said that he noted a marked difference between the American and European dogs, that the vascular system was better developed in the latter, and that operations on them were much more bloody than like ones on American dogs. One would expect the difference between the American and Indian dogs to be much more marked, since the difference in temperature, habits and environment is greater.

So it would seem that there is something worth considering in the claim that the warmer latitudes are more favorable to chloroform than are more northern ones. But, may I ask, are they not also more favorable to ether or any other anesthetic? Is not the higher temperature of the surrounding media a help to tolerance, as well by preventing the loss of body heat by evaporation as by increasing the diffusibility of the anesthetic? Certain it is that the loss of heat is very large and the reduction of the body temperature considerable. We know, also, that the application of heat is one of the measures resorted to, and with reason, in cases of syncope under anesthetics.

My insistence, then, at the Berlin Congress that ether and chloroform were substantially alike in their effects on the pulse, that they did not accelerate it in any true sense, put me squarely on the same side as these eminent authorities, and against nearly all other recognized teachers and writers on the subject.

We now come to the consideration of the statistics of the matter. If chloroform is not more dangerous than ether, strength considered, why do more people die while inhaling it, and of what use are statistics? People die under chloroform as they do under ether and nitrous oxide; and chloroform, being the most powerful agent, is often substituted when failure is had with ether, and perhaps is frequently blamed for the sins of the latter. For instance, after a patient struggles for fifteen minutes with ether with no result, chloroform is substituted, the refractory patient is subdued, but not until the face is livid with venous blood, the return of which to the heart is prevented by spasm of the whole respiratory apparatus, and of the general voluntary muscles as well. The cerebro-spinal axis is, perchance, also congested, and pressure on the centres in the medulla may suspend either respiratory or cardiac movements, and the end has come. The patient is perhaps a plethoric, strong man in the prime

¹ Read before the Hampden District Medical Society, October 15, 1895.

² Lancet, June 21, 1890.

³ I have just read (October 12, 1895) in Foy's Anesthetic Manual, p. 126, that Dr. J. C. Reeve in the Reference Handbook of the Medical Sciences has made this same claim, and therefore is in consonance with me in the matter.

of life, a free user of alcohol, and having perhaps an aneurism, fatty heart, or kidney disease without knowing it. And why should he not die? Indeed, the wonder is that he lived so long. Every day we see just such men dropping by the way, on our trains, in our railway stations, and in all places of public resort. Statistics may show more deaths from chloroform than ether, but I contend that the deaths under all anesthetics are too few to make the statistics of any value. Furthermore, the post-mortem examinations are so few, as compared with these deaths, that our want of positive knowledge of the *actual cause* detracts still more from their value. The deaths under anesthetics are, I assert without the fear of contradiction, fewer than the sudden deaths occurring in those not under anesthetics. If one dies while inhaling an anesthetic, that agent is blamed, but we frequently hear of a person walking into a physician's office to consult him for some—as was thought—slight indisposition, and expiring in the doctor's chair.

If one's days are numbered, if his sands of life are nearly run, by reason of some perhaps hidden malady, and he is liable to "give up the ghost" at any moment, how can an anesthetic he happens to inhale justly be charged with his death? It is true that the excitement, attending the inhalation, together with the fear of what is to follow, may be the exciting cause, but the real one had long before nearly completed its work. Moreover, if a life is already forfeited by disease, of what value is such a life, either to its owner or the body politic? What if the exciting cause be put in motion a few days before some sudden exertion or excitement acts as such and closes the scene? It is only putting the principle of euthanasia into practice, and providing a painless death, without inflicting any great loss. Be it understood that I express no opinion on the subject of euthanasia.

I have made considerable effort to find some statistics of sudden deaths, both in this country and in Europe, but find there are, strictly speaking, none such prepared.

I am, however, indebted to the United States Department of the Interior (Census Bureau), and to Hon. Wm. M. Olin, the able and obliging Secretary of this Commonwealth, for some valuable information pertaining to the matter. Dr. Turnbull,⁴ as quoted in Dr. Wood's paper⁵ has collected 427 deaths under all anesthetics, which the doctor estimates as being about one-third of the real number. Accepting this estimate as correct, it would give us 1,281 as the actual number of deaths in nearly fifty years. I estimate that ether and chloroform have, during this period, been administered at least 16,000,000 times, and 35,000,000 would be nearer the correct number, but I prefer to have a wide margin so that I cannot be accused of making high estimates to favor my position. This gives a death-rate of less than .00008 of one per cent., as compared with 2.19 per cent., the rate per annum in Massachusetts for the whole population. It may be said that the sudden deaths and those under anesthetics are included in the 2.19 per cent. death-rate. Yes—but they are so few that they make no difference worth noting in the figures. Thus we see how small a fraction are the deaths under anesthetics, as compared with the ordinary deaths taking place in this State. Again, last year⁶ there were 49,084 deaths, and in looking over the reports of the medical

examiners I find this entry: "From all other, including alcoholism and various natural and unknown or ill-defined causes, usually of a more or less sudden nature," there were in 1893 reported 879 deaths, as compared with 890 in 1892. So, in two years we have in our own State, 1,769 sudden deaths without apparent cause, as against 1,281, in the whole world in nearly fifty years under anesthetics. The percentage of sudden deaths in this State, as compared with the whole number, is about 1.79 per cent. This would, assuming about 10,000 administrations⁷ give us the number of deaths that ought to have taken place in this State under anesthetics in 1893 as about 178, or probably twenty times as many as took place in the whole world.

The foregoing figures are claimed to be only approximately correct, even the percentages are not closely figured. Let us now look into the character of the statistics of deaths under anesthetics.

In one edition of his book Dr. Turnbull gives a chart containing 100 deaths occurring in eight years under chloroform. We will take this chart as a fair sample. Of this 100 cases the causes are put down in only 30, and are—shock, 4; collapse, 15; disease of the heart, 6; asphyxia, 3; syncope, 1; spasm, 1. Symptoms are given as—convulsed, in six cases; struggled violently, respiration irregular, face livid, in one case; vomiting caused suffocation in two cases. Such records show nothing as to the relative danger of anesthetics, only that the condition contributed to the accident. Post-mortem examinations were had in 34 cases. In six they proved negative, while 28 cases showed fatty degeneration or some other disease of the heart, with such extras as "pus on surface of brain"; and in many the kidney, liver and spleen, one or all were also affected. In 22 the condition of the patients was given; and it was such that no anesthetic should have been given, for they were people well advanced in disease. Only four of the entire number are set down as healthy, while four had the chloroform habit and two died by self-administration. The fact that they had the habit of administering chloroform to themselves proves that there was nothing inherent in the chloroform inimical to their lives, otherwise they would have been dead before the habit was contracted. I may here say parenthetically that Sansom,⁸ of London, in another series, performed 18 post-mortems, and found fatty hearts in all.

In 40 of the cases the quantity is given. In one case five minims were given; one, 15 to 20 drops; to a man forty-two years old, six minims; to a woman with uterine trouble, twenty-five years old, a few drops; 1, exceptionally small; 8, one drachm each; 11, two drachms each; 2, one and one-half drachms each. Thus, in 26 of the 40 cases the amount given was two drachms or less. These facts speak for themselves. The idea that six minims of chloroform would kill a healthy man forty-two years old, or that a few drops would cause the death of a woman twenty-five years old, even though all air were excluded, is preposterous, and I for one will not believe it. Neither will I believe that two drachms or eight grammes, if properly administered, will kill a *healthy* man. Fear alone, or acting in conjunction with the excitement and a disease necessarily fatal in itself, is what dealt the

⁴ Anesthetic Manual, Laurence Turnbull, Philadelphia, 1885.

⁵ Proceedings Tenth International Medical Congress, Berlin, 1890.

⁶ 1893 is meant, for that is the latest year of which reports are published.

⁷ I am indebted to Dr. John W. Pratt, the energetic and courteous Superintendent of the Massachusetts General Hospital for valuable information used in preparing this paper.

⁸ Chloroform, its Action and Administration, by A. E. Sansom, London.

fatal blow. Thus is shown the fallacy, unreliability and general worthlessness of the statistics relating to anesthetics. Their small number makes them doubly valueless for deciding as to the relative safety of one anesthetic or another. Indeed, all the deaths under each and every one of them could and might happen from natural causes and be mere coincidences as to time, place and circumstance. Many observations have convinced me that there are two danger points in the administration of anesthetics.

(1) It has been proved experimentally that either anemia or hyperemia of the cerebro-spinal axis may induce convulsions more or less epileptoid in character. Believing that the heart is beating at its maximum as to force and frequency when the anesthetic is applied, the blood is being pumped into the brain with great force and volume, the irritating nature of the anesthetic acting upon the respiratory mucous membrane produces a state of spasm, both of the involuntary and voluntary muscles of respiration, thus forming an obstruction to the return circuit from the brain, which may cause such a state of congestion that the pressure on the cardiac or respiratory centres in the medulla may prove inhibitory, and death ensue from cardiac syncope, or as is most likely, from respiratory arrest. This respiratory arrest or spasmodic condition of the respiratory apparatus threatening immediate death, is the so-called "chloroform asphyxia."⁹ I have found it in from three to five per cent. of cases under all anesthetics, as well as chloroform. Surgeon-Major Lawrie,¹⁰ thinks it is caused by administering chloroform with an insufficient admixture of air, the strong chloroform being taken directly to the brain, which it paralyzes. I regard the explanation which I have given as much more in consonance with the physiological conditions known to exist, much less open to objection, and indeed the true explanation. Ordinarily, before this condition is produced the sedative action of the anesthetic lessens both the respiratory spasm on the one hand, and the cardiac force and rapidity on the other, and so removes the obstruction to the return of the venous blood while it diminishes the quantity of arterial blood sent. In this manner the respiration becomes easy and regular, and the first danger point is passed.

(2) After the anesthesia has been continued for a long time the heart's action becomes slower and weaker, the patient colder and colder, and perhaps so little blood is carried into the brain that anemia is caused; and the late deaths in convulsions are to be accounted for in this way. Here alcohol, ammonia and digitalis are indicated; and I suggest as good practice, not waiting for complete syncope, but giving a hypodermic of alcohol and one or two minims of fluid extract of digitalis when there is great pallor in the face and want of volume in the pulse. I say this notwithstanding that Dr. H. C. Wood, relying on the experiments of Dr. R. Dubois in administering alcohol to animals and then killing them with the anesthetic, and of his own in giving it when syncope had taken place, thinks that alcohol is of no value in these cases, being too closely allied to chloroform and ether, chemically and physiologically. But I would remind him that there is a vast difference between giving it when syncope is present, and producing syncope after the alcohol has been given. Moreover, he has not told us, if,

after failing with alcohol, he has succeeded with any other agent in restoring the heart's action.¹¹

As to the relative safety and desirability of anesthetics, I may say that several years ago, Lewis A. Sayre, the man who with Sims and Bigelow, perhaps, did more to make American surgery known and respected the world over than any other, penned the following:

"My preference is for chloroform, in the use of which I differ from all known authorities, who insist that chloroform should be largely diluted with air. My rule is to exclude all air except such as is impregnated with chloroform; from five to twenty drops administered may, according to the age of the patient, accomplish most completely and promptly all that is desired, without causing any violent struggles on the part of the patient, which often follows the administration of air with the anesthetic."¹²

Since reading these words I have paid more attention to the claims of chloroform; and although I am not prepared to go so far as to extend the application of his ideas as to the complete exclusion of air, to adults, I think them perfectly correct as to children. So, too, I think chloroform is the best anesthetic for children, for lying-in women, and for large, strong, plethoric men, for persons having valvular heart disease, lung and kidney troubles, and in many other cases; while weakly women, and persons with nervous and fatty hearts, who are anemic, take ether very kindly. As to the relative strength, I would mark chloroform 2,560 units, ether 445 and nitrous oxide 1. Ether may be compared to chloroform as to danger as a toy engine is to a locomotive. The steam locomotive may be, and is, handled with almost perfect safety, but we must remember that it is a powerful piece of mechanism, and see that our feet never get under the wheels, or we in any way grow careless in its handling. I must confess, however, that I have seen as many dangerous and unpleasant symptoms follow the administration of ether as chloroform, and possibly more, and that all the unfavorable symptoms with all anesthetics related to the respiration.

In conclusion, I may say:

(1) If there is any suspicion of weak heart, get the patient under the influence of digitalis for twenty-four hours, and give a hypodermic of four grammes of the tincture before beginning the inhalation.¹³

(2) Every one administering an anesthetic should measure the dose. Fifteen grammes (or half an ounce) of chloroform is a proper dose to produce anesthesia in an adult, and should be poured on at once, and no more should be used, only as needed to continue the anesthesia.

(3) Forty-five grammes (or one and one-half ounces) of ether is enough for a woman, and sixty grammes (or two ounces) of ether is enough for a man, and should be the charging dose. There may be an exceptional case where even sixty grammes of ether will not subdue a patient, but I should consider such an one not a good subject for ether and would substitute or add chloroform.

(4) The *face*, pulse and *respiration*, in order named should be watched attentively during chloroform administration, and the *respiration* and *pulse* in ether.

¹¹ System of Surgery, Dennis, 1895, H. C. Lea & Co.

¹² I have a letter from Dr. Sayre, bearing the date of August 21, 1855, in which he says: "I have nothing to add to what I then said and no change or alteration to make in the mode of administration."

¹³ Wood, in Dennis's System of Surgery, H. C. Lea & Co., 1895.

⁹ P. F. Mundé, New York Medical Journal, November 18, 1890.

¹⁰ Lancet, June 21, 1890.

It is not enough to see that the chest moves: we must hear the air enter the lungs.¹⁴

(5) A good plan is to combine chloroform with ether, especially if one fears to assume the responsibility of using pure chloroform; and twelve grammes (or three drachms) of chloroform and thirty grammes (or one ounce) of ether is a good charge, and can be depended upon to produce anesthesia. In this way the stage of excitement so common in ether anesthesia is avoided.

(6) Withdrawal of the anesthetic, the frequent momentary inversion of the patient, artificial respiration, strychnia, heat, digitalis, the galvanic battery, and sponging or sprinkling of face and breast with ice water, are the means for restoration of function arrested by anesthetics.

CLINICAL EXPERIENCE IN ABDOMINAL SURGERY AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY J. COLLINS WARREN, M.D.

(Continued from No. 21, p. 510.)

HYSTERECTOMY.

Fibroids of Uterus and Ovary, Abdominal Hysterectomy, Death.—L. L., a colored girl, single, aged twenty-seven years, entered January 9, 1895. Gave an indefinite history of syphilis, but was never pregnant. Five years ago had prolapsus uteri, and has always suffered from menorrhagia. Two years ago she noticed increasing size of abdomen, and stayed for a while in the Boston City Hospital, but refused operation. All bodily functions have remained apparently undisturbed by the tumor, and she has had no pain. Last winter for a short time she passed blood from her rectum. On examination, the diagnosis of uterine fibroma was made, and operation advised on account of the great size of the tumor.

On January 18th an eight-inch incision was made and the abdominal cavity opened. Considerable fluid was swabbed out of the general cavity. A large fibroma of the right ovary presented, overlaid in all directions by omentum whose veins, arteries and lymphatics were enormously dilated and tortuous. The omentum seemed to enclose the tumor as in a net, and the tumor seemed to be fed principally from the large vessels of the omentum. The tumor (weighing sixteen pounds) was found to be attached to the fundus uteri by a pedicle of about three fingers' breadth. After the omentum vessels had been gathered in a bunch, clamped and tied, the tumor was lifted out of the abdominal cavity, the pedicle clamped and the tumor cut away. The uterus was much enlarged with fibroids in the walls and it was thought best to remove it also. The broad ligaments were tied, cut, and the uterus removed over a rubber tourniquet, leaving peritoneal flaps. The flaps were inverted and sutured with silk. All bleeding points were tied with silk. The patient stood the operation well, and left the table without any stimulant. In the evening her pulse began to rise, but without other sign of hemorrhage. Stimulants and salt solution were exhibited, but with only temporary effect, and about twelve hours after the operation she died.

Examination showed free clotted blood and salt solution in the abdominal cavity. No bleeding point

discoverable, but the hemorrhage probably occurred from some omental vessel.

Fibroids of Uterus, Abdominal Hysterectomy, Recovery.—A washerwoman, fifty-three years old, widow, entered the hospital January 1, 1894. Catamenia began at eighteen, induced by drugs. Sixteen years ago miscarriage at three months. Since then two children. Four years ago was treated in Boston City Hospital for grippe and "inflammation," with bearing-down pains. She then noticed a lump in left iliac region. Considerable menorrhagia and some leucorrhea. Has been treated by electricity. Tumor fills lower abdomen, nodular and slightly movable. Cervix is pushed to right and backwards.

January 19th. Operation in Trendelenburg position. Five-inch median incision below umbilicus. The uterus was of the size of the fetal head at birth, and was studded with multiple tumors. There were no adhesions. Broad ligaments ligatured and clamped and cut away. Peritoneum dissected away from uterus to junction of body and cervix, and a wire ecraseur placed at this level. The uterus was cut away, stump and cervical canal cauterized, and the stump supported by the pins. The abdominal wound was closed with stump in the lower angle. Sterile dressing.

On the eighth day stitches were out. On the twelfth day the stump was cut away and pins removed. At this time she complained of considerable pain on micturition. Citrate of potash and Poland water were administered; but in spite of all treatment, the urinary symptoms persisted. Thirty-four days after the operation there was considerable abdominal pain, relieved by morphia and high enemata of turpentine. The stump was trimmed every day and dressed with peroxide and corrosive.

On March 12th, fifty-three days after the operation, she was discharged well.

Multilobular Fibro-Myoma of Uterus, Abdominal Hysterectomy, Recovery.—A single woman, colored, cook, thirty-two years of age, entered the medical wards in September, 1893, and was treated for uterine fibroid of three and a half years' duration with localized peritonitis. Since then she has had pain in back and legs. General condition is good. The lower abdomen is filled with a solid, movable tumor. To the left of and above the umbilicus is another smaller tumor. By vagina the tumor seems to fill the entire pelvis and to be very firmly fixed. The cervix, very far anteriorly, is felt as a mere dimple.

Operation in Trendelenburg position. A six-inch median incision from one inch above the umbilicus exposed a uterus the size of a child's head, with four subserous fibroids. Many adhesions were torn away and the broad ligaments tied close to uterus and cut away. A wire ecraseur was placed around the cervix at the internal os, and the uterus was removed. The cervical canal was cauterized; many bleeding points in the torn adhesions were secured; and the abdominal wound was closed about the stump, which was secured with pins.

The patient made a good recovery from ether, but required morphia for pain referred especially to the rectum. On the ninth day the stitches were removed. On the eleventh day the clamp and stump were taken away without any bleeding. On the thirty-third day she was discharged, well.

July, 1895. Is in California working for a family,

¹⁴ Dr. Davis's Anesthetics, London, 1887.

and has been there some months. Was perfectly well and able to work before leaving.

Cancer of Uterus, Laparo-vaginal Hysterectomy, Recovery.—A woman, twenty-four years old, married, entered the hospital October 27, 1893. Her mother died of cancer of the uterus. She had an instrumental labor four years ago, the child dying at six weeks. She has never been strong. Catamenia regular, but very painful and very profuse. In last two months excruciating pain over pubes; foul leucorrhea, lately stained with blood. In poor condition. Cervix replaced by cauliflower growth, granular and bleeding easily. Induration in both culs-de-sac. Ovaries normal. Fundus uteri movable. The cervix was thoroughly curetted.

Operation, December 1st. With the patient in the lithotomy position an incision was made about the cervix, and the uterus freed from attachments to half way up the body. The vagina was packed with sterile sponges, and the patient placed in the Trendelenburg position. A five-inch median abdominal incision exposed the intestines, which were walled off with gauze. The broad ligaments were tied off with silk. The peritoneum was separated down to the vagina. The uterine arteries were tied separately and the uterus removed. Although the vagina was found to be infiltrated with the disease, the poor condition of the patient rendered further procedure inadvisable. The peritoneum was sewed over the vagina and the abdominal wound closed without drainage. Stimulants were administered, with heaters, and the foot of the bed was raised.

There was considerable pain after the operation, which persisted until discharge. The pain was in the lower back, and was only partially relieved by drugs. Vaginal douches were employed for a few days. On the eighth day the stitches were removed, and forty-one days after the operation she went to Waverley to gain strength for secondary operation upon vaginal infiltration.

Dr. Whitney reported as follows: "Small, soft, fragmentary masses, which showed masses of epithelial cells infiltrating among the deeper structures of the uterus, with more or less round-cell infiltration."

This patient was examined by me in the winter of 1895. There was then an enormous infiltrating mass in the pelvis, and involving the bladder wall. On July 9th she was heard from still alive. Her emaciation and weakness was extreme at the time I saw her.

In connection with these cases of hysterectomy it seems appropriate to report the following case in which the fibroid was treated by removing the ovaries.

Fibroid of Uterus, Removal of Ovaries, Recovery.—F. C. R. entered January 2, 1895. Age thirty-nine, married sixteen years, and never pregnant. Is generally weak and debilitated. The fibroid was discovered nine years ago. A year later was curetted. Since then menorrhagia with some metrorrhagia. There have been no gushes of blood, although she has fainted at times. The patient is anemic and hysterical.

January 7th. On opening the abdomen an apparently cystic tumor presented, but tap was dry. The tumor was so firmly imbedded in the pelvis that it was thought best not to attempt removal. Each tube was removed close to uterus, with its ovary. Stumps were cauterized. The wound was closed tight in two layers, and a dry dressing with swathe applied.

For the next two or three days the patient suffered great pain, probably ovarian. There was some vomiting, but little distention. On the fifth day her bowels were moved by cathartic. The pain disappeared; and with instructions to report for observation of tumor, she was, on the twenty-fourth day, discharged relieved.

Her physician, Dr. H. B. Palmer of Phillips, Me., makes the following report on July 6, 1895: "She still complains somewhat of soreness of muscles, probably due to muscular rheumatism. The fibroid has perceptibly diminished in size, and she has not menstruated since the operation. As the menorrhagia was the principal symptom which demanded relief, the operation must be regarded as successful."

Perforation of the Uterus by a Uterine Sound, Hysterorhaphy, Recovery.—A. T. T. first entered the hospital in 1892. She was then twenty-three years of age, had been married one year and nine months. After the birth of a child the catamenia had been very irregular, and she had suffered from leucorrhea. She was placed in the medical ward, and local treatment was employed without improvement. She was transferred to the surgical ward February 6, 1892. The examination made at that time showed enlargement and retroflexion of the uterus, with chronic endometritis; enlargement of the left tube and prolapse of the left tube and ovary. The parts in the left side of the pelvis were very sensitive. The ovaries were removed March 16, 1892, and were found to be slightly increased in size, containing numerous retention cysts. They were non-adherent. The patient made a good recovery from the operation, but did not appear to be relieved of her symptoms. Pain and leucorrhea, with the usual train of nervous symptoms, continued. An examination in January, 1893, showed the uterus to be atrophied and somewhat retroverted. In April, 1893, the uterus was thoroughly curetted and the patient discharged shortly after much relieved.

In my service of 1894 the patient reappeared complaining of the old symptoms. An examination was made under ether with reference to a second curetting. During this examination the sound, introduced by a colleague, perforated the uterus, apparently penetrating the cicatrix of the right Fallopian tube. The abdomen was opened immediately, and a rent in the right fundus was found about one-half inch long. This was closed with four interrupted Lembert sutures of silk. An inspection of the uterus showed it to be greatly atrophied. In the right broad ligament no sign of adhesion existed. A careful inspection of the left broad ligament, which had been the seat of so much pain, showed a greatly enlarged and varicose vein, and a band of adhesion between the ligament and the sigmoid flexure. Two ligatures were placed around the vein, and the vessel was divided between them. The adhesion was also divided. The patient recovered without incident from this operation, and for a time seemed improved. A thorough course of local treatment during the following summer failed to arrest the uterine discharge and last winter the patient was still complaining of her old troubles.

Her last report, August 20, 1895, is more favorable. She considers that her operations have given her great relief, but she still suffers from leucorrhea.

Acute Intestinal Obstruction, Constricting Bands Divided, Recovery.—M. G., a strongly built laundress, entered October 22, 1894. Three years ago, when four months pregnant, she sustained a fall, followed

by miscarriage and localized peritonitis. Never well since. Complaints of anorexia and darting pains in lower abdomen, chiefly on left. Considerable bloating; abdominal distention. Passes much gas, and slightly constipated. Five days ago she felt a sudden, sharp pain in epigastrium. No vomiting and no chills. Bowels did not move, and have not moved since. Pain became worse. Last evening, vomiting, becoming stercoraceous. Cathartics were freely administered, but were of no avail.

On entrance, patient appears as a well-nourished, very stout woman. Face much flushed. Tongue slightly coated. Shallow, rapid (30) respirations. Vaginal and rectal examinations negative. She has had considerable morphia within the last few days. Much abdominal distention and tympany.

Diagnosis of obstruction, probably by band. Prepared for immediate operation.

Median incision, about five inches long, through very thick and fat abdominal walls, on median line below umbilicus and this point was selected as nearest to the seat of pain. Clear, serous fluid free in peritoneal cavity. Claret-colored, much-distended small intestines exposed. The hand passed into the abdominal cavity quickly detected constricting bands near the line of incision. The intestines lying over these bands were drawn out of the wound and protected by hot, sterile towels. The upper part of the ileum was found to be bound down and constricted by a narrow fibrous band, which was divided with scissors. Other adhesions broken up by fingers. Very little bleeding. Other constricting bands near uterine fundus were tied and divided. After a careful wiping with sterilized gauze the intestines were returned into the abdomen. There was no evidence of permanent injury to the intestines, and the external wound was closed with interrupted silkworm-gut sutures. A dry sterile dressing was applied, with pad and swathe.

The patient's condition at the end of the operation was very poor. Cyanosis, rapid respiration, and rapid weak pulse. Foot of bed raised. Oxygen and cardiac stimulants were used during completion of operation and afterward. An enema (cathartic) was given with no result. There was much distention and cyanosis. Some vomiting. Oxygen all night. On the next day, after continued ingestion of cathartics and enemata, a small amount of feces and considerable gas escaped. Stimulated all through this day. Several large dejections relieved the distention and abdominal pain.

She was stimulated with strychnine for three days, and required the rectal tube occasionally.

On the eighth day the dressing was taken down. There was much redness for the entire length of incision, with fluctuation. Incision gave escape to quite an amount of odorless, dark-brown fluid. Sinus packed with gauze and syringed daily with styrene.

Sinus gradually closed in; and November 28th, bowels being regular, and having had no symptoms she was discharged, well.

July 5, 1895. "Bloats much." Fairly well, except for two attacks about two months ago of constipation and vomiting.

The constricting bands in this case appear to have originated from the localized peritonitis which occurred at the time of her miscarriage.

Cancer of Rectum. Chronic Intestinal Obstruction, Littré's Operation, Recovery — E. T., aged forty-six, entered January 24, 1895. One sister died of phthisis,

but otherwise the family history is negative. Five years ago her uterus was curetted for menorrhagia, with resulting relief for two years. Three years ago a vaginal hysterectomy was done, the symptoms having recurred. Then she felt well, and gained until last April (1894), when she had pain in course of left sciatic nerve and along inner aspect of left thigh, the latter being relieved by defecation. There has been a tendency to constipation and gas formation; but by careful dieting and other expedients there has never been complete stoppage until during the past seven days — there having been no movement in that time. In this time she has vomited twice. The appetite is very poor. She has lost twenty to thirty pounds in weight in a year, and the left leg is especially atrophied.

She presented the characteristic cachectic appearance. The abdomen was much distended, and by rectum a gristly stricture reaching beyond the length of the finger was found.

On January 26th a five-inch incision was made in the left iliac fossa, and a knuckle of large intestine withdrawn. A bridge of skin was taken from the inner edge of the wound, passed through the mesentery under the bowel and sutured to the other edge of the wound. This was reinforced by gauze fastened by stitches. The bowel wall was stitched to the adjacent skin and protected by a dry dressing.

On the following day the loop of bowel was opened transversely, giving vent to large quantities of feces and gas.

Great relief was experienced from the operation. The movements were controlled by a gauze pad, and the wound was easily kept clean. Occasionally the distal end of the bowel was syringed with an antiseptic.

On February 14th she was discharged, much relieved.

The method employed in this case, suggested by Dr. S. J. Mixter, substitutes a flap of skin for the glass rod which is placed under the protruding loop of bowel. The object of this plan is to make a spur which will prevent all fecal discharge from passing down below, the artificial anus. When the bowel has been cut across and has healed to the skin, there remain two distinct openings — one leading to the descending colon, the other to the rectum.

Patient reports, July 29, 1895, that there has been no symptoms of obstruction since the operation. The growth now involves the vagina and bladder. The patient takes about half a grain of morphine and thirty-five grains of phenacetine daily.

Chronic Intestinal Obstruction, Left Inguinal Colotomy, Death. — A man, sixty years old entered the medical ward December 19, 1893. Two years ago he had "dysentery," and since then has never been very well. Suffers from dyspepsia. These symptoms have been worse for the past month. Passage of feces always relieved the pain. Seventeen days ago he experienced a severe recrudescence of his symptoms, with vomiting and obstipation. Since then his bowels have moved only by enema. During the next week he did not improve, and was transferred to the surgical side. At that time he was much emaciated and very weak. The abdomen was so distended by gas that palpitation was unsatisfactory. He was fed by nutrient enemata, and prepared for operation for supposed ileo-cecal stricture.

A four-inch incision was made in the ileo-cecal region over the course of the ascending colon. The cecum was distended but normal. The hand detected a tight stricture of the sigmoid. The wound was closed and an incision made in the left iliac region, and the tightly constricted sigmoid flexure exposed. Owing to the poor condition of the patient, a resection was deemed inadvisable; therefore the bowel was sutured into the wound and the patient put to bed. Under the influence of stimulant enemata he made a good recovery from ether, and on the next day the intestinal wall was incised under cocaine, with immediate discharge of gas and feces. An oil enema was given through the opening, and a large amount of fecal matter evacuated. A dry dressing was applied to the wound and the patient stimulated.

During the morning the patient failed steadily, and at 12.15 P. M., twenty-four hours after the operation, he died.

Patients suffering from advanced intestinal cancer with prolonged chronic obstruction are poor subjects for surgical interference. I would advise in a case of this kind an incision through the abdominal wall with cocaine anesthesia—the bowel to be opened the following day. In this way not only is ether avoided, but all the attendant manipulations of an abdominal section. The method can be carried out easily as the abdominal walls are tense and thin.

Renal Calculus, Nephrotomy.—W. T. C., aged twenty-eight, a teamster, born in England and living in Cambridgeport, entered the hospital October 26, 1893.

When a year and ten months old he fell down stairs and had ever since suffered from pain in the right side. Eighteen years ago he had an attack of severe sharp pain in region of right kidney, shooting down into the testicle. He finally passed a stone about the size of a dried pea. Four years ago another stone was passed after a similar attack. For eighteen years there have been attacks of pain in the right side about every week. During the more severe of these there were chills and vomiting. Eleven days before entrance he had the last attack, of about twenty minutes' duration. But there has been a constant pain in the side ever since. He urinated every hour, there being no difficulty in urination but pain in the right groin preceding it. [The report on the condition of the urine is unfortunately lost from the hospital records.]

The examination of the abdomen was negative, except for tenderness over the region of the right kidney on deep pressure. Search for vesical calculus was without result. The patient was otherwise perfectly well but was totally disabled from work.

November 17th. An incision was made, five inches long, from the lower border of the ribs to the iliac crest, exposing the capsule of the kidney. Numerous adhesions were broken up, and four silk sutures were placed through the capsule and substance of the kidney by which it might be held in the wound, the hand being introduced into the wound so as to grasp the kidney. A calculus in the pelvis could be distinctly felt. A longitudinal incision was then made directly through the convex border of the kidney and through its substance into the pelvis, the knife being thrust through the organ until the point grated upon the stone. The bleeding which followed the withdrawal of the knife was most copious, but could

be readily controlled by the finger introduced through the wound in the kidney. The stone, which was adherent, was held by the point of the fingers and was then removed with forceps.



It was about as large as a peanut (as shown in the cut), and was composed of urates. The wound in the kidney was then packed with gauze, and the kidney

was stitched into the base of the wound. The peritoneum was not opened. A gauze drain was placed in the lower angle of the wound and a sterile dressing applied. This required frequent changing because of the free staining with urine. The wound was irrigated with styrene solution. For five days the diet was limited to milk together with diuretics. On the fifth day the packing in the wound in the kidney was loosened, and two days later was removed. After ten days the urine passed from the bladder was free from blood. After two weeks urine ceased to come from the wound. During the day at the end of this time the patient had considerable pain in the right groin, which toward evening ceased. Later in the evening, after micturition, he noticed a long thread of gauze protruding from the meatus, which he withdrew. It had evidently passed down the ureter, becoming detached from the packing in the kidney.

December 22d. Five weeks after operation the wound had healed excepting a small granulating spot, and the urine was normal. He was discharged well.

The patient has been perfectly well since the operation; his attacks of renal colic have entirely ceased, and he has been actively at work since his convalescence.

It should be stated here that this case is one of nephrotomy on the otherwise healthy kidney, and not a case of incision of a pus sac containing a calculus. The two operations cannot be classed together.

(To be continued.)

Clinical Department.

FOUR MONTHS' HOSPITAL WORK IN ABDOMINAL SURGERY.

BY F. W. JOHNSON, M.D.,

Surgeon, Gynecological Department, St. Elizabeth's Hospital; Surgeon, Gynecological Department, Carney Hospital, etc.

THE following operations were done during the spring of 1895, at the Woman's Charity Club, Carney, and St. Elizabeth's Hospitals. Of the forty-six, two died; one following a celiotomy for peritonitis and one following a hysterectomy.

The first case was one of peritonitis caused by a criminal abortion. Although she had been under observation for weeks, at no time did it seem wise to open the abdomen. She died the day following the operation (Case III, St. Elizabeth's Hospital).

The second case was in very poor condition from excessive loss of blood. As every means had been tried, without effect, at her last menstruation to check the flowing, it was thought unsafe to wait until menstruation appeared for fear she would bleed to death. She died three days after the operation. The autopsy showed no evidence of peritonitis (Case IV, Hysterectomies, St. Elizabeth's Hospital).

For suture material silk, silkworm-gut and catgut were used. In a large number of the cases catgut was the only material used inside the abdominal cavity. In Case VI, St. Elizabeth's Hospital, the *incision* was closed with catgut. The silk and silkworm-gut were made aseptic by prolonged boiling. They were kept ready for use in a 1 to 6,000 alcoholic solution of corrosive sublimate. After soaking in ether for several days and thoroughly stretching (the thorough stretching prevents kinking and twisting, which is so very annoying), the gut was cut into the desired lengths and baked for four hours at a temperature of 300° F. Bacteriological examinations made by Dr. J. H. Wright of gut prepared after this manner showed no living bacteria. I am afraid of the large-sized strands as it is difficult to sterilize their centres. Dr. Rice, who has had a large experience in sterilizing and examining catgut, says that certain varieties of catgut seemed to resist every known method of sterilization. I do not think it safe to trust those who make a business of sterilizing suture material. Aseptic silk sunk into the rotten tissues of a stump often becomes septic, and gives rise to trouble which continues until the silk is gotten rid of through the incision, bladder or intestines. I have had it escape by all these routes. This would be obviated by using catgut, but as the gut liquefies it makes a first-class culture medium for micro-organisms, and might be the starting-point for general infection. No attention was paid to sewing the peritoneum separately, and in all but one case the incision through the abdominal wall was closed with silkworm-gut.

In over one thousand cases of celiotomy I have never had a case of hernia except there had been deep suppuration in the line of the incision, or where prolonged drainage had been used. Every patient before getting about was provided with a suitably fitting abdominal supporter and was instructed to wear it for one year. The stumps were seared over with a Paquelin cautery to prevent infection of the ligatures by the cut end of the tubes or broad ligaments. Drainage was avoided if possible. When in doubt it was used. Some one has aptly remarked that drainage is an admission on our part of incomplete surgery. It should always be used when there is oozing. I prefer a large glass drainage-tube with *no* holes in the sides, which, if properly taken care of, is absolutely free from all danger. Gauze does not give so free drainage, must be used longer, and without anesthesia, causes severe pain on removal and a sinus is more apt to follow its use. Gauze soils the dressings and the edges of the wound. With the glass drainage-tube the dressings can be kept as sweet and clean as when put on. By bacteriological examination I have found the secretion in the glass drainage-tube on the third day free from pathogenic bacteria.

If, at the time of operation, septic pus or fluid gets into the peritoneal cavity I do not believe drainage or irrigation of *any* kind will prevent peritonitis or save the patient. Fortunately, nine times out of ten, the pus and fluid in the tubes and ovaries is sterile, as I have had verified by repeated bacteriological examinations. In abscess of the ovary the worse the fluid looks and the more rotten it smells the more likely it is to be sterile.

Where drainage is used the silk ligatures about the pedicles and in the broad ligament are very liable to become septic, and then a sinus is apt to remain until

the silk comes away. I have known such a sinus to remain open for four years, finally closing after the discharge of six or seven knots of silk. Where the intestine, bladder, or ureter is found seriously injured by disease, or where either is seriously injured in separating adhesions, drainage through the incision should be used for a few days. Drainage should be used if the intestine has been opened and there has been fecal extravasation. No drainage is called for where a healthy intestine has been repaired.

Irrigation was used but a few times. Sponging was considered far better. If non-sterile pus or septic fluid escapes into the peritoneal cavity, irrigation, no matter how practised, does little except increase the chances of peritonitis and death by disseminating the poisonous material among the intestines.

WOMAN'S CHARITY CLUB HOSPITAL.

CASE I. F. C., aged twenty-nine years, married.

Present Complaint: Pain in the lower part of abdomen, with sagging and dragging down.

Marital History: Two children; youngest two years old. One miscarriage four years ago.

Menstruation began at fourteen years; flow moderate, lasting four days, every two weeks; severe dysmenorrhea throughout sickness. Menstruated every four weeks until birth of first child.

Diagnosis: Retroversion. Uterus not replaceable.

Operation February 14th. Moderate amount of adhesions. Fimbriated end of left tube occluded. Left ovary enlarged and cystic. Left tube and ovary removed. Right tube and ovary not removed. Uterus fastened up and forwards by ventral fixation. Peritoneum covering right tube and right broad ligament studded with pearl-colored nodules the size of mustard-seed shot.

Discharged March 6th. Uterus in good position.

CASE II. E. B., aged twenty-six years, married.

Present Complaint: Severe pain in the left ovarian region, requiring morphine at menstrual periods for its relief. Uterus curetted last fall with no benefit.

Marital History: Never pregnant.

Menstruation began at fourteen years, lasting four or five days, dysmenorrhea beginning a week before the flow and lasting until the second day.

Diagnosis: Ovaries prolapsed and adherent.

Operation February 24th. Uterus curetted before abdomen was opened. Left tube curled about the ovary and adherent to it. Fimbriated end of tube adherent to ovary. Left ovary was the seat of a large hematoma. Left ovary and tube removed. Right ovary contained a small cyst. This was opened, scraped, cavity closed with silk, and ovary dropped back.

Discharged March 16th. Symptoms relieved.

CASE III. A. R., aged twenty-four years, married.

Present Complaint: Pain in the right ovarian region extending down the right thigh and leg.

Marital History: Two children. No miscarriages.

Menstruation began at fourteen years; flow small, every four weeks.

Diagnosis: Under ether, the left ovary was found to be prolapsed, enlarged and adherent.

Operation March 7th. Uterus had been curetted in February for endometritis. Left ovary was enlarged and cystic. Right ovary filled with retention cysts. Both tubes were firmly fastened to posterior surface of broad ligament. Both were thickened, and

their fimbriated ends were completely occluded by adhesions. Both tubes and ovaries removed.

Discharged March 27th. Symptoms relieved.

CASE IV. N. R., aged thirty-nine years, married.

Present Complaint: Weakness. Pain in back and lower abdomen.

Marital History: Two children. One miscarriage last March; at that time had a severe attack of peritonitis.

Menstruation began at fourteen years; flow considerable, lasting from six to eight days, regular; dysmenorrhea before and during the flow.

Diagnosis: Fluctuating mass filling the left side of the pelvis and pushing the uterus to the right. Temperature before the operation varied from 102° to 104°.

Operation, March 12th. While enucleating a large abscess of the left ovary it broke, pouring foul-smelling pus into the abdominal cavity. On the right side there was a very much enlarged ovary and a hydrosalpinx. Both tubes were much thickened and with the ovaries were fastened to the posterior surface of the broad ligament. There was such free oozing from the beds out of which the left and right ovaries were dug that drainage was used. No irrigation. There was quite free bleeding for twelve hours, at which time the glass drainage-tube was removed. By carelessness two pieces of gauze were left in the abdominal cavity, and delayed convalescence until they were removed.

Discharged May 19th, feeling well. Uterus large and heavy, broad ligaments boggy. The uterus would have been removed had her condition allowed of it.

CASE V. A. M. S., aged twenty-eight years, married.

Present Complaint: Severe pain in the left ovarian region. Weak feeling in back. Unable to work.

Marital History: No children. One miscarriage eight weeks ago.

Menstruation began at sixteen years; flow little, lasting three or four days, regular; dysmenorrhea the first two days.

Diagnosis: Salpingitis (probably pyo-salpinx).

Operation, March 12th. The tubes were occluded and the fimbriated ends were adherent to the uterus. Ovaries cystic. Both tubes and ovaries removed.

Discharged April 3d. Relief of all symptoms.

CASE VI. F. S., aged thirty years, married.

Present Complaint: Backache, pain in left ovarian region, and pain in left thigh and leg when walking.

Marital History: Three children, youngest two and one-half years old. No miscarriages.

Menstruation began at fourteen years, regular; slight amount of dysmenorrhea.

Diagnosis: Retroversion, with adhesions.

Operation, April 7th. The anterior parietal peritoneum was almost universally adherent to the intestines. Right ovary enlarged and cystic. It, with the right tube, was removed. After replacing the uterus it was kept up and forwards by ventral fixation.

Discharged May 5th. Uterus in good position.

CASE VII. M. W. H., aged thirty-seven years, married.

Present Complaint: Severe pain daily in right lower half of abdomen, severest in region of appendix. This pain is brought on and made worse by standing. Headaches. Was told she had appendicitis last summer. In bed a great part of the time.

Marital History: One child. No miscarriages.

Menstruation began at fourteen years, regular; flow moderate, lasting four days; dysmenorrhea.

Diagnosis: Nothing found. Advised exploratory incision. She had been sent in for removal of the appendix.

Operation, April 8th. No trouble found with the appendix. No evidence of former peritonitis. Liver less than one-half its normal size and very hard. Right ovary cystic. Right ovary and tube removed.

Discharged May 1st. Relief of all abdominal pain.

August 1st. Not gained much in strength. In bed part of every day. Pain, at times severe, in the right lower half of the abdomen.

CASE VIII. I. D., aged twenty-nine years, married.

Present Complaint: Constant pain in the left ovarian region. Severe dysmenorrhea. Supra-orbital and occipital headaches.

Marital History: Two children. No miscarriages.

Menstruation began at sixteen years; flow free, lasting from six to seven days, regular; dysmenorrhea.

Diagnosis: Retroflexion, with adhesions. Uterus non-replaceable.

Operation, April 9th. The right ovary with its enlarged Fallopian tube was glued to the uterus. The three organs were in the hollow of the sacrum. Right tube and ovary were removed and ventral fixation performed.

Discharged May 5th. Uterus in good position.

CASE IX. M. M. H., aged fifty-one years, married.

Present Complaint: Sore spot in right iliac region. Pain in the pelvis and limbs. Tired feeling all the time.

Marital History: No children. No miscarriages.

Menstruation began at fourteen years; always irregular, lasting three or four days; dysmenorrhea the first day. Menopause at forty-three.

Diagnosis: Uterus fixed by adhesions on the right side. Abundant evidence of former pelvic peritonitis.

Operation, April 11th. The right ovary, which was small and stone-like in feeling, was shelled out of the adhesions and removed with the tube. The left ovary was small and hard like bone. It was removed with the tube.

Discharged May 9th. Relief of all symptoms.

CASE X. A. T., aged forty years, married.

Present Complaint: Pain in left ovarian region for four years. Backache. Sagging and dragging down. Loss of flesh and strength. Unable to attend to her work.

Marital History: Several children.

Menstruation began at fifteen years; flow moderate, lasting seven or eight days, not painful.

Diagnosis: Left ovary prolapsed and adherent. Neurasthenia. Cervix was operated on two years ago.

Operation, April 23d. Both ovaries filled with retention cysts. Adhesions on the left side. Both ovaries and tubes removed.

Discharged May 11th. Relieved of pain.

CASE XI. L. A. B., aged thirty-seven years, married.

Present Complaint: Constant pain in the right ovarian region. Backache, and frequent pain in left ovarian region. Almost bed-ridden.

Marital History: Three children. Youngest four years old. No miscarriages.

Menstruation began at seventeen years, always irregular; dysmenorrhea the first two or three days.

Diagnosis: Endometritis. Hyperesthesia of the lower part of the abdomen.

Operation February 28th. Uterus curetted. No benefit.

Operation, April 25th. The right ovary was about the size of the tip of the little finger, and as hard as sclerosed tissue. It was removed with its tube. In the left ovary there was a good-sized hematoma. This was opened, cleaned out, and the cavity closed with silk. Ovary dropped back.

Discharged May 18th. Well.

CASE XII. J. G., aged thirty-eight years, married.

Present Complaint: Pain throughout the whole of the lower part of abdomen, but especially severe in the left ovarian region. Constant feeling of pressure and bearing down. Backache. Obstinate constipation. Unable to work.

Marital History: Never pregnant.

Menstruation began at thirteen years; flow profuse, lasting five days, regular; pain throughout.

Diagnosis: Fibroid of the uterus firmly fixed in the pelvis.

Operation, April 30th. The fibroid, the size of a coconut, was interstitial, and firmly fixed in the pelvis by adhesions to the rectum and pelvic wall. The tubes and ovaries were adherent to the fibroid uterus and intestines. After separating all adhesions both tubes and ovaries were removed.

Discharged May 22d. No flowing since operation.

August 1, 1895. Patient wrote that she had been free from all pain since the operation.

CASE XIII. N. C. B., aged thirty years, married.

Present Complaint: Pain in the lower part of the abdomen. Sagging and dragging down. Backache. Unable to work.

Marital History: No children. No miscarriages.

Menstruation began at fourteen years; flow scant, lasting two or three days, regular.

Diagnosis: Retroversion, with adherent tubes and ovaries.

Operation, May 2d. Tubes and ovaries adherent to the uterus and the posterior surface of the broad ligament. Intestine adherent to the left tube and ovary. Both tubes and ovaries removed.

Discharged May 26th. Symptoms relieved. Uterus in the first degree of retroversion.

CASE XIV. E. J., colored, aged twenty-eight (?) years, single.

Present Complaint: Severe attacks of colicky pain in a large ventral hernia which she has had for nearly a year. The hernia followed a laparotomy which was done for an ovarian cystoma. Totally incapacitated for work. Obstinate constipation. Dragging down from both loins.

Menstruation began at fifteen years; moderate flow, lasting seven days, regular.

Diagnosis: Ventral hernia the size of an adult head. The hernia occupied the whole length of the former incision.

Operation, May 2d. The bag of skin made by the protrusion of the abdominal contents was removed in an oval piece, care being taken to go well back on to unstretched skin. The omentum and intestines were adherent to the peritoneum of this oval piece and to the parietal peritoneum in the neighborhood of the hernial opening. All adherent omentum was removed.

A small cystoma of the left ovary, with the tube which was the seat of hydrosalpinx, were removed. On the right side the silk ligature which had constricted the pedicle of the cystoma was found and removed. One-third of the right ovary and the right Fallopian tube had been left. Both were removed. The opening in the abdominal walls was closed by three layers of interrupted silkworm-gut sutures.

Discharged May 27th. Well.

CASE XV. E. C., aged thirty-four years, married.

Present Complaint: Constant pain in the lower part of the abdomen, especially marked in the left ovarian region. Obligated to give up work. An attack of nausea every week or ten days. Has had three attacks of peritonitis during the past two years.

Marital History. No children. One miscarriage at seven months. Peritonitis followed the miscarriage. Dates her trouble from this miscarriage which was twelve years ago.

Menstruation began at fifteen years: flow profuse, lasting one week, regular, pain lasting throughout sickness.

Diagnosis: Chronic salpingitis and ovaritis. Uterus with tubes and ovaries bound together in one mass.

Operation, May 16th. The thickened and adherent tubes were dug out of the posterior cul-de-sac, and, with the ovaries which were buried in adhesions, were removed. The fimbriated end of both tubes was adherent to intestine. On account of the free oozing from the posterior cul-de-sac and the posterior surface of the uterus a glass drainage-tube was used for forty-eight hours. Had she had strength enough, the uterus would have been removed.

Discharged June 15th. Well.

CASE XVI. K. G., aged twenty-two years, married.

Present Complaint: Backache and pain in the left ovarian region.

Marital History: No children. No miscarriages.

Menstruation began at twelve years; flow slight, lasting three days, regular; dysmenorrhea since marriage.

Diagnosis: Chronic salpingitis.

Operation, May 20th. Ovaries and tubes matted together by numerous and strong adhesions in the hollow of the sacrum. Tubes enlarged and ovaries cystic. Patient took ether very poorly, and ceased breathing several times. The tubes and ovaries were literally ripped out, it taking all my strength to break some of the adhesions. A glass drainage-tube was left in for twelve hours on account of the oozing.

Discharged July 10th. Good condition.

CASE XVII. M. J. W., aged forty-two years, married.

Present Complaint: Obligated to be in bed most of the time on account of backache, pain in the lower part of the abdomen, and bearing down. Abdomen enlarged and very sensitive to the touch. Uterus prolapses outside the body and causes great inconvenience in walking.

Marital History: Four children, youngest nine years old. Two miscarriages.

Menstruation began at fourteen years. Menopause at forty-one.

Diagnosis: Ovarian cystoma. Uterus hangs between the thighs nearly down to the knees.

Operation, May 22d. An ovarian cystoma weighing eight and one-quarter pounds was removed from the left side. Right ovary was cystic and it with the

tube was removed. After drawing the uterus up into the abdominal cavity its posterior surface was fastened to the anterior abdominal wall by four silkworm-gut sutures.

Discharged June 14th. Relieved. To return for anterior and posterior colporrhaphy and perineorrhaphy. Uterus in good position.

CASE XVIII. J. W. W., aged thirty-three years, married.

Present Complaint: Pain in the lower part of the abdomen since birth of child eight years ago. Following labor had an attack of peritonitis confining her to bed nine weeks. During this time an abscess opened into the rectum.

Marital History: One child. No miscarriages.

Menstruation began at fifteen years; flow moderate, lasting four or five days; severe pain during the flow.

Diagnosis: Pyosalpinx.

Operation, May 22d. Intestines bound to both tubes and ovaries. Tubes enlarged and thickened and bound to the rectum. The rectal adhesions were separated with great difficulty. Free oozing from rectal wall and Douglas's cul-de-sac. Glass drainage for twenty-two hours.

Discharged June 17th. Well.

CASE XIX. M. E. G., aged twenty-seven years, married.

Present Complaint: Pain in both ovarian regions and constant backache. Dysmenorrhea.

Marital History: No children. No miscarriages.

Menstruation began at fifteen years; flow quite free, lasting seven to eight days, irregular; severe pain throughout the flowing.

Diagnosis: Chronic salpingitis and retroflexion. Uterus with broad ligaments bound in the pelvis by a mass of adhesions.

Operation, May 28th. The enlarged tubes were bound up with the uterus, omentum and intestines in one mass in the pelvis. In separating the uterus from the rectum the serous coat of the gut was stripped off for some two inches, and its muscular coat was torn in two. The hemorrhage was so free and the injury so far down in the pelvis narrowed by adherent intestines that I could not get at the injury to repair it. A glass drainage-tube was inserted. Several ounces of blood were sucked from the tube, but only serum was obtained at the end of twenty-three hours.

Discharged June 28th. Well.

(To be continued.)

A CASE OF CANCER OF THE CEREBELLUM, METASTATIC FROM THE BREAST; DEATH; AUTOPSY.

BY EDGAR GARCEAU, M.D.,

Surgeon to Out-Patients, Free Hospital for Women, Boston.

Mrs. D. was an Englishwoman, forty-nine years old. She was of medium height and well developed, being inclined to be somewhat stout. After the birth of her only child, eighteen years before her death, she had an abscess of the right breast; she always felt the "changes of the weather" in that breast afterwards. Her grandmother is said to have died of mammary cancer.

About two years before her fatal illness began, she had a cancer removed from the right breast by Dr. Maurice H. Richardson at the Massachusetts General

Hospital. The hospital records say that the tumor was the size of a small apple, and that the axilla was opened and a few very small glands removed. Examination by Dr. W. F. Whitney showed the growth to be cancer combined with chronic interstitial mastitis.

Since this operation she was very well, and had no inconvenience whatever with the exception of diminution of vision of the left eye, which slowly and steadily increased. The vision began to be affected shortly after the operation. Her general health and strength, however, since the operation were very good, and she began to think that her lease of life was going to be long, when suddenly, without any warning whatever, she began to have a severe agonizing pain in the upper occipital region, radiating into the right eye and sometimes into the left eye. It was constant night and day, and gave her no rest. The most comfortable position was lying on the left side with the knees flexed, keeping perfectly still, for the slightest movement accentuated the pain. When the pain came on vertigo and vomiting accompanied it, the vomiting being uncontrollable and not dependent on ingestion of food.

Physical Examination.—Over the right breast was a scar which was deeply indurated, but no signs of malignant degeneration were present. The axillary glands were not enlarged. The lungs were normal. Pressure over the spine and head did not cause pain. Extending the lower limbs caused increase of pain in the head. The tongue protruded in a straight line. Temperature 98.4°, pulse 72. Pupils of the eyes of normal size and equally dilated. On examination with the ophthalmoscope choked disk was found in both eyes. Hearing was normal. Answered questions coherently and intelligently, though slowly and with effort. Features dull and apathetic. Somnolency marked. Skin dry and cool. On inquiring further into the eye symptoms, it was found that on some days the vision in both eyes was fairly good, while perhaps the next day it might be wholly gone. When she was very weak, she had a sensation as though she were sinking into an abyss. The sensation was horrible.

The diagnosis of tumor of the cerebellum was made, and she was sent to the Boston City Hospital. There the nature of the disease was fully explained to her, and also the great risk incurred in operating. She fully appreciated her condition, for her intelligence was unimpaired, and she declined to submit to an operation.

She lived just nine weeks from the time the pain began in the occipital region. During this time nothing controlled the vomiting except cocaine, and the relief with this drug lasted only a few days. How she lived during all that time was a mystery, for she took nothing except a little whiskey and a little milk now and then. Large doses of morphine had to be given for pain. On the day before she died she had two severe convulsions affecting the right arm, right lower limb and head, the latter being drawn to the right. She had another convulsion on the day of her death.

The Autopsy was made by Dr. J. C. D. Pigeon. Head only opened. The skull was very thick. Dura mater not inflamed at any portion. Very little arachnoid fluid. Sinuses contained but little blood, and that was very fluid. The outer portion of the right half of the cerebellum was occupied by a dense, hard tumor the size of a good-sized olive, and about

the same shape as an olive; it was quite by itself, and was held loosely in position by fragments of disintegrated cerebellar tissue. Besides this single large tumor there were also several smaller ones the size of green peas, all imbedded in the same disintegrated tissue. They were placed irregularly along the under surface of the cerebellum extending towards the fourth ventricle, none of them, however, encroaching on the fourth ventricle. There was no pressure anywhere by a collection of fluid; in fact, in the vicinity of the tumors there was rather less resistance than on the other side of the cerebellum. On examining the cerebrum, two other tumors were found. One was at the posterior portion on the right, at a part exactly corresponding to the cerebellar tumors and lying immediately above them; the other tumor was on the left hemisphere at a point two and one-half inches from the upper extremity of the fissure of Rolando and anterior to it; being at the same time somewhat nearer the median line. It was this tumor undoubtedly that caused the convulsions affecting the right side. Both tumors in the cerebrum were the size of a cherry. All the tumors were on section streaked with black.

A microscopical examination was made by Dr. J. J. Thomas, and his report is as follows: "The tumor is seen to consist essentially of larger and smaller columns and masses of epithelial cells, lying in a rather loose stroma of connective tissue. The epithelial cells have vesicular nuclei and a considerable amount of protoplasm, and resemble in their appearance and arrangement the cells seen in mammary cancer. The connective tissue stroma is edematous in places, and is nowhere dense or great in amount in proportion to the masses of epithelial cells."

Anatomical Diagnosis. — Metastatic carcinoma, of the mammary type.

This case was a typical one of cerebellar tumor. The cardinal symptoms — headache, pain in the occipital region, vertigo, vomiting, somnolency and stupor, and choked disk — were all present. But the most surprising feature is that no symptoms of involvement of the cerebrum were exhibited until the day before death, it was then only that the patient had convulsions. Another point of interest is the fact that the cancerous disease did not reappear either in the breast, lung, or axilla. It is also worthy of mention that the disease in the cerebellum was on the same side as the affected breast. Nothing positive can be deduced from this, however, because there was also a tumor in the left hemisphere. The most excruciating pain — that radiating from the occiput to the right eye — was on the same side as the disease. It is interesting to note that an operation would have been entirely useless if it had been performed, on account of the involvement of the left hemisphere; the growth here, it will be remembered, gave absolutely no symptoms until the day before death.

NOMINATIONS FOR OFFICERS OF THE ROYAL SOCIETY. — Sir Joseph Lister has been nominated by the retiring President and Council for election as President of the Royal Society. The election will take place at the anniversary meeting on November 30th. Professor Michael Foster has been nominated for re-election as one of the Secretaries, and among those nominated for election as members of Council are Sir Joseph Fayrer and Dr. W. H. Gaskell.

LUPUS ERYTHEMATOSUS TREATED INTERNALLY WITH PHOSPHORUS.

BY H. L. JENCKES, M.D., GALENA, ILL.,
Member of the American Medical Association.

WE have very little positive knowledge of the nature and cause of lupus erythematosus. It is comparatively a rare disease, occurring only, according to the reports of the New York hospitals, 97 times in 20,798 cases of miscellaneous skin diseases. The uncertainty of external treatment scarcely deserves mention, and in this paper reference to the internal treatment only will be made.

Mr. B. consulted me some four years ago for a diseased condition of the skin of the left cheek. At that time there was a dull red patch the size of a half-dollar, which he said was gradually enlarging. It was partly covered with thin, adherent fine scales. It was not painful, but at times the itching sensation was quite annoying. This patch, with its sharply circumscribed outline, its surface studded with plugged sebaceous openings, and adherent fine scales, seemed a typical patch of lupus erythematosus. The usual methods of external treatment were instituted, and were faithfully carried out for five or six months. During this time the diseased surface had considerably extended, and Mr. B. concluded, as he had received no benefit, to stop treatment.

Although the disease continued to gradually extend, it was about a year before he again began treatment. And during the next two years he was treated by several physicians, one of them quite a competent man, but, as he says, "without benefit." The disfigurement and annoyance were now very great.

He consulted me again in February, 1895. The lesions at this time involved most of the left cheek, the whole of the nose, and nearly half of the right cheek. The tendency to peripheral extensions had been a marked characteristic of the disease from the beginning. This dull-red and infiltrated surface was tender to pressure, and at times painful. A number of careful examinations differentiated the disease from that tubercular disease of the skin described by Brocq as "erythematoïd lupus vulgaris." From lupus vulgaris it was distinguished by the absence of ulcerations so commonly seen in that disease, and by the absence of the small yellow nodules. These nodules, although carefully searched for at different times, could not be found.

All external treatment was now abandoned, and the patient was given a solution of phosphorus prepared as directed by Professor Berkley in his article in the *American Journal of the Medical Sciences* for April, 1893, namely:

R Phosphorus	gr. vi
Absolute Alcohol	5 xxx
Glycerine	5 ixx
Alcohol	5 ixx
Essence of peppermint	5 ss

Each drachm contains one-twentieth of a grain of phosphorus.

Of this, twenty drops were at first taken in water three times daily, after meals. The dose was gradually increased until at one time he was taking forty drops after meals. This amount did not produce any gastric disturbance, but the large doses were only taken for a short time. After taking the remedy for a few weeks, he noticed that the burning and tender-

ness were gradually disappearing; and as the color began to fade, he frequently remarked, "Ich glaube sic haben die recht Arzenein gefunden."

At the end of the second month of treatment the improvement was very noticeable. The dull-red color, which heretofore was so noticeable, was gradually disappearing. At the end of five months of treatment the improvement was so great that he considered himself cured. The red, inflamed, and infiltrated conditions had disappeared. The integument over the diseased area had assumed quite a healthy appearance, although in places it was somewhat scarred. The livid line of demarcation which had separated the diseased from the healthy skin was no longer perceptible.

After several years of ineffectual external treatment the lesions yielded to the internal administration of phosphorus.

In the article previously referred to, Professor Berkley states, that chronic cases of lupus erythematosus seem as much benefited by this treatment as do acute cases.

I have made no attempt in this paper to discuss the nature of lupus erythematosus; but, judging from the well-known action of phosphorus on the nervous system, I am led to believe that the lesion is of neurotic origin. In administering phosphorus the action of the remedy upon the digestive organs should be carefully watched; and if unpleasant symptoms arise, they should be promptly met by appropriate treatment.

FATAL CASE OF ACUTE ALCOHOLIC POISONING IN A CHILD.

BY WM. H. DEVINE, M.D., SOUTH BOSTON.

SEPTEMBER 24, 1895, I was summoned to attend M. M., age four.

The history is as follows: That morning at 5.30 the father, while preparing to start for his daily work, noticed his little girl playing with a bottle of whiskey which she had obtained from the shelf of the mantelshelf in which she was sleeping. On taking the bottle away, he noticed a strong odor of liquor from her; that her face was flushed, etc. In a short while she sank into a stupor. The father examined the bottle, and allowing for a small amount previously used, he thought the child had taken about two ounces. Not anticipating any serious results from the occurrence, he went to his work, but was summoned in a few hours by a messenger, who stated that the child had been unconscious since his departure. On returning to the house, he sent for me; but as I was not at home, Dr. W. J. Gallivan was summoned, pronounced it a case of acute alcoholic poisoning, and gave appropriate treatment. When I saw the child at 1.45 P. M., she was in a deep stupor—pulse 120, respiration 40, and the skin warm (temperature not taken). An examination, two hours later, revealed signs of pulmonary edema—pulse 160, respiration 60, temperature 106°, cyanosis. The child died at 3 A. M., twenty-two hours after the fatal dose was ingested.

The interesting points in connection with the case are, the small amount of alcohol taken and the rapid progress to fatal termination with pulmonary edema. In this connection it is well to consider the importance of carefully watching the dose and effects of alcohol in children, particularly in chest cases, as an overdose

might produce pulmonary edema, and cause an unfavorable termination in some of these cases.

The treatment consisted of enema of hot water, hot mustard foot-bath, ammonia carb. (one-half a grain), tinct. digitalis (three minims once in three hours), also a mixture of spirits æth. nitros and liq. ammon. acet. No emetic was given, for the child was not seen by the physician till five and one-half hours after the poison was taken, and it was then absorbed.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D.

THE VASCULAR MECHANISM OF THE NASAL MUCOUS MEMBRANE.

WRIGHT¹ describes the histology of the blood-supply of the erectile tissue of the turbinates and its relations to certain pathological processes. There are no specially adapted muscles to compress a few veins, as in the penis, and there is no tunica albuginea to exert compression. The various elements of the nasal mucous membrane are supplied with a large amount of muscle fibres, even the smaller arterioles, and especially the veins, showing well-developed muscular tissue in their walls, while the areola tissue in the neighborhood of veins and sinuses, is also supplied with it. The radial arteries and veins pass through various bony canals into the nose. The artery will evidently compress, when dilated, its accompanying vein against the bony walls. There is a similar mechanism where the arterial branches and their veins lie in the deep or periosteal layer of the mucous membrane. Veins may also be compressed between the periosteal layer and the elastic fibres and glands external to it, by engorgement of superficial tissues. The distribution of the capillaries is such that there may be a transudation of serum to the surface directly from the vessels, especially in the olfactory region. A special network of small veins surrounding the mouths of the glands explains the phenomenon observed in cases of coryza, when the mucous secretion increases as the vascular tension relaxes.

MICRO-ORGANISMS IN THE HEALTHY NOSE.

Thomson and Hewlett² published the results of their investigation to determine the number of micro-organisms found on the mucous membrane of the nasal cavity in health. Previous observers have differed on this question, and it is commonly thought that the healthy nose contains many micro-organisms. The authors conclude that in the dust and crusts of mucus and *débris* deposited among the vibrissæ in the vestibule of the nose, micro-organisms are never absent and are generally very abundant, but on the Schneiderian membrane the reverse is the case. In 80 per cent. of their observations no organisms whatever were found and the mucus was completely sterile. Occasionally they occur, but under normal conditions they are never plentiful, and the presence of pathogenic organisms must be infrequent. In making these observations great care is necessary to avoid contamination with the lining of the vestibule, even when this source of error has been realized. These observations indicate clearly the necessity of a thorough

¹ American Journal of Medical Sciences, May, 1895.

² Medico-Chirurgical Transactions, vol. lxxviii.

disinfection of the vestibule as a preparation for intranasal operations.

ETHMOIDITIS.

In a discussion on the surgical treatment of the accessory cavities of the nose, at the recent meeting of the British Laryngological Association, a short, concise review of the subject was given by Bosworth. The question of treatment deals with retained pus. The indications are to open the cavity, drain out the pus, and thoroughly disinfect. In the ethmoid cells we have to deal with a kind of honeycomb bone, a mass composed of a large number of cells, each of which constitutes a small cold abscess, which from a surgical point of view is to be treated. The indications are to open every one of the little cells and thoroughly disinfect them. The galvano-cautery involves great risks in this region. A hard, stiff spoon is not an efficient instrument, neither is a curette. The author prefers a burr driven by a dental engine. The anterior portion of the middle turbinate is first removed, and the cells then entered with a burr three-sixteenths of an inch in diameter. These cases do not always yield readily to treatment. It is a delicate work in a dangerous locality, close to the base of the brain and to the orbit.

Delavan⁶ believes that, in general, suppurative disease of the ethmoid cells is usually caused by some acute process attended with blocking of their normal outlets. The disease consists in inflammation of the lining of the cavity, possibly from entrance into it of an infectious element. It cannot be too strongly urged that in case of severe coryza the earliest intimation of involvement of any of the sinuses should be taken in hand and attention paid to allaying the irritation and keeping the outlets of the sinuses as free as possible. In chronic disease of the ethmoid cells drainage and persistent cleansing are required. If necessary, the anterior portion of the middle turbinate bone must be removed. The removal of all polypi is of course essential. Having reached the orifices of cells, a thorough and persistent cleansing is in some cases sufficient to remove the trouble; if not, the cells themselves must be opened.

Bryan⁴ mentions among the earliest symptoms of abscess of the ethmoid cells pain, neuralgic in character, referred to the bridge of the nose and extending outwardly along the infra-orbital ridge. The middle turbinate may or may not be enlarged. In simple cases the author prefers a sharp curette for the opening of the individual cells. In case the deeper or fronto-ethmoidal cells are involved we should not attempt to open them through the nose, but the case should be treated as one of frontal sinus abscess, of which this condition is a frequent complication.

THE PREVALENCE OF ADENOID VEGETATIONS.

The recent death of Dr. Wilhelm Meyer in Copenhagen, who originally called attention to the prevalence and importance of adenoid vegetations, adds additional interest to an article⁶ written a short time before his death, on the geographical distribution and historical evidence of these growths. As these vegetations can be shown to be present in small amount in a very large number of children who exhibit no symptoms from them, the reported percentage of children with the disease in

any community must depend upon the individual observer. Dr. Meyer has received reports from distant parts of the world, and comes to the conclusion that a warm climate is less favorable to the development of the growth than a colder one. The Mongolian race is as subject to it as the Arian. It is prevalent among the children of the Esquimaux, the North American Indians, and the Chinese, but is not often found in the East India Islands. The historical evidence of its existence in the past is found in the statues and portraits in different collections, some of which show the characteristic facial expression. From these Dr. Meyer concludes that adenoid vegetations have probably existed since the early ages.

THE ETIOLOGY OF LACUNAR TONSILLITIS.

B. Fraenkel⁶ contributes a paper on the etiology of this disease. It has been noticed that acute follicular tonsillitis occurs not infrequently after intranasal operation, especially when the galvano-cautery is used. When arising from this source it seems to resemble in all respects the spontaneous variety. This seems to suggest that something is carried by the lymph or blood circulation from the nose to the tonsils which starts up inflammation in the latter. The author believes that it is much more likely that tonsillitis arises from infection through the lymph channels from the nose or other region than that the exciters of inflammation make their way into the tonsils by the same route by which the leucocytes make their way out. It is generally accepted that chill may be the cause of a tonsillitis. This is probably due either to diminishing the resistance to the invasion of infection, or by producing primarily a nasal catarrh, which secondarily finds its way into the tonsils through the lymphatic vessels.

SIMPLE TONSILLAR ULCERATION.

Moure⁷ describes an ulcer of the tonsil, resembling the deep punched-out ulcer of late syphilis, but not due to the infiltration of any specific disease. He has seen it especially in the spring and autumn, and in persons of from twenty to thirty years of age, often medical students. Although undoubtedly of microbic origin, the author has not been able to discover any bacillus which he considers the cause of the disease. He believes that it comes from the dilatation of one or more lacunæ, with ulceration of their walls and of the tissue which separates them from the exterior, forming an ulcer with a crater-like opening and irregular margins, without very diffuse inflammation or marked constitutional disturbance. It heals readily if it is kept clean. Its principal importance lies in the fact that it might easily be mistaken for an ulcerating gumma.

EARLY OPERATION FOR MALIGNANT DISEASE OF THE LARYNX.

In a discussion on the indications for early radical treatment of malignant disease of the larynx⁸ Delavan reviews the question of how much can be gained by laryngectomy in suitable cases. The operation must be performed at the earliest possible period to promise the best results. In a suspected case the nature and situation of the growth should be determined as soon as possible. The history of the operation warrants the conclusion that the patient should not be too old, that he should be possessed of good vitality, and should

⁶ Medical-Chirurgical Transactions, vol. lxxviii.

⁴ American Laryngological Association, 1895.

⁵ Hospitals, London, No. 6, 1895.

⁶ Section on Laryngology, British Medical Association, 1895.

⁷ French Society of Laryngology, May, 1895.

⁸ British Medical Journal, October 26, 1895.

not be suffering from any physical defect likely to complicate recovery; and that he be of a cheerful, courageous temperament. The growth should be located within the larynx and favorably situated for complete removal with the best outlook as to the possibility of non-recurrence. The question of partial or total removal of the larynx cannot as yet be said to be definitely settled.

Butlin⁹ describes the operation of thyrotomy, which he has done twenty-eight times for malignant disease. The dangers of exploratory thyrotomy and of thyrotomy with removal of intrinsic carcinoma are singularly light. An operation is advisable in cases of carcinoma of intrinsic origin if it is of limited extent, especially if the arytenoid region is not involved, and in which the lymphatic glands of the neck are not affected.¹⁰ Great care must be taken in the after-treatment. No dressing is inserted into the interior of the larynx. The head should be kept low and the patient on his side. On the next day water or other fluids are taken into the mouth and an attempt is made to swallow, which is generally successful.

NODES OF THE VOCAL CORD.

As a result of the study of twenty cases, Haring¹¹ calls attention to the relation between these nodes and relaxation of the cords, due to fatigue. In many cases of voice-strain he has noticed that the free edge of the cords are bent inwards in phonation, so that the convexities present towards each other and touch at a point anterior to the middle of their length; the position in which nodes are commonly found. In almost all cases there is a history of excessive and often faulty use of the voice, occurring most frequently in singers. Of twenty cases, sixteen were females and fifteen between eighteen and twenty-two years of age. The principal symptoms were impairment of the singing voice, and fatigue in speaking. The author believes that in overstrain of the voice the crico-thyroid muscle is the first to suffer, and that in its weakened condition it cannot fully antagonize its opponents, and thus, instead of being kept straight, the edge of the cord is allowed to bulge toward the median line. If there is much use of the cords in such a condition, the mechanical impact would be sufficient to cause a node.¹²

In the discussion of a case presented by Dr. Dundas Grant¹³ of hoarseness in which no abnormality was seen except loose vibration of the inner portion of the cords in the lower register, Dr. Wolfenden suggested that this was the condition in which little fibrous nodes are often found in the anterior portion of the cords. These nodes are due to excessive forcing of the voice generally accompanied by a faulty vocal method. Dr. F. I. Knight¹⁴ in a review of this subject calls attention to the imperfect nomenclature of this affection. The treatment demands rest for the voice for a more or less prolonged time. In a few cases the nodes have been excised, but less radical local treatment, the application of astringents and caustics, are generally recommended.

NIGHT AIR.

In his presidential address, Roe¹⁵ protests against

the indiscriminate practice of sleeping with windows widely open. The relation of damp air and sudden changes to diseases of the air-passages has long been recognized. A warm humid atmosphere is often beneficial, while a damp air is to be avoided. Cold air must be dry in order to be advisable in diseases of the respiratory tract. A person while asleep is no less susceptible to climatic influence than when awake. Many persons notice in the morning trouble in the air-passages which could be accounted for by too great exposure during the night. The climate of the region of the Great Lakes is a damp one, especially in the spring, and at night. In this region also diseases of the nose, throat and lungs are more prevalent than in other localities. A careful regulation of the atmosphere in which a patient sleeps may remove the cause of persistent trouble.

Reports of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, WINDSOR HOTEL, MONTREAL, CAN., SEPTEMBER 17-19, 1895.

PRESIDENT'S ADDRESS.

DR. S. SHERWELL of Brooklyn, welcomed the members and congratulated them on the certain success of the meeting, due to the number of papers and subjects on the programme and the full attendance. He gave a statistical exhibit of the disparity and excess of the alien element, seeking relief for skin affections in hospital and dispensary practice. He had examined and collected several thousand cases which showed a large preponderance of foreign born and children born here of foreign parents (and thus almost as much to be considered aliens as though born abroad). The subject of constitutional treatment in diseases of the skin was then discussed and the views of Pye-Smith, Crocker and Malcolm Morris, as expressed in the last meeting of the British Dermatological Association, were in a great measure substantiated, favoring such internal treatment to be carried out coincidentally with local measures.

In making suggestions for the future work of this Association, which must be considered as a sort of Supreme Court for matters dermatological in this country, he thought subjects of high scientific interest should be chosen.

DR. FORDYCE, of New York, related a case of

LUPUS ERYTHEMATOSUS DISSEMINATUS.

in which the lesions were situated upon the hands and arms. The patient was a young woman, and during pregnancy the spots disappeared, leaving in their place atrophic scars surrounded by a pigmented zone. In a second case which he had observed the eruption likewise disappeared under the same conditions, but returned in an equally severe form after confinement.

RAYNAUD'S DISEASE OF THE EARS

was described by the same reader in a man of thirty-nine years. There was a suspected syphilis, from the history. The ears had become suddenly cold and blue on a warm day, and had remained so for several hours, gradually resuming the normal color. During six months such attacks were frequent, and the ears finally became permanently bluish-black. A gangren-

⁹ Loc. cit.

¹⁰ For the details of this operation see page 1,025 of the British Medical Journal, October 26th.

¹¹ Manchester Medical Chronicle, February.

¹² Journal of Laryngology, May.

¹³ British Laryngological Association, January 11.

¹⁴ Transactions American Laryngological Association, 1894.

¹⁵ American Laryngological Association, 1895.

ous patch formed over an area of half an inch in diameter. The process was followed by cicatrization, and the blue color disappeared. The condition was explained on the theory that with syphilis as an etiological factor the arterial coats were implicated, leading to obstruction in the vascular supply, and an element of vascular spasm due to cold or other cause being added, the congestion and gangrene followed.

DR. BRONSON questioned the advisability of including this case under Raynaud's disease, in which the clinical picture is fuller and the disease a more general one. In gangrene about the face he always looked for syphilis. It seemed not improbable that here a neuropathic condition originating in syphilis had been the cause of the trouble.

DR. WHITE thought the localization did not preclude the idea of its being Raynaud's disease. He had seen a case affecting both the fingers and portions of both ears, but never had seen it affecting the ears alone.

DR. SHERWELL thought a syphilitic history was usually obtainable. At times the ears were disposed to the same changes observed in the fingers. He had found antisyphilitic treatment of benefit, and related one case thus cured.

DR. FORDYCE said, in closing, that the term Raynaud's disease is a general one including endarteritis and other pathological conditions. Raynaud's original monograph did not discuss the pathology.

ANGIOKERATOMA OF THE SCROTUM

was the title of a paper by the same author.

A patient, sixty-six years of age, was described, who showed upon the scrotum a number of dark-purple, spherical tumors, varying in size from a pin's head to several times this size, slightly elevated and covered with a slightly thickened horny layer. There were no subjective symptoms. The lesions seemed to consist of lacunar spaces filled with blood, these occupying the papillary portion of the derma. The reader's investigations lead to the belief that the primary change is vascular. The blood spaces in the rete Malpighii he believes are caused, as Pringle claimed, by a downward growth of the cells of the layer, producing a constriction of the terminal loops and their resulting distension.

DR. MORROW said he had had two cases clinically identical with this during the year and believes they were pathologically identical as well. He thinks the designation correct.

DR. WHITE did not think the keratomatous element very marked as shown in the illustrations.

DR. ZEISLER thought it natural that in what we might call a new disease, additional features to those first described, might be subsequently discovered and added. His own cases, which corresponded to the typical ones of Mibelli, differed somewhat from this. He thought a somewhat stronger development of the horny layer should be present to wholly justify the name. Wherever stagnation of the blood exists we have the element which favors the production of keratoma.

DR. SHEPHERD said he had often noticed in varicose veins of the scrotum an enormous vascularity of the skin. He believed the condition described by the reader was a varix.

DR. FORDYCE said he did not think the condition could be compared to varix of the veins, but was rather

a varicose condition of the papillary capillaries. The essential condition upon which stress is laid by previous observers is the existence of blood spaces in the epidermis. If the keratomatous element is not considered essential, then this case must be considered one of angiokeratoma, in spite of the slight development of the horny layer at some points.

DR. GRAHAM, of Toronto, then read upon

HYDROA ESTIVALE,

on a rare affection of the exposed parts due to direct or reflected sunlight. Two cases were reported. In one a limited number of small red spots appeared upon the face and hands, and recurred as often as the young girl went out into the daylight. The lesions became vesicular and then pustular, and finally these became black in the centre and showed umbilication. Crusting then took place, and scar tissue resulted. When gloves were worn the hands remained free. In the second case, a blond girl suffered from burning sensations, swelling, and vesicular eruptions whenever exposed for twenty minutes or more to the direct rays of the sun. The other symptoms were coryza, malaise, insomnia and anorexia during the attack. In this case the direct sunlight was not essential, since sitting near an open window produced the same results. The term hydroa vacciniforme does not apply to all cases, and the designation estivale seems the better one. It is not only the ultra-violet rays, the reader thought, which exert an injurious effect upon the skin of some persons, but also the heat rays; but their mode of action in producing so deep an effect as to leave scarring is not readily explained. We have to invoke the influence of the vaso-motor nervous system, and explain it by reflex action. The amount of destruction of tissue by necrosis will depend upon not only the individual vulnerability as regards the tissues, but upon the length of exposure of the parts to the injurious influence. A covering of the part in such a way as to exclude the light was almost always effectual.

DR. ZEISLER had seen such results of the sun's action. He had recently observed a case which recurred after every exposure. A second case had been under observation this summer. He did not see the necessity of calling these cases hydroa, or of classifying them under a new title. He regarded them as a form of erythema multiforme. Atropine was suggested as a drug to try.

DR. WHITE regarded the condition as a dermatitis, and not as a specific individual affection. The type is not maintained absolutely in successive attacks.

DR. BOWEN had made an histological examination in one case, where the inflammation was formed by necrosis and umbilication and found the necrosis extending to the corium. Erythema multiforme is never followed by a scar. In his case the boy looked as though he had had the small-pox.

DR. HARTZELL spoke of a case occurring in warm weather without exposure to the sun. The only difference between it and the other cases was one of degree, the inflammation not being sufficient to cause necrosis.

DR. PHILLIPS, of Toronto, who had treated one of the cases reported by Dr. Graham, spoke by invitation. He had employed soothing and protective dressings for the most part. He had thought to exclude the violet ray by a solution of bisulphate of quinine

incorporated with a bassorin paste or to annihilate the blue, indigo and violet rays of the spectrum by covering the exposed parts with a thick yellow paste. He hoped these experiments when completed would throw light upon whether the disease really resulted from the effects of the chemical rays.

DR. JACKSON referred to the case of a boy of ten years who had shown this sun rash for six or seven years upon the face and hands, followed by pitting and scars. The patient seems to suffer more in winter, especially on bright days, corresponding to Bowles's cases in Alp-climbers, in whom, too, he uses a brown ointment with success.

DR. SHEPHERD had seen the affection in a fellow-traveller in the Alps, and within the past two weeks had seen a girl in Montreal who had suffered for three years. Exposure to the open air was sufficient to cause swelling of the face and bullæ, which would be followed by scarring.

DR. ALLEN had also seen such cases. He was very familiar with the appearance of Dr. Jackson's case, having frequently watched the changes in the boy's appearance, though he had never treated him. He believed there were certain rays of light which produced peculiar effects upon the skin and in those predisposed the protective method is the only rational one.

DR. SHERWELL recommended a yellow veil or some similar device, for covering the face, and thus making a virtual developing chamber of the part.

DR. GRAHAM was pleased to hear of Dr. Bowen's investigations which made the deep-seated necrosis characteristic of the condition and excluded any idea of erythema. Whether the superficial character of the lesions in some cases depends upon the individual or the amount of exposure is uncertain, but he believes it due to the individual. He thought perhaps the term dermatitis solaris would be the best under which to include all cases. It occurs in women later in life than in men, and is very persistent.

DR. JACKSON, of New York, read the next paper, on

BROMIDE ERUPTIONS.

Two cases were reported. In one, which related to a young woman, chicken-pox-like lesions appeared upon the forehead and spread over the body. Crusts formed, especially on the scalp, and under them a raspberry-like growth took place. In the second case the lesions at first looked like impetigo contagiosa, but were followed by the same fungating lesions. Upon the legs these broke-down into indolent, irregular ulcers. The point of interest is the long interim between the cessation of the drug and the appearance of the eruption.

DR. HYDE referred to the similarity between the colored plate shown by Dr. Jackson and that representing a single lesion, which accompanied Dr. Tilbury Fox's original paper on the subject. He thought this effect of the bromides was seen chiefly in young subjects and cachectic individuals. He never saw it in the healthy. He doubted if this form of lesion is peculiar to bromides. He had seen iodide eruptions present quite the same characters and was prepared to believe that other drugs might act in the same way in subjects with sensitive skin who were in poor health.

DR. MORROW agreed with Dr. Hyde that the severe forms were liable to be seen in children prone

to vascular disorders from slight cause. The continuance of the eruption after the cessation of the drug is opposed to our knowledge of drug effects. As a rule, eruptions have a tendency to disappear almost immediately after the drug is discontinued and the instances in which the eruption continues for several weeks are difficult of explanation.

DR. WHITE expressed surprise that Dr. Hyde thought the health of the individual had anything to do with the eruption; it was in his opinion the result of individual idiosyncrasy. He had never seen any such eruption as Dr. Jackson described result from other drug than iodides or bromides. He had seen an infant affected by the milk where the mother was taking bromides.

DR. HARTZELL referred to the frequency with which these severe effects were associated with valvular disease of the heart.

DR. FOX had first thought Dr. Jackson's case one of hereditary syphilis. Some syphilides resemble the bromide eruptions seen in adults. [He presented a photographic slide to illustrate the great similarity.] Mistakes are likely in children known to be syphilitic who have been given the bromides. The drug might evoke the cutaneous syphilis.

DR. GRAHAM spoke of the confusion arising from wilful, careless or intentional faulty history as to bromides having been administered.

DR. ALLEN had seen the bullous form of iodide eruptions assume this fungating appearance and closely simulate that due to bromides. The eruption may persist long after the drug has been stopped. This can scarcely be accounted for by irritation of the skin due to elimination. In his paper last year he had dwelt upon this persistence after minute doses of quinine. He thought the small quantity of other drugs sometimes given forced us to account for the persistence of lesions by reflex nerve influence, and possibly, as he had suggested for quinine, by central nerve change in some cases.

DR. SHERWELL said a few years ago such exaggerated types of lesion would be called yaws or the like. He mentioned cases surely due to the iodide of potassium which were almost identical with those from the bromide. A bromide eruption recently treated, not only persisted, but grew more intense several weeks after the drug was stopped.

DR. HYDE mentioned hydriodic acid as a drug whose use had been followed by lesions similar to this case, as reported to him by a fellow physician. He had personally no direct knowledge of other drugs than the iodides and bromides being at fault, but believed there might be such.

DR. MORROW thought the history of cases which persisted was too vague. He saw no reason why a drug eruption should continue to appear.

He would ask Dr. Hyde whether he believed it was due to accumulation of the drug in the system. He had found long-continued administration necessary to produce the nutritional changes in the tissues. Iodine applied externally, on the other hand, may produce an eruption within twenty-four hours. Here we have a purely neurotic phenomenon, and not trophic changes, as are probable in the other case.

DR. HYDE said drug eruptions quickly subside after the drug is withdrawn, but this particular form differed and should be placed by itself. There is usually some underlying disease for which the bromide is prescribed.

DR. JACKSON, in closing, said that since writing his paper he had seen a young woman who presented bromide lesions weeks after the drug was stopped. This was usually not due so much to the appearance of new as to the persistence of old lesions.

(To be continued.)

Recent Literature.

Modern Materia Medica. With Therapeutic Notes for the Use of Practitioners and Students of Medicine. By DR. OTTO ROTH. Seventh edition, revised by DR. GREGOR SCHMITT. New York: William Wood & Co. 1895.

This volume is a translation of the seventh edition of this work a translation of an earlier edition appearing some years ago. Nearly three-quarters of the book is devoted to *materia medica*, and many of the recent drugs described are not mentioned in the last edition of the U. S. Pharmacopœia; but, on the other hand, some of the remedies given in our pharmacopœial list are omitted. The therapeutic notes form a separate portion of the work, and although not complete, offer many suggestions of value. The book is among the good ones of the kind, but not of the highest rank. The publishers have spared no pains to make the volume serviceable and attractive.

A German-English Medical Thesaurus, or Treasure of Single and Compound Medical Words and Terms. With Dialogues, Idiomatic Phrases and Proverbs, etc., and German and English Indexes for Physicians and Medical Students. By REV. HENRY LOSCH, M.D., author of "Improved Method and Complete Manual for the Systematic and Practical Study of the German Language," etc. Philadelphia: Published by the Author. 1895.

This dictionary, which in general gives excellent English definitions of German medical terms, possesses the fault of a most peculiar arrangement, the advantages of which are perhaps evident to the author but difficult for the general reader to fathom. The arrangement of the terms according to a peculiar system in which the various parts and conditions of man are taken up in an arbitrary order, makes it impossible to find any given term without looking it up in the index at the back of the book. If the terms had been arranged in alphabetical order, as in all other dictionaries of which we have cognizance, this difficulty which detracts immensely from the value of the book would have been obviated. The German and English indexes contain 20,000 words.

Lindsay and Blakiston's Physician's Visiting-List for 1896. Philadelphia: P. Blakiston, Son & Co.

This well known visiting-list presents several improvements in the new edition for 1896, and the reading matter and memoranda pages have been rearranged and simplified. The lists for 75 patients and 100 patients will also have special memoranda pages and hereafter will come in two volumes only, dated January to June, and July to December.

The tables of doses, and directions for emergencies in the beginning of the book are carefully made up, and contain a great deal of valuable information in an extremely compact form.

The book is excellently adapted to its purpose.

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THE PRESENT STATUS OF SEROTHERAPY.

At the Sixth Congress of the Italian Society of Internal Medicine held at Rome, October 22d to 25th, the present status of serotherapy was discussed by Pio-Foà of Turin, Maragliano of Genoa, Petrone and Fazzo of Naples, Campana of Rome, and other eminent bacteriologists and clinicians.

Maragliano claims to have experimentally obtained an antitoxic serum which possesses curative efficacy in tuberculosis, and which is giving good results in his own practice and in that of several of his *confrères*; the mode of preparation of this serum will eventually be published, though he is unwilling to make it known at present, though derived, as he says, "from animals vaccinated with all of the toxins contained in the virulent cultures, both those that resist and those that do not resist heat." Campana, of Rome, affirms his belief that Maragliano's serum is nothing but Koch's tuberculin, improved. As a dermatologist, he declares that this lymph in tuberculous affections of the skin favors the resorption of morbid infiltrations, but does not cure the tuberculous processes, and the same affirmation applies to tuberculosis of internal organs.

Fasano, of Naples, reported a case of pulmonary phthisis which seemed to have markedly improved under the use of this serum. Marrani, of Rome, has treated with benefit twelve cases of tuberculous broncho pneumonia with Maragliano's serum. The results were, disappearance of the fever, of the râles, of the cough, of the dulness, a gain in spirits and in appetite, and increase of weight. Ascenzi, of Rome, and Argento, of Palermo, communicated — the first three, the second five — cases of tuberculosis treated with success by Maragliano's serum.

With regard to the serum treatment of diphtheria, Mya, of Florence, stated that he had treated 112 cases of diphtheria at the clinic of children's diseases with Behring's antitoxin; the results were 22 deaths and 90 recoveries. In a first series of 51 cases, he had to do with diphtheria of the pharynx and larynx; there

were 15 deaths, giving a proportion of 29.4 per cent. (under the old treatment he used to have in these cases a mortality of 50 per cent.). A second series of cases comprehends 43 cases of simple diphtheria of the pharynx, with 7 deaths and 36 recoveries. In a third and last series, there were 18 cases of pharyngeal diphtheria with beginning of extension to the larynx; all these recovered rapidly. In all these cases the diagnosis was controlled by the bacteriological examination.

Mya is in the habit of injecting daily during the first three days of the sickness ten cubic centimetres of serum. In fatal cases he has often observed want of success to coincide with a notable degree of hypertrophy of the glands; the autopsy has disclosed along with grave alterations of the lymphatic system, fatty degeneration of the viscera. He is persuaded that if one would have recourse with success to serotherapy in diphtheritic cases, there must be relative integrity of the lymphatic system. Another group of cases in which serotherapy proves inefficacious includes those forms of diphtheria in which the exudate invades very rapidly the whole respiratory tract, that is, not only the larynx and trachea, but also the bronchial tubes. It is principally in the coldest months of the year that he has observed cases of this kind.

Maragliano, in summing up the diseases in which serotherapy has been employed with more or less of success, remarks that in streptococcus infection (notably in erysipelas and puerperal septicemia) the serum treatment has already produced sufficiently encouraging results to warrant further trials.¹

No success has followed attempts to similarly treat typhoid fever and cholera, that is, by the usage of a serum obtained from patients recovered from the disease, or from immunized animals.

In tetanus, the results obtained with serums obtained from animals immunized by attenuated toxins have not been remarkable. In 30 cases so treated, there have been 13 recoveries.²

Maragliano sums up the statistics of serotherapy in diphtheria by citing Heubner's figures: in 3,036 cases there was a mortality of 20.6 per cent; this is contrasted with a mortality of 38.8 per cent. before the usage of antitoxin. He thinks that "the enthusiasm aroused by the discovery of Behring has been justified by the splendid results obtained in practice."

With regard to the serum treatment of pneumonia, there is little to add to the results obtained some time ago by the two Klemperers, and by Fowlisky and Emmerich; the Klemperers, in particular, claiming remarkable clinical success in several cases with their "antipneumotoxic serum." Pio-Foà, who was referee at the meeting of the Congress aforesaid, has been making numerous experiments on animals with a serum of his own preparation, which he calls an "antipneumococcic vaccine." He first tried glycerine extracts of infected blood, the glycerized extracts of

the bodies of bacteria remaining on the filter, the precipitates obtained with sulphate of ammonia, etc. After having found out the complete inefficaciousness of the chemical vaccinations, with the exception of the filtrate of the *meningococcus*, he tried to obtain a vaccine prepared according to Pasteur's methods (attenuated by heat, by oxygen, by light, etc.). He finally obtained the desired attenuation by means of Lugol's solution, and by employing the method of intravenous injection, he now succeeds in vaccinating hares against the different varieties of *diplococcus lanceolatus*, so as to cause them to support with impunity 160 cubic centimetres of a culture sufficiently virulent to kill the test animals in a few hours, the duration of the immunity seems to be quite long, that is, three months at least.

The experiments which Pio-Foà related, where hares, dogs, sheep and goats are rendered refractory to the pneumococcus infection were of great interest and warrant hope that the serum treatment may yet be found to be of unequivocal benefit in the pneumococcus diseases of man. Foà found that when both the *diplococcus* and the serum were injected at the same time, the animal survived, and when the serum was injected five hours after the infection, the symptoms were light and the animal soon recovered; which indicates that the serum also exercises a curative action.

RESUSCITATION AFTER SUBMERSION.

In answer to the inquiry of our correspondent, Dr. H. Hunt, whose letter we publish on page 555 of this issue of the JOURNAL, with regard to the length of time after which it is possible to hope for success in efforts at resuscitation after drowning accidents, we would say that a hasty review of the literature of the subject shows that cases of recovery are rare after submersion of three to five minutes. Cases have been reported of successful resuscitation after ten to fifteen minutes, but the circumstances attending such accidents are generally such as to preclude the possibility of an accurate record of the time of submersion being made. The time must be roughly estimated by computing the number of minutes which must have been required for the rescuers to get to the patient, raise him from the water, and transport him to the place where efforts at resuscitation can be begun.

In a number of cases in which the patient is believed to have been submerged for ten to fifteen minutes there has been found evidence that he was in a state of syncope or concussion from a blow on the head, chest or abdomen, so that active respiratory movements did not take place while he was under water.

In this connection, we may cite the case reported by Pope¹ in which the patient was knocked on the head, and expansion of the chest was prevented while under water by weights which lay upon him. This

¹ See this Journal, cxxxii, p. 444.

² See also this Journal, vol. cxxxii, p. 287.

¹ Lancet, London, 1881, ii, 606.

patient is believed to have been resuscitated after being under water from twelve to fifteen minutes.

Dr. J. Mason Warren² reports the case of a young woman whom he was successful in resuscitating in which ten minutes are believed to have elapsed before she was gotten out of the water, and twenty minutes before artificial respiration, etc., was begun. The young girl was a passenger on a train which plunged off the bridge into the river at South Norwalk, Conn. After the accident sufficient time elapsed for a boat to put out to the middle of the river, a hole to be cut with axes in the side of the car, and the mother of the young woman, whose head was not under water, to be pulled out, before she was reached. In this case, although it is extremely probable that ten minutes were required before the patient was taken out, it is possible that she may have been stunned by striking her head against the side of the car or a seat as the car went down, or may have fainted from the alarm of the accident. It is also possible that the water which poured into the car did not reach the level of her head until just before the rescuers reached her.

The case reported by Burrall³ shows the methods to which it is necessary to resort in estimating the probable time of submersion. In this case, which occurred at one of the seaports on the Maine coast, a man was seen to sink, by two men who were at a distance of 250 paces from the shore. They ran to the shore, spent a moment in deciding not to swim for him, one of them pulled off his boots and trousers and waded a short distance out to a row-boat, which he brought to shore, and then took the other man in. He rowed him out to a yacht which was anchored 240 yards from shore, unlocked the cabin door, which was padlocked, secured a boat-hook, and rowed to the spot where the man was seen to sink. He was seen lying on the bottom in nine feet of water, and fished out with the aid of the boat-hook. His head and shoulders were dragged into the boat, and with the legs hanging over the stern he was rowed rapidly to shore, and rolled over a few times before Dr. Burrall, who had been sent for in the meantime, reached him and began artificial respiration. It would seem as if fully ten or twelve minutes must have elapsed before the active work of resuscitation was begun. Dr. Burrall was not able to record the exact length of time after the artificial respiration was begun until the first voluntary respiratory movement took place. It was necessary, however, to keep up artificial respiration for three-quarters of an hour.

Such cases as the above are, however, the rare exceptions, and the statement made in Wharton and Stille's "Medical Jurisprudence" that a submersion of three to five minutes generally places the patient beyond hope of revival, is probably correct.

According to Harley,⁴ dogs kept under water one and a half minutes always died, if water had entered the lungs. If the entrance of air had been prevented

by plugging the trachea, they survived a submersion of four minutes.

With regard to the time during which artificial respiration should be kept up, the rule generally laid down in emergency lectures on the subject is that if no flutter of respiration has appeared after an hour's work, and no heart beats can be heard, further efforts are useless.

MEDICAL NOTES.

AN EXPLORING TRIP UNDER THE DIRECTION OF TWO MEDICAL MEN.—Dr. William H. Furness, 3d, and Dr. H. M. Hiller, both members of the class of 1891 of the Medical Department of the University of Pennsylvania, have started for the South Sea Islands, where they will spend at least a year in collecting ethnological and archeological specimens for the University. Should the field prove fruitful, it is probable that their stay may be prolonged to two years. After arriving at San Francisco they will sail for Yokohama, touching at Honolulu. They will proceed to Singapore, and from there will take passage for the Philippine Islands, visiting other groups of the East Indian and South Pacific Archipelagoes in a chartered vessel.

AN UNDERGROUND CITY.—There is said to be a community of one thousand people, all miners, men, women and children who live in the bottom of one of the rock-salt mines at Wieliczka in Galicia at a depth of several hundred centimetres. The galleries of the mines extend underground to the length of 82 kilometres, and the miners have there their houses, a town-hall, club-rooms and even a theatre. Their entire life is spent in these underground streets and squares, which are lighted by electricity. Families are to be found there, the members of which have not mounted to the earth's surface for several generations (?). The little church of Wieliczka, with its statues sculptured of rock salt, is one of the most wonderful structures, architecturally, in Europe. The inhabitants are happy and long-lived, preserved as it were in salt. The continuous labor at mining salt does not seem to undermine their constitutions, a fact which is a remarkable testimony to the preservative powers of salt, and the romancing ability of the author of the story about generations never having seen the sunlight.

THE MIGRATION OF THE FLEA.—E. W. Forster in a letter published in the *British Medical Journal* of October 26th, relates an experience illustrative of the methods by which the Madagascar chigoe, or jigger, invaded East Africa, a region which was not at the time of this experience (1875) a chigoe-infected district. He writes: "Whilst sauntering in the early morn along a native track about eighteen miles inland, my attention was attracted by a curious agitation across the pathway, as if a stream of living dust was being driven out of the dry and dusty jungle. A nearer approach and examination proved the phenomenon to be a migratory movement of fleas. The column of these *aphaniptera* was about two feet in

² Surgical Observations, Boston, 1887, 38-400.

³ Medical Record, 1891, xl, 288.

⁴ Petter's Materia Medica, Pharmacology and Therapeutics, 881.

breadth, and consisted of an innumerable host rapidly traversing both the ground and air by characteristic leaps and bounds. I watched the onward and regular procession of this mighty swarm for a quarter of an hour, and left the formidable multitude undiminished in numbers, and apparently under orders for a neighboring village."

THE FIRST OPERATION UNDER ETHER IN ENGLAND.—In an excellent editorial on Sir Edwin Arnold's address to the students at St. Thomas's Hospital, the *Lancet* calls attention to the fact that the advance of our art which most appeals to him is the discovery of anesthetics. The spirit in which the discovery was welcomed in England is well illustrated by the account given by Sir Russell Reynolds at University College Hospital dinner in 1888, of the first operation performed in England under anesthesia: "The first operation in this country performed under an anesthetic was witnessed in University College Hospital. Liston had consented to try the anesthetic. I can see him now as he said to the students, 'Gentlemen, we are going to try a Yankee dodge for making men insensible.' . . . At length Peter Squire said, 'He is quite ready now, sir.' Liston's knife flashed in the air; I took out my watch to count the time, and the leg was on the floor in six-and-twenty seconds. Liston turned to the students and said, 'This Yankee dodge, gentlemen, beats mesmerism hollow.'" And the *Lancet* remarks: "That was all the welcome given to the first use of anesthetics in England. There was no public rejoicing, no Thanksgiving Day, no Te Deum in the churches, no commemoration of the discoverers; the great discovery had to make its way against obstinate prejudice and folly in high places, even in some of our profession; and Liston's somewhat grudging utterance should serve as a warning to those of us who make light of new methods only because they are new. We are glad that Sir Edwin Arnold saw only the discovery itself, and not the way in which it was received."

NEW YORK.

FORTIETH ANNIVERSARY OF THE WOMAN'S HOSPITAL.—At the fortieth anniversary of the Woman's Hospital, held November 21st, Dr. Wm. T. Lusk and James C. Carter were among the speakers. During the year 927 patients were treated in the hospital, and 4,704 in the outdoor department. There were 48 deaths in the institution. The receipts from all sources amounted to \$50,340, and the expenditures to \$73,889.

A TWENTY-FOUR POUND BABY.—John J. Mackey, a porter employed at the Edison Building on Broad Street, is the proud father of a girl baby which weighed twenty-four and a half pounds at its birth on the night of November 17th. As John is a small man and his wife of only average proportions, the extraordinary size of their offspring is quite surprising.

MEDICAL REPORTS OF THE PRESBYTERIAN HOSPITAL.—The twenty-seventh anniversary of the

Presbyterian Hospital was celebrated with appropriate exercises on November 16th. The medical reports showed that during the year 2,624 patients were treated. In addition, 2,067 were cared for in the emergency ward, and 1,550 ambulance calls were answered. In the dispensary 13,044 new patients were treated. The expenses of the hospital during the year were \$165,692. The following receipts were reported: From pay patients, \$20,534; income from investments, \$27,851; donations, \$12,000. There was thus a deficit of \$90,625 for the year.

A NEW WATER-SUPPLY FOR BROOKLYN.—The Brooklyn City authorities are negotiating for the purchase of the plant of the New Utrecht Water Company, which is located at Sheepshead Bay and obtains a water-supply by means of twenty-seven driven wells. The water is said to be wholesome and almost pure, and the company has been supplying the old town of New Utrecht, which is now the Thirtieth Ward of Brooklyn. The plant has a capacity of eight million gallons per day.

TYPHOID FEVER IN MILK.—In Watertown, N. Y., where there has been a severe outbreak of typhoid fever, and where 50 per cent. of the cases were found to be in families supplied with milk by a single dairyman, a bacterial investigation made by the Board of Health of the milk supplied by the various dealers of the city has shown that in the milk of five vendors there were typhoid-fever germs, and in that of five others, tubercle bacilli, while in three other instances the milk was otherwise impure.

THE LOW DEATH-RATE CONTINUES.—Curiously enough, the number of deaths reported during the week ending November 23d was precisely the same as in the preceding week, 676. The average for the corresponding weeks of the past five years was 731. The mortality from both pneumonia and diphtheria shows a further decline.

Miscellany.

AN EARLY EXPRESSION OF THE NEEL FOR REVISING THE RULES OF FOOTBALL.

THE following extracts from old English law reports show how slow has been the evolution of the naughty game of football to its present gentle estate:

Middlesex Sessions Rolls. Vol. I. 20 March, 18 Elizabeth.

True bill that seven of Woxbridge aforesaid, with unknown malefactors to the number of a hundred, assembled themselves unlawfully and played a certain unlawful game, called footeball, by reason of which unlawful game there rose amongst them a great affray, likely to result in homicides and serious accidents.

G. S. P. R. Easter, 18 Eliz.

5 March, 25 Elizabeth.

Coroner's Inquisition, post-mortem, taken at Southemys Co. Midd. on view of the body of Roger

Ludforde yoman, there lying dead. With verdict of jurors that Nicholas Martyn and Richard Turvey, both late of Southmymys yomen were, on the 3d instant, between 3 and 4 p. m., playing with other persons at foote-ball in the field called Evanes Field at Southmymys, when the said Roger Ludforde and a certain Simon Maltus of the said parish yoman, came to the ground, and that Roger Ludforde cried out "Cast hym over the hedge," indicating that he meant Nich. Martyn, who retorted "Come thowe and do yt"; that thereupon Roger Ludforde ran towards the ball with the intention of kicking it, whereupon seeing his purpose Nicholas Martyn "cum cubito dextri brachii sui" and Richard Turvey "cum cubito sinistri brachii sui" struck John Ludford on the forepart of his body under the breast, giving him a mortal blow and concussion, of which he died within a quarter of an hour; and that Nicholas and Richard in this manner feloniously slew the said John.

G. D. R. 15 April, 25 Elizabeth.

Middlesex County Records Sessions' Rolls, Vol. II, p. 81. 5 July, 10 James I.

True Bill that, at St. Andrew's in Holborn Co. Midd. on the said Sabbath Day, James Wilson late of said parish gentleman gathered to himself very many unknown persons in a certain place called Eely Field, and did play with them a certain unlawful game called footeball.

G. D. R. 13 Aug. 10 James I.

13 January, 12 James I. Order touching Foot-Ball.

Whereas greate disorders and tumults doe often arise and happen within the streetes and lanes neere adjoyninge to ye Citye of London by playinge at the foote-ball: It is now ordered that henceforthe all constables "doe from tyme to tyme repress and restrayne all manner of Foote-ball-playe in the lanes and streetes adjoyninge to the citye of London. S. P. Reg.

Correspondence.

THE STUDY OF DERMATOLOGY IN EUROPE.

(Continued from No. 24, p. 531.)

PRAGUE.

The general hospital of Prague is an old building, which, like so many of its kind in Europe, originally served as a convent. Professor Pick received me most cordially and hospitably, and introduced me to his assistants. Every kindness was shown me, and I found that I had an embarrassment of opportunities before me.

Every morning at half-past six, Professor Pick gives his lectures on skin and venereal diseases. At nine o'clock there is the out-patient clinic ("ambulatorium") held by Dr. Waelsch, one of Pick's first assistants. At nine o'clock there is also the visit in the wards by Pick himself, and lastly there are the dermatological operations. But now I must speak of Prague more in detail, for in my opinion it is one of the few cities in Europe, where one can study dermatology to advantage in all its branches.

The out-patient service is a very large one, and from five to seven thousand new cases are seen yearly, while the constant returning of old ones increases this large clinic enormously. As a rule, Dr. Waelsch sees all the cases save those which he considers of great interest or difficulty, and these patients are requested to wait for Pick, who looks in from time to time during the morning. The cases are often extremely instructive and interesting—in truth I know of but one out-patient clinic in Europe which

can surpass this Bohemian one of Professor Pick, and that is, of course, the St. Louis in Paris. The American often loses a great deal by not understanding the Bohemian language, for almost one-half of the patients are ignorant of German. The official language of the hospital is, however, German, and all the physicians and assistants prefer to speak it. To my mind there is one thing which detracts from the interest of the clinic at Prague, namely, the monotonous series of cases of gonorrhea, which follow one after another and delay the true dermatological and syphilitic patients. The daily attendance is about forty-five and they are soon cared for by the large corps of dressers. In Prague the patient's lesions are often dressed before he leaves the hospital, and I am sure that this is a great factor in the rapid cures which I saw there. I refer chiefly to the cases of old eczemas which disappeared almost miraculously under Professor Pick's plaster of five per cent. or ten per cent. salicylated soap plaster.

The most striking feature of this clinic is the important rôle which surgery plays. Sunday is the principal operating-day, but on almost any morning the visitor can find Professor Pick, knife or curette in hand, obliterating all traces of lupus from a patient's face or cutting away an epithelioma. As to lupus, of course the cure by the knife is very rapid, but a large scar remains, and several times I saw nodules starting up again in an old cicatrix of a lupus treated by this radical method. Scarification is seldom employed here over large areas, owing to the fear of a subsequent generalized miliary tuberculosis. Naturally, it was a great advantage to have seen these surgical treatments; but where ether and several assistants are employed, it seems as though dermatology were trespassing upon the domain of surgery.

The wards in Prague are divided into four parts—the men's dermatological and venereal, and the women's dermatological and venereal. The divisions are all extremely instructive on account of the large number of beds, and also because the student can see so many rare diseases so closely associated. I think the diseases of the house-patients there are more unusual than those in Vienna even, and surely that is saying a great deal in praise of Prague. Professor Pick visits the men and women on alternate days. He goes to the bed-ridden, whereas those who are able to walk come before him. My sensations at the first visit with him are still very vivid. Save in Paris, I have nowhere seen so many rare diseases assembled in one hospital. The women's venereal ward is unsurpassed in the world, so far as I have seen it. One might say almost that cases were gathered there by the hundred of hard and soft chancres, gonorrhea and adenitis of all locations. Certainly I have never seen such an array of feminine ulcers as mounted the examining table in Prague that morning. Another feature of the Prague clinic is the horrible extent of lupus and scrofuloderma. Of the former I have never seen so large a proportion in any city, and of the latter I have never seen such deep-seated, dreadful ravages. Some of the children were absolutely riddled by the tubercular foci.

Toward the end of my visit I went to see Professor Pick in his private room at the hospital. He showed me some beautifully mounted bacteriological preparations, many pieces of abnormal skin in alcohol, and some new fixed cultures of ring-worm, and then told me of the advantages offered by the bacteriological and chemical laboratories of Prague, and finally pointed to an empty place with a microscope before it. "There," said he, "is your place; come and work here for two years; I am sure you will want for nothing." Professor Pick told me that he liked to have strangers come to him, and that he gave them a place in his laboratory, which they could keep so long as he considered them an advantage to his clinic. I only regret that I had not known of such an opportunity. I felt then as I do now—if only I could have given my last three months of Vienna to Prague and Breslau. I can't do better than to advise everybody who is interested in skin diseases to spend some time in Prague, for there he will find lectures, clinics, visits, operations and microscopic

work all at their best, and under the direction of a professor and his assistants who are among the best in Europe and are extremely hospitable to the stranger.

(To be continued.)

RESUSCITATION AFTER SUBMERSION.

GREENVILLE, MOOSEHEAD LAKE, ME.,
November 9, 1895.

MR. EDITOR:—It occurred to me on reading "The Signs of Death" in the JOURNAL just received that a similar article on drowning might be useful. I wish you would give us something on it, for instance, how long a person can remain wholly and continuously submerged and afterwards be resuscitated, what the signs of death are, etc.

Of course, physicians know about it; only there is as widespread a popular superstition in regard to the time a person can be submerged in the water and then revived, as there is about being buried alive.

I have to make efforts to revive drowned persons whom I know are dead, simply on account of the false ideas on the subject. I have stood on a wharf while they grappled for a body fully ten minutes; and when the body was brought up I went to work—artificial respiration, etc.—though I knew the person was dead. I know a young physician who was censured for not making efforts to revive a child that had been under the water an hour.

We are told of persons being resuscitated who have been submerged twenty-five minutes, an hour, and so on; and perhaps an article by you might give some fellow, who wasn't acquainted with the popular idea and didn't try to revive a dead person, something to tie to.

Is it possible for a person who has been under water twenty-five minutes to be revived? Are there experiments on animals showing length of time they live under water?

If you will give me any information besides any article you may give us in the JOURNAL, I will be under obligation to you.

Very truly yours,

H. HUNT, M.D.

PAMPHLETS RELATING TO THE MASSACHUSETTS MEDICAL SOCIETY WANTED.

Boston, November 26, 1895.

MR. EDITOR:—If any of your readers will assist me in completing a collection of pamphlets relating to the Massachusetts Medical Society, I shall be greatly obliged. I need the following:

Acts, By-Laws and Orders, printed in 1816.

Acts of the Legislature, etc., 92 pages, printed in Boston, 1822.

Acts, By-Laws and Orders, Boston, 1837, printed by J. Putnam.

Catalogue, 12 pages, without place or date, but probably 1816.

Amendments to the By-Laws and a Correct List of Fellows, June, 1837, 32 pages, 8°, Boston, J. Putnam.

Very truly,
EDWARD J. FORSTER, M.D.,
51 Massachusetts Avenue.

NEW CATALOGUE OF MASSACHUSETTS MEDICAL SOCIETY.

Boston, November 21, 1895.


MR. EDITOR: The next catalogue of the Officers and Fellows of this Society will be issued early in 1896, and will contain the names of the honorary, active and retired Fellows borne on the rolls on the first day of January next.

Any Fellow who has changed his residence during the past year and any Fellow whose name is incorrectly given in the last catalogue will confer a favor by at once notifying the Treasurer,

EDWARD JACOB FORSTER, M.D.

METEOROLOGICAL RECORD.

For the week ending November 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		W'eath'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
					8.00 A. M.	8.00 P. M.								
S...10.	29.95	44	50	38	94	87	90	W.	N.	10	16	C.	O.	.05
M...11.	30.34	38	41	34	85	82	84	N.W.	N.	9	5	C.	C.	—
T...12	30.39	33	40	26	91	81	86	N.W.	N.	5	5	C.	C.	—
W...13	30.44	38	43	33	86	76	81	N.	N.E.	12	10	C.	O.	—
T...14	30.36	45	48	42	94	86	90	E.	E.	19	15	C.	R.	.06
F...15	29.85	48	51	46	100	93	96	N.E.	W.	13	16	R.	C.	1.41
S...16	30.04	46	51	41	90	64	77	W.	S.W.	9	9	C.	C.	—
														1.49

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., thunders; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 16, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,892,332	676	243	13.95	20.70	3.03	.75	5.25	
Chicago . . .	1,678,967	416	154	20.40	13.44	4.60	3.12	12.24	
Philadelphia .	1,164,000	390	169	12.74	14.04	1.30	1.30	8.32	
Brooklyn . .	1,100,000	385	155	15.48	17.92	1.96	1.40	8.68	
St. Louis . .	560,000	—	—	—	—	—	—	—	
Boston . . .	491,005	191	55	14.56	15.60	1.56	1.56	8.32	
Baltimore . .	496,315	168	57	12.00	8.40	2.40	1.20	4.80	
Cincinnati . .	336,000	94	32	7.42	12.72	—	—	6.36	
Cleveland . .	314,537	—	—	—	—	—	—	—	
Washington .	275,500	99	35	15.15	15.15	5.05	7.07	2.02	
Pittsburg . .	238,617	72	34	24.50	14.30	3.50	3.90	16.40	
Milwaukee . .	265,000	—	—	—	—	—	—	—	
Nashville . .	87,754	27	3	18.50	3.70	7.40	7.40	—	
Charleston . .	65,165	1	1	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,087	24	3	8.32	4.16	—	—	4.16	
Fall River . .	88,000	22	10	34.55	13.65	13.65	4.55	9.10	
Lowell . . .	84,358	16	9	11.55	23.10	3.85	3.85	3.85	
Cambridge . .	81,519	24	7	20.80	20.80	—	—	16.66	
Lynn . . .	62,355	19	2	10.54	10.54	—	—	10.54	
New Bedford .	55,254	18	8	5.55	16.66	—	—	5.55	
Springfield .	51,534	8	1	—	12.50	—	—	—	
Lawrence . .	52,153	19	5	10.52	10.52	—	—	10.52	
Holyoke . . .	40,149	—	—	—	—	—	—	—	
Salem . . .	34,437	17	2	—	11.76	—	—	—	
Brookton . .	33,157	5	1	—	20.00	—	—	—	
Haverhill . .	30,185	6	3	16.66	—	—	—	—	
Malden . . .	29,706	9	3	24.22	—	—	11.11	—	
Chelsea . . .	31,295	12	1	8.25	—	—	—	8.25	
Fitchburg . .	26,394	5	1	—	40.00	—	—	—	
Newton . . .	27,422	10	4	—	—	—	—	—	
Gloucester . .	27,663	—	—	—	—	—	—	—	
Taunton . . .	27,093	7	1	—	—	—	—	—	
Waltham . .	20,877	10	—	20.00	10.00	—	20.00	—	
Quincy . . .	20,712	9	3	44.44	—	—	—	33.33	
Pittsfield . .	20,447	6	1	—	—	—	—	—	
Everett . . .	18,578	6	2	—	33.33	—	—	—	
Northampton .	16,738	3	1	33.33	—	—	—	—	
Newburyport .	14,554	1	0	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,894; under five years of age 946; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 409; acute lung diseases 430; consumption 321; diphtheria and croup 219; diarrheal diseases 70; typhoid fever 50; measles 20; scarlet fever 17; whooping-cough 15; cerebro-spinal meningitis 14; malarial fever 11; erysipelas 7.

From measles New York 10, Baltimore 3, Philadelphia, Pittsburg and Providence 2 each, Brooklyn 1. From scarlet fever New York 7, Brooklyn 4, Pittsburg 2, Philadelphia, Boston, Haverhill and Malden 1 each. From whooping-cough New York 6, Brooklyn 4, Philadelphia, Cincinnati, Pittsburg, Providence and Northampton 1 each. From cerebro spinal meningitis Chicago 5, New York and Washington 2 each, Baltimore, Boston, Worcester, Quincy and Brookline 1 each. From malarial fever New

York and Brooklyn 3 each, Baltimore 2, Philadelphia, Washington and Nashville 1 each. From erysipelas New York 3, Philadelphia 2, Chicago and Brooklyn 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending November 9th, the death-rate was 22.1. Deaths reported 4,492; acute diseases of the respiratory organs (London) 447, measles 187, diphtheria 100, fever 90, whooping-cough 68, scarlet fever 54, small-pox (London and West Ham 1 each) 2.

The death-rates ranged from 13.2 in Croydon to 37.6 in Liverpool; Birmingham 21.1, Bradford 23.5, Cardiff 20.8, Gateshead 17.9, Hull 18.3, Leeds 20.7, Leicester 15.9, London 21.2, Manchester 25.7, Newcastle-on-Tyne 21.2, Nottingham 16.6, Portsmouth 17.0, Sheffield 25.1, Sunderland 20.4, West Ham 17.1, Wolverhampton 33.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 16, 1895, TO NOVEMBER 22, 1895.

Leave of absence for four months, to take effect about December 10, 1895, is granted CAPTAIN GEORGE MCCREERY, assistant surgeon.

The leave of absence granted MAJOR JOSEPH K. CORSON, surgeon, is extended twenty days on surgeon's certificate of disability.

FIRST-LIEUT. IRVING WALLACE RAND, assistant surgeon, will report in person without delay to the president of the Army Medical School for the course of instruction prescribed in General Orders No. 78, September 22, 1893, from adjutant general's office.

APPOINTMENTS.

To be assistant surgeons with the rank of First-Lieutenants, November 6, 1895: THOMAS JELLIS KIRKPATRICK, JR., JOHN HAMILTON STONE, IRVING WALLACE RAND.

POWELL CONRAD FAUNTILEROT, to be assistant surgeon with rank of First-Lieut., November 15, 1895.

PROMOTIONS.

MAJOR JUSTUS M. BROWN, surgeon, to be deputy surgeon-general with the rank of Lieutenant-Colonel, November 15, 1895.

CAPTAIN DANIEL M. APPEL, assistant surgeon, to be surgeon with the rank of Major, November 15, 1895.

RETIREMENT.

LIEUT.-COL. JOSEPH R. GIBSON, deputy surgeon general, retired from active service November 15, 1895, on account of disability incident to the service.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 23, 1895.

P. S. WALES, medical director, ordered to duty as member of the Retiring Board, Washington, November 25th, in addition to his present duties.

R. P. CRANDALL, passed assistant surgeon, detached from the naval laboratory and ordered to the naval hospital, New York.

PHILIP LEACH, passed assistant surgeon, detached from the naval hospital and ordered to the naval laboratory, New York.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING NOVEMBER 15, 1895.

FESSENDEN, C. S. D., surgeon. Ordered to proceed from Salem to Boston, Mass., for physical examination. November 11, 1895.

CARMICHAEL, D. A., passed assistant surgeon. Relieved from duty at St. Louis, Mo., and directed to proceed to Vineyard Haven, Mass., and assume command of service. November 1, 1895.

BROOKS, S. D., passed assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to St. Louis, Mo., and assume command of service. November 5, 1895.

WHITE, J. H., passed assistant surgeon. Granted leave of absence for twenty-three days. November 5, 1895.

PERRY, T. B., passed assistant surgeon. Granted leave of absence for thirty days. November 11, 1895.

COBB, J. O., passed assistant surgeon. To proceed from Port Townsend to Port Angeles, Wash., as quarantine inspector. November 1, 1895.

STONER, J. B., passed assistant surgeon. To proceed from Detroit, Mich., to Baltimore, Md., for temporary duty. November 1, 1895.

GARDNER, C. H., assistant surgeon. To proceed from San Francisco, Cal., to Chicago, Ill., for duty. November 5, 1895.

NORMAN, SEATON, assistant surgeon. To proceed from Baltimore, Md., to New Orleans, La., for duty. November 1, 1895.

THOMAS, A. R., assistant surgeon. To assume temporary command of service at St. Louis, Mo. November 1, 1895.

GREENE, J. B., assistant surgeon. To proceed from Vineyard Haven, Mass., to Baltimore, Md., for duty. November 1, 1895.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, December 2d, at 8 o'clock.

Dr. H. B. Howard, of Tewksbury, will make a report, by invitation, on "The State Almshouse during Twelve Years of Medical Superintendence." Dr. C. J. Fisher, of New York, is expected to take part in the discussion.

Dr. J. H. Nichols will report, by invitation, "Four Cases of Small-pox at the State Almshouse in the Spring of 1894."

JAMES G. MUMFORD, M.D., Secretary.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The regular monthly meeting of the Surgical Section of the Suffolk District Medical Society will be held at 19 Boylston Place, at 8 o'clock, Wednesday evening, December 4, 1895.

Dr. S. J. Mixer: "Tumors of the Parotid."

Dr. G. H. Monks: "Plastic Operation for New Nose." Exhibition of patient.

Dr. Paul Thorndike: A Case of Deep Urethral Stricture in a Syphilitic Patient."

Dr. F. B. Lund: "Local Anesthesia."

M. H. RICHARDSON, M.D., Chairman.

CHARLES L. SCUDDER, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on December 5th, at 8 P. M., by ASST. PROF. FRANKLIN DEXTER. Subject: "A Glance at the Structural Plan of the Brain." The profession are invited.

BOOKS AND PAMPHLETS RECEIVED.

Hyperthermy in a Man up to 148° F. (64.4° C.). By A. Jacobi, M.D. Reprint. 1895.

Bromoform in Pertussis. By P. J. Eaton, A.M., M.D. (Harv.), Pittsburgh, Pa. Reprint. 1895.

Surgical Treatment of Laryngeal Tuberculosis. By J. W. Gleitsmann, M.D. Reprint. 1895.

Three Cases of Enucleation of the Eye, with Remarks. By Leartus Connor, A.B., M.D. Reprint. 1891.

Appendix to Dunglison's Medical Dictionary. Twenty-first edition. Philadelphia: Lea Brothers & Co. 1895.

Hypnotism, How it is Done, Its Uses and Dangers. By James R. Cocke, M.D. Boston: Arena Publishing Co. 1894.

Is Hydrochloric Acid Secreted by the Mucous Membrane of the Stomach? By J. A. Wesener, Ph.C., M.D. Reprint. 1895.

Clinical Notes on Psoriasis, with Especial Reference to its Prognosis and Treatment. By L. Duncan Bulkley, A.M., M.D. Reprint. 1895.

Treatment of Uterine Retrodisplacements by Vagino Fixation, with Reports of Cases. By Frederick Holme Wiggin, M.D., New York. Reprint. 1895.

Transactions of the Colorado State Medical Society, Twenty-fifth Annual Convention. By-Laws and List of Members. Denver: Published by the Society. June, 1895.

Pioneer Work in Opening the Medical Profession to Women. Autobiographical sketches by Dr. Elizabeth Blackwell, author of "The Moral Education of the Young," etc. London: Longmans, Green & Co. 1895.

Transactions of the Obstetrical Society of London, Vol. XXXVII, for the year 1895. Part III for June and July. Edited by William Duncan, M.D., Senior Secretary, and Percy Beaton, M.D. London: Published by the Society. 1895.

Notes on Surgery for Nurses. By Joseph Bell, M.D., F.R.C.S. Edin. Consulting Surgeon to the Royal Infirmary, and surgeon to the Royal Edinburgh Hospital for Sick Children. Fourth edition, thoroughly revised. With an additional chapter of General Advice to Nurses. Edinburgh: Oliver & Boyd. 1895.

A Hand-Book of Medical Diagnosis for Students. By James B. Herrick, A.B., M.D. Adjunct Professor of Medicine, Rush Medical College; Professor of Medicine, Northwestern University Woman's Medical School. Attending Physician to Cook County Hospital. Assistant Attending Physician to Presbyterian Hospital, Chicago. With 80 illustrations and two colored plates. Philadelphia: Lea Brothers & Co. 1895.

Original Articles.

AN ETIOLOGICAL PUZZLE.¹

BY JAMES C. WHITE, M.D.,
Professor of Dermatology in Harvard University.

IN these days, when we are beginning to appreciate the diversity of ways in which tuberculosis establishes itself by direct inoculation upon the cutaneous tissues, it is important to recognize all possibilities of infection. It is by such knowledge, and its general diffusion by ourselves among the people, that we shall some time succeed in abolishing the needless ravages of this dreadful disease.

Let me first mention an instance, such as we are all constantly meeting with, of one of the most frequent methods of inoculation, and which is entirely preventable. I was recently consulted by a mother and daughter, the latter thirteen years old, both of whom presented lesions of tuberculosis verrucosa upon the hands, multiple upon the child. They had developed within the previous eighteen months. The father had recently died of phthisis, and both wife and daughter had habitually washed the handkerchiefs and other receptacles of the sputa used by the deceased. Can there be any doubt how the cutaneous infection was produced in this case? Could we devise a more likely method of inoculation than to macerate the epidermis by long immersion in hot water and then apply sputa swarming with active bacilli? Pulmonary tuberculosis was also just developing in the girl. It is not so easy to determine positively how infection of these internal organs was accomplished, but we should not ignore the possibility of secondary infection through open cutaneous lesions in such cases, considering how common it is for children, or even adults, to carry a sore upon the hand to the mouth and suck or moisten it for the soothing effect thus obtained. Had this mother known the danger of handling the handkerchiefs and sputa of consumptives, they might have easily avoided inoculation.

But the case to which I desire especially to call your attention is one which illustrates the multiform elements which possibly enter into the question of etiology at times in connection with this disease. A girl, eighteen years old, came to my clinic last June with perfectly characteristic tuberculosis of the lobes of both ears. They were thickened, of a dull red hue, shiny and slightly scaly, and of a boggy consistence. They had been gradually assuming this condition during the last eight years. It was an interesting problem to determine how two such isolated and symmetrical points could be so uniformly affected. Of course some connection with the boring of the ears at once suggested itself as an explanation, and on inquiry the following data were obtained. The ears were pierced eight years ago. They remained inflamed a long time; in fact they never healed, and this primary condition developed gradually into the present slowly progressive affection.

(1) The ears were bored by a woman, who died soon afterwards of consumption. She used a darning-needle, and threaded it after piercing the lobes.

(2) My patient had a sister who dressed the ears whilst sore, and this sister died soon afterwards of "quick consumption."

(3) The ears were frequently bathed with cow's milk after the operation.

Accepting the facts as thus elicited, it is evident that there were three possible sources of infection in the case:

First, the operator may have wetted the needle in her mouth on the supposition that it would enter the skin more readily, or she may have treated the end of the silk in the same way (a common practice) before threading the needle and drawing it through the lobes, both promising methods of infecting the wound with the bacillus tuberculosis.

Second, the ears were constantly dressed by the sister who was at the time in "quick consumption." We well recognize what opportunities were thus afforded for the transference of infective material from the one to the other. The fingers of the nurse were probably often contaminated by handling her handkerchief or other receptacle of the expectoration, or the mouth may have been wiped with them after coughing. With these fingers she was habitually making applications to the open wounds. Perfect bodily cleanliness is a far more difficult (often an impossible) condition in country life than with the ever-at-hand water conveniences of the city residence. We must not forget also that dried bacilli from contaminated clothing and furniture of the infected house may have entered the wounds through the medium of the air.

Third, the inflamed ears were frequently bathed with cow's milk to reduce the inflammation after the operation, a common household practice in the country. Now that we have become aware of the enormous prevalence of bovine tuberculosis, and of the consequent contamination of milk, we must admit the possibility of such an origin of the disease in my patient, and of the danger in the bread-and-milk poultice of domestic surgery.

I have thus briefly stated the possible methods of infection in this case of tuberculosis of the skin, because the accessible etiological data present in an exceptional way the diversity of origin in this affection, and because it illustrates in a striking manner the foes to health which may lurk unsuspected in every household until the knowledge regarding such dangers and the means of avoiding them is made a part of every child's common school education.

CLINICAL EXPERIENCE IN ABDOMINAL SURGERY AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY J. COLLINS WARREN, M.D.

(Continued from No. 22, p. 539.)

PYOSALPINX.

THIS is one of the most common of abdominal affections now operated upon at the hospital. The operations are, as a rule, difficult and tedious; but the patients do well, and eventually recover a satisfactory condition of health. Tubercular peritonitis is a not infrequent accompaniment of this affection, and gonorrhea a not infrequent cause. An important detail in the technique of the operation is the careful walling off of the diseased tubes from the general peritoneal cavity. It is also an excellent plan to aspirate the tubes with the most scrupulous care before attempting their removal. The chances of spilling pus into the

¹ Read at the Meeting of the American Dermatological Association, 1895.

peritoneal cavity are thereby greatly diminished. The Trendelenburg position greatly facilitates these manipulations. The old pus in these tubes is, however, often of a mild, unirritating character; an entirely different substance, from a clinical point of view, from that found in an appendicular abscess. Cultures taken from these tubal abscesses have not infrequently proved to be sterile. There were eleven cases of this disease, and in one only was there a fatal result. In this case the condition of the patient was such that the operation was performed, chiefly as a last resort.

Double Pyosalpinx, Laparotomy.—A domestic, single, thirty years old, entered February 9, 1894. Always well, except for constipation, for last three years, until January 1st, when she had an attack of general, lancinating, abdominal pain lasting one day, and relieved by hot poultice. Vomited once. Then well until a week ago, when she had a chill which subsided without other symptoms. On the morning of entrance she had an attack of abdominal pain, situated first at the umbilicus, but soon becoming general and accompanied by vomiting. Bowels moved within twenty-four hours. No chill.

On physical examination her general nourishment was good. The abdomen was slightly distended, with tenderness most marked in the right iliac fossa. Dull in left iliac fossa, tympanitic elsewhere. Vaginal examination was negative. Rectal examination showed tight stricture. She was given liquids without milk and morphine. Hot applications to abdomen. In consultation the diagnosis of probable intestinal obstruction was made, and immediate operation urged.

February 10th, Littré's incision was made, four inches long. A large amount of foul-smelling, turbid serum escaped from the peritoneal cavity, but no obstruction was found. The incision was then closed, and a five-inch median incision made. More of the foul serum escaped from the general cavity. The right tube was found much enlarged, its fimbriated extremity being branched and reddened like mucous membrane. Attached to the posterior uterine wall was a cyst the size of a lemon, which ruptured, allowing the escape of a cheesy, puriform material. The cyst was tied and removed, as was also the right tube. The left tube, which was enlarged, was left. Both wounds were closed about glass drainage-tubes after irrigating the abdominal cavity with sterile water. Sterile dressing and swathe applied. Although the patient was in very poor condition, she rapidly recovered from the anesthetic.

The tubes were sucked out twice a day, the discharge being very foul. Her condition continued poor, and on the seventh day a stitch abscess was found in the median wound. On the next day pus was found burrowing in the abdominal wall. Tubes were inserted. On the whole the wounds granulated well, although the patient gained strength very slowly.

On April 20th she was sent to the Convalescent Home, and left there May 8th.

June, 1895. In perfect health. Active and at work. No cough. Has gained much in flesh and strength.

Pelvic Abscess, probably of Tubal Origin; Laparotomy. Recovery.—Mrs. L. P. K., forty-seven years of age, entered November 5, 1894. Had suffered pain on the right side for twenty years, which had been treated for liver complaint. For the last year patient has

had pain at time of defecation and the movements had the appearance of being mixed with pus. Thought at one time that something broke in the rectum. Suffers from bearing-down pain, and has pain when in sitting posture. Although fairly stout, has already lost considerable weight. An examination shows some distention of the abdomen, but no dullness. By vaginal examination a hard mass is felt in front of the rectum. The rectum is somewhat constricted by this mass, and at the time of entrance the possibility of a stricture of the rectum had been suggested.

On November 9th an examination was made under ether, and the finger was passed into the mass through a small opening which was found some distance from the anus. This opening was dilated, and about three ounces of pus evacuated. After thorough syringing with sulpho-naphthol (1-500), a T-shaped rubber drainage-tube was inserted. Her condition after the operation remained much the same. The temperature ranged somewhat higher and varied greatly; the patient began to lose flesh rapidly and became weaker daily.

On November 28th a median abdominal incision was made. The abdominal cavity, when opened, was found to contain a considerable amount of bloody serum, and the pelvis, particularly that part behind the uterus, was found to be filled with adhesions. With some difficulty these were separated, and the finger finally reached a small pus cavity between the uterus and the rectum. The finger could be passed down through this, and be made to communicate with a finger of the other hand inserted into the rectum. No attempt was made to free the uterine appendages, as the operation was performed principally for the purpose of effecting a through and through drainage. The cavity having been thoroughly disinfected, was packed with iodoform and sterilized gauze, and the external wound was partially closed. From this time on the patient continued to improve slowly. The sinus that remained after the stitches were removed occasionally discharged fecal matter. It was systematically washed out from the beginning, so that fluid flowed freely through the dilated sphincter at each washing. Her emaciation was extreme, and the temperature frequently rose, although the tendency was towards the normal line.

She left the hospital March 9th, with directions as to the washing of the sinus. She reported July 2, 1895, that her general health was good. There still exists a sinus the size of the lead of a pencil. There is a slight, white discharge from the rectum.

This case is reported as a good example of what may be accomplished after a long and tedious struggle with unfavorable conditions.

Double Purulent Salpingitis and Oöphoritis, Salpingo-Oöphorectomy, Recovery.—Entered, December 21, 1894. Age twenty-four, married for four years. One child and two miscarriages (at four months and seven months). Menstruation normal. Has leucorrhœa, and pain in left iliac fossa. No specific history. Thirteen weeks ago there passed from the vagina a whitish mass appearing like an egg with no shell. She appeared in good condition and well nourished. There is considerably muco-purulent discharge; to the left of and behind the uterus can be felt a mass moving with the uterus. She was put on hot antiseptic douches; but the mass increased in size, pushing

down the uterus. There was no fever and no leucocytosis; but on account of the non-improvement in local symptoms, an operation was advised.

January 4, 1895, a four-inch median incision opened the abdomen. A cyst of the left tube was tapped, and seven ounces of pus evacuated. After tearing adhesions the tube was removed close to the uterus, and the stump cauterized. The right tube was treated in the same manner, and the abdominal wound partially closed with three iodoform gauze wicks deep into pelvis. Three days later the wicks were withdrawn, and on the next day the bowels were moved. The wound closed for the most part by first intention. There was some sloughing of the fat at the site of the wicks. This was dressed with myrrh wash, and gradually closed in.

The patient made an excellent convalescence, and was discharged well.

July 3, 1895. "Never felt better than at present." No pain, no tenderness, no hernia.

Chronic Purulent Salpingitis, Salpingotomy, Recovery.—Entered December 1, 1894. Twenty-four years old. She has been married eight years; and although she has never tried to prevent conception, she has never been pregnant. Catamenia not profuse nor very bloody. For four weeks has had a constantly increasing pain in the lower abdomen without distention. Last catamenia six weeks ago. Bowels constipated. Appetite poor. Temperature 101.8°, pulse 120, respiration 32. She was a poorly nourished woman, with prominent eyes and a dry, coated tongue. General tenderness in lower abdomen, with distention and tympanitic dulness over pubes. Behind a long, soft cervix uteri could be felt a soft boggy mass, tender and seemingly fluctuating.

She was fed up as well as frequent vomiting would allow, and was operated upon on December 3d. On entering the abdominal cavity a large cyst, the size of grape-fruit, was encountered. This was punctured and ten ounces of pus sucked out, the peritoneal cavity being walled off with gauze. The cyst was found to be of the left tube, which was dilated, full of pus and tied down by adhesions. These were tied and severed, and the tube was ligatured and removed close to the uterus. Iodoform gauze wick and some gauze packing were left in the wound, which was partially closed by three sutures.

The patient made an excellent recovery from ether and from the operation. The bowels were moved by enema on the second day, and on the third day adhesions had isolated the wound, which granulated well, being stimulated occasionally.

January 15, 1895. An abdominal supporter was fitted, and she was discharged, much relieved.

July 13, 1895. "Feeling first-rate" at present. After leaving had a cold, and with cough scar bulged, but now solid. No pain.

Double Pyosalpinx, Laparotomy, Death.—Thirty years old and married. Only one child. Entered October 22, 1894. Catamenia always regular and normal. Five weeks ago, pain in region of both ovaries—paroxysmal and requiring morphia. Has had chills and vomiting. Appetite poor. Bowels regular. At the time of entrance the appearance of the patient was very unfavorable. She was anemic and pasty-looking. A systolic murmur at apex not transmitted. Her pulse was feeble and rapid. After entrance had chills, fainting, vomiting, anorexia. Given digitalis.

It was evident that she had delayed surgical interference until her chances of success had been greatly diminished. An attempt was made to build up her strength by rest and good nursing; but her condition not improving, it was decided to make an attempt to remove the tubes.

On October 31st a median incision was made. Large, firm masses were found in both iliac regions. Intestines were adherent on left side. Adhesions separated, and distended tubes lifted out of abdomen, both bursting and liberating much pus. On account of the poor condition of the patient the operation was hurriedly completed by swabbing out the pelvic cavity, packing with iodoform gauze and suturing the upper portion of the wound. She was stimulated with strychnine (one-twentieth of a grain subcutaneously), and given an enema of brandy and salt solution. The foot of the bed was elevated, and stimulants freely administered. Towards evening her pulse became poor, but was strengthened by stimulation. A weak, rapid pulse and extreme restlessness with pallor pointing to hemorrhage, the wound was opened in the morning, but nothing found. Delirium alternating with drowsiness ensued, with vomiting and weaker pulse. No distention, no tenderness.

At 11 A. M. November 1st, she died. At the autopsy no evidence of peritonitis was found.

(To be continued.)

A BRIEF RÉSUMÉ OF THE INDICATIONS FOR HYSTERECTOMY.¹

BY ALBERT H. TUTTLE, S.B., M.D., CAMBRIDGE, MASS.

IN selecting so broad a subject for this paper I have assumed merely to scan the topic, touching on the most salient features, or those which have proved of the greatest personal interest, and to present in a general way the status of this element of the operation as it appears to date.

In the early days of hysterectomy the mortality from the operation was so great—50 to 75 per cent.—that there were but few indications sufficiently potent to induce either the physician to recommend or the patient to suffer the procedure; and these were mostly malignant diseases, carcinoma of the cervix or body of the uterus or malignant adenoma and sarcoma. With the development of the operation, better technique, and more perfect knowledge of asepsis, there has been an improvement in the results greater than one could hardly have hoped for, and as a consequence there has been a wider extension of the usefulness of the operation. The pathological conditions just mentioned form, perhaps, the most important class of cases where the operation is indicated, and where the whole womb should be removed; but to the list we must now add all forms of fibroid tumors that give rise to constitutional changes, such as weakness, loss of tone, anemia, etc., as well as those cases where the local symptoms, pain, hemorrhage and weakening discharges are excessive and do not give way to medical treatment. The prognosis of fibroid tumors, once considered of a benign character, has materially changed; experience has taught us that they are clinically malignant at times, that is, they cause changes in the system, locally or generally, that lead to a fatal

¹ Read before the North Essex District Medical Society, October 9, 1895.

termination. The most prominent of these changes is disease of the kidneys with a symptomatology similar to interstitial nephritis.

Another example of clinical malignancy is found in the sequelæ: inflammation, ulceration into neighboring organs, fistulas, exhausting discharges, death.

Beside these results, one should also consider the occasional degeneration of fibroid tumors into true malignant growths; this is similar to those forms of sarcoma which remain circumscribed for a long period and then shoot out, diffusely infiltrating through the tissues. I need also mention that sometimes the blood-supply of a fibroid is cut off, and gangrenous changes, followed by septicemia, terminate in death. Pregnancy in the presence of fibroid tumors forms another complication which is often of a most serious nature. A wide experience of certain careful observers has led them to state that with the existence of a fibroid uterus failure in health will sooner or latter occur, and restoration can only be expected after the removal of the tumor. Among the earliest men to advocate removal of the uterus for fibroids was Dr. Irish, of Lowell; among the latest is Jacobs, of Brussels. The latter says that the presence of a fibroid tumor is always an indication for removal of the uterus.

The removal of the uterus *per vaginam* for the treatment of pus-tubes was first performed by Krug in 1890. Thoroughly realizing the more complete recovery of those cases where the uterus was removed for carcinoma than where the Hegar-Batley operation was performed for suppurating disease of the tubes, Krug resolved to do vaginal hysterectomy for an enlarged retroverted uterus with bilateral disease of the adnexa. The immediate and remote result was perfect. However, owing to severe criticism he did not repeat the operation for two years, but continued to compare the results of hysterectomy for fibroids complicated with tubal disease and the simpler operation of removal of tubes and ovaries. The contrast between the results was so great, the conclusion was reached that it was due to the retained diseased uteri.

F. Henrotin presented a paper before the Chicago Gynecological Society at the May meeting, 1892, in which he advocated hysterectomy for pelvic suppuration, and claimed by this means, not only to get rid of a uterus as much diseased as the tubes, but also to establish better drainage and lower the mortality. His propositions were entirely endorsed by Clarke, Lyons, Watkins, Byford, Dudley and Newman of that city, the latter emphasizing especially the better drainage of the pelvis obtained in this manner. Robinson partly endorsed this paper, that part that applied to removal of the uterus and tubes where the tubal infection came from the uterus.

In his paper, read at the Pan-American Congress, September 18, 1893, Baldy, of Philadelphia, placed pelvic suppuration among his indications for hysterectomy. He said it was the operation of choice in all cases where the uterine walls were infiltrated with pus and the uterus materially enlarged.

In 1894 Penrose read a paper in which suppurating disease of the tubes was stated as the pathological condition that induced him to remove the uterus.

Both complete vaginal hysterectomy and incomplete supra-vaginal amputation of the uterus are performed for the relief of pelvic suppuration, according to the individual notion of the operator.

Prolapse of the Uterus.—The accidental removal of the prolapsed uterus *per vaginam*, owing to mistaken diagnosis for tumor, probably first led to the suggestion of vaginal hysterectomy. In 1893 Baldy said, "All cases in which the usual surgical means have been tried and failed should be subjected to hysterectomy as a sure means of cure." He reported six cases operated upon in this manner, all of which were complete successes. Those cases where the enlarged uterus has a depth of five or six inches, with profuse discharges and hemorrhages, were especially applicable to hysterectomy. He further stated that the operation should always be followed by plastic operations of the anterior and posterior vaginal wall for repair of the relaxed vagina. About the same time Irish reported to the Boston Gynecological Society a case of prolapse which he had treated by hysterectomy, the patient making a good recovery. In November of the same year McCosh, of New York, published an article on the results of vaginal hysterectomy, in which he gave the histories of six cases where the uteri were removed for the relief of prolapse. Three of these cases were reinforced by perineorrhaphy or colporrhaphy. One case only proved satisfactory; two others were partially successful—one, however, died from renal and cardiac disease in a few months, so the final result could not be determined definitely. The other three cases were complete failures, a mass as large as the original protruding from the vulva in each case at the end of one year after the operation. The results of McCosh's report make prolapse of the uterus a problematical indication for hysterectomy.

Puerperal Septicemia.—In September, 1893, Montgomery, of Philadelphia, said he believed that there were many patients suffering from puerperal sepsis in whom the removal of the uterus was clearly indicated. To the present time twenty cases of hysterectomy for this condition have been reported, with a result of fourteen deaths and six recoveries. These cases represent full-term pregnancies and abortions, and show a considerable variety of pathological changes that include pus-tubes, abscesses of the uterine walls, ovaries and broad ligaments, suppurating metritis and endometritis, gangrenous condition of the uterine wall and diptheritic endometritis. The work has been performed by men of no small calibre, as will be seen by the following list: Hirst of Philadelphia, six cases, two recoveries; Boldt of New York, five cases, all died; Baldy of Philadelphia, two cases, both died; Kelly of Baltimore, Laphorn Smith of Montreal, Pryor of New York, and E. B. Davis of Philadelphia, each one case, all of which recovered; Peterson of Grand Rapids, Montgomery of Philadelphia and Ashton of Philadelphia, each one case, all of which died. The excessive mortality of hysterectomy in the treatment of puerperal sepsis has many adequate causes: the super-imposition of a severe operation upon a constitution already much weakened by a trying labor; the great variety of infections and the difficulty of distinguishing them clinically in time for safe operation; the mixed type of pathological lesions, the exact nature of which cannot be exactly determined until the abdomen is opened; our present incomplete knowledge of the clinical indications and contra-indications for operation: pulse-rate, temperature, tenderness of abdomen, tympany, etc.; and finally should be mentioned the natural virulency of the disease, a fatal toxemia at the time of operation, extension of processes

beyond the reach of extirpation, and the dangers of secondary infection. With these facts staring us in the face we have to consider that many cases of puerperal sepsis have recovered without surgical interference in regard to which it is only fair to state that the extent and nature of the pathological changes were not exactly determined, and are supposed to have been of a mild type and that these recoveries weaken to a certain extent the already poor statistics from operation. However, a close examination into the report of the twenty cases operated on reveals that the pathological lesions from which some of the cases recovered were of such a character that death would have inevitably followed if it were not for the surgical intervention. Such being the case, I can unhesitatingly say that there are conditions found at times in the course of puerperal sepsis that are good and true indications for hysterectomy; the extension of the operation, however, must be extremely limited until our knowledge of the intimate relations between the types of infection, their clinical manifestations, and pathological lesions is better formulated and good enough to enable one to make a sufficient diagnosis.

Tumor of the Ovaries.—Owing to the close connection between the ovary and uterus, I performed a total hysterectomy for the relief of bilateral fibro-cystic disease of the ovary, September, 1894, on a patient whose family history showed the decease of a sister about one year before from sarcoma-cystica-ovariorum. The case made a good recovery, and has remained well since. In selecting this operation I considered the natural tendency of these tumors toward malignancy, the death of the sister, the usual fatal termination after the removal of malignant tumors of the ovary from extension or recurrence of the disease and the possibility of reducing the danger of recurrence by removal of the uterus. Dr. Augustus P. Clarke has placed papilloma and fibroma of the ovary among his indications for hysterectomy. Recently Dr. Irish removed a uterus, owing to the severe and annoying symptoms that continued after both ovaries were removed for cystic disease. Improvement was immediate and marked, leading him to reflect upon his work in hysterectomy and ovariectomy and compare results; his conclusion that patients made a more complete and satisfactory recovery after hysterectomy than ovariectomy was communicated to the Gynecological Society of Boston at the September meeting. This, I think, is the experience of most of us.

Inversion of the Uterus.—Baldy has reported one case where, after repeated unsuccessful attempts to replace the organ, it was removed.

Ruptured Tubal Pregnancy.—Penrose removed the uterus in one case for this trouble, and claims that where the uterus forms part of the wall surrounding the accumulation, hysterectomy facilitates the operation and perfects hemostasis. Clarke also speaks of the more perfect control of hemorrhage during the operation for ectopic pregnancy, in certain cases, by removal of the uterus.

Cesarean Hysterectomy.—This subject is so well understood that I need only mention it among the indications of hysterectomy.

Clinical Department.

FOUR MONTHS' HOSPITAL WORK IN ABDOMINAL SURGERY.

BY F. W. JOHNSON, M.D.

Surgeon, Gynecological Department, St. Elizabeth's Hospital;
Surgeon, Gynecological Department, Carney Hospital, etc.

(Concluded from No. 22, page 545.)

CARNEY HOSPITAL.

CASE I. N. H. A., aged forty-six years, single.

Present Complaint: Almost constant pain in the left ovarian region. Frequent and scalding micturition for four months. Loss of strength.

Menstruation began early; flow moderate, lasting six to eight days; regular up to three months ago; since then has menstruated every three weeks. Dysmenorrhea the last two periods.

Present Illness: Never rugged. Phthisical family history. Four months ago was taken sick with severe pain in the left loin and cystitis. Was in bed five weeks. Since then has been in very poor health.

Diagnosis without Ether: Pus tube discharging into bladder. Cystitis.

Operation, March 23d. Right tube and ovary looking normal, were not removed. The left ovary was the seat of a cystoma the size of a mandarin orange. The cyst was of a dark greenish color and the pedicle had twisted three times on itself pretty effectually cutting off the blood-supply. There had been free hemorrhage into the cystoma, the anterior surface of which was adherent to the bladder. The cystoma was dissected out of the bladder wall catgut being used to close the opening. Omentum and intestines were adherent to the posterior surface of the tumor. Silk was used for the pedicle, and the stump was cauterized. The uterus was small and contained a small fibroid at the back of the fundus.

Discharged May 18th. Had a long, tedious convalescence, due to painful micturition and pain referred to the bladder. Has slowly improved since getting home.

CASE II. G. R. S., aged thirty-three years, married.

Present Complaint: Feeling of pressure on the rectum and painful defecation. Pain in the right ovarian region. Frequent micturition.

Marital History: One child. No miscarriages.

Menstruation began at fourteen years; flow quite free, lasting seven to ten days, regular, little pain.

Present Illness: Pressure at the top of the head, with dizziness for some months. Always nervous and irritable. Chills and fever when fifteen.

Diagnosis: Retroflexion. Salpingitis.

Operation, March 23d. A constriction was found completely closing both Fallopian tubes, one and one-half inches from either horn of the uterus and at a point one inch distant from either fimbriated extremity. Right ovary was enlarged, cystic, and the seat of a large hematoma. Left ovary was cystic. Both tubes and ovaries were removed.

Discharged May 18th. Well.

CASE III. M. F. D., aged thirty-two years, married.

Present Complaint: For five years has had pain in the lower part of the abdomen and back. Frequent and painful micturition. Unable to work.

Marital History: No children. No miscarriages.

THE QUALITIES OF THE IDEAL PRACTITIONER.—
"Bold when sure. Cautious in danger. Kind to the sick. Friendly with fellow-workers. Constant in duty. Not greedy of gain."—*Guy de Chauliac.*

Unsuccessfully operated on two years ago for imperforate vagina.

Menstruation began at twelve years, lasting three days; flow very scanty, regular; severe pain.

Diagnosis: Fibroid or dermoid, probably dermoid.

Operation, May 11th. Both tubes and ovaries were fastened by adhesions to the posterior surface of the uterus. Both tubes were the seat of hydrosalpinx. On the right side the hydrosalpinx was the size of a hen's egg. Both ovaries were cystic. Tubes and ovaries removed. The appendix, thickened at its end, was adherent to the right tube. Appendix removed close to the intestine. Its stump was cauterized and covered with peritoneum. Springing from the upper and posterior surface of the uterus was a fibroid, partly interstitial, partly subserous, the size of a base-ball. Splitting the capsule, it was enucleated, the cavity in the uterus being closed by a continuous suture of silk.

Discharged May 30th. Well.

CASE IV. W. E. E., aged thirty-five years, married.

Present Complaint: Backache for fifteen years. Pain, almost constantly, in the right ovarian region.

Marital History: No children. One abortion at five months, two years ago. Abortion was followed by chills and profuse flowing.

Menstruation: Has been flowing some every day for five months.

Cystitis when sixteen. Peritonitis one year ago. Gonorrhea five months ago.

Diagnosis: Chronic salpingitis and ovariitis, with adhesions.

Operation, May 21st. Uterus, tubes and ovaries were matted together by adhesions. On the right side the ovary was the size of a base-ball, with gelatinous contents. On the left there was an enlarged and thickened tube and cystic ovary. Both tubes were removed with the ovaries.

Discharged June 11th. Well.

ST. ELIZABETH'S HOSPITAL.

CASE I. M. B., aged twenty-seven years, married.

Present Complaint: Painful micturition. Backache. Pain in the left ovarian region.

Marital History: One child. No miscarriages.

Menstruation began at twelve years; flow profuse, lasting six days; irregular, going five to eight weeks; severe pain the first day.

Diagnosis: Retroflexion. Left ovary much enlarged, and prolapsed down behind the uterus.

Operation, March 5th. Left ovary full of retention cysts. Left tube and ovary removed. Ventral fixation done.

Discharged, April 17th. Well.

CASE II. A. T., aged twenty-three years, married.

Present Complaint: Constant pain in the right ovarian region, backache, and bearing down.

Marital History: One child. No miscarriages.

Menstruation began at sixteen years; flow moderate, lasting a few days, regular, not painful.

Diagnosis: Tumor of left broad ligament.

Operation, March 13th. Tumor on the left side removed. Both ovaries were cystic, and with the tubes were removed.

Discharged March 30th. Well.

CASE III. L. R., aged eighteen years, single.

Present Complaint: Pain with distention throughout the abdomen. Chills and night-sweats.

General Condition: A rather emaciated young girl, skin muddy and rough, mucous membrane pale, bright-red spots on cheeks. Knees drawn up. Anorexia. Temperature 101° to 104° at night. Pulse 120 to 140. She had been in bed with peritonitis more or less severe since December, 1894. The cause of the trouble was said to have been a criminal abortion.

Diagnosis: General peritonitis.

Operation, March 24th. An operation offered her a small chance of recovery. The temperature and pulse just before the operation were respectively 103° and 140. A thin-walled abscess containing a small quantity of thin, brown, sour-smelling pus was found on the right side just at the brim of the pelvis. Tubes and ovaries were healthy except that they were covered with adhesions. The abscess cavity was thoroughly washed out with a normal salt solution and packed with iodoform gauze. Abdominal incision not closed at all.

Discharged March 25th. Dead. She scarcely rallied from the operation.

CASE IV. A. K., aged seventeen years, single.

Present Complaint: Constant severe pain in the left ovarian region. Severe dysmenorrhea requiring morphine for its relief. Unable to work.

Menstruation began at thirteen years; flow moderate, lasting seven days, regular, painful.

Diagnosis: Prolapsed and adherent tubes and ovaries.

Operation, March 26th. Left ovary prolapsed, enlarged, cystic, and adherent. Right ovary cystic. Both tubes and ovaries were removed.

Discharged April 18th. Well.

CASE V. A. F., aged thirty-two years, married.

Present Complaint: Backache and bearing down. Menstrual headaches. Dysmenorrhea.

Marital History: No children. One miscarriage at seven months, two years ago.

Menstruation began at fourteen years; flow profuse, lasting seven days, regular. Severe pain in the left ovarian region.

Diagnosis: Retroversion with strong adhesions. Chronic endometritis.

Operation, March 27th. Tubes and ovaries healthy. Uterus freed from adhesions and a ventral fixation done. Uterus curetted.

Discharged April 24th. Well. Uterus in position.

August 1, 1895. No dysmenorrhea, backache, bearing down or headaches. Uterus in position.

CASE VI. A. C., aged thirty-four years, married.

Present Complaint: Pain in the left ovarian region for seven years. Backache.

Marital History: Two children. Two miscarriages.

Menstruation began at twelve years; flow moderate, lasting two days, irregular, quite painful.

Had peritonitis five years ago.

Diagnosis: Small cystoma of the left ovary.

Operation, April 23d. A cystoma of the left ovary as large as an orange was removed. The right ovary was enlarged and cystic. It, with the tube was removed. Catgut was used throughout this operation, even in closing the incision in the abdominal walls.

Discharged May 17th. Well.

CASE VII. E. F., aged forty-two years, widow.

Present Complaint: Standing, coughing and sneezing cause pain in the median line in the lower

part of the abdomen, where there is a hernia the size of the fist.

Marital History: No children. No miscarriages.

Menstrual History: May, 1894, a hysterectomy was done for a fibroid the size of a cocoanut, and since then she has not menstruated.

Diagnosis: Ventral hernia.

Operation, April 27th. All adhesions to the parietal peritoneum were freed, and adherent and thickened omentum ligated and cut off. Three rows of interrupted silkworm-gut sutures were used. One for the peritoneum, one for the recti muscles and one for the skin and tissues down to the recti muscles. Those through the peritoneum and recti were buried.

Discharged May 16th. Well. Union by first intention.

When operated on in May, 1894, suppuration occurred in the abdominal walls, resulting in an abscess that burrowed down to the peritoneum. I told her that she of all others ought to wear the belt constantly for one year, but she threw it aside in a few weeks.

CASE VIII. N. B., aged twenty-six years, married.

Present Complaint: Tumor in the lower part of the abdomen on the right side. Dysmenorrhea.

Marital History: One child.

Diagnosis: Large, multilocular cysto-adenoma of the right ovary.

Operation, May 4th. The incision was made large enough to deliver the cyst without rupture. A large hydrosalpinx was found on the left side. Left tube and ovary removed.

Discharged May 25th. Well.

CASE IX. M. D., aged twenty-six years, married.

Present Complaint: Backache and pain throughout the lower part of the abdomen for eight years.

Marital History: Two children. No miscarriages.

Menstruation began at thirteen years; flow moderate, lasting one week, irregular, painful. Had gonorrhea eight years ago.

Diagnosis: Small cystoma on the left side. Chronic salpingitis.

Operation, May 4th. From the left side a cystoma, the size of an egg, was removed. Both tubes were filled with pus, and were removed with the right ovary.

Discharged May 24th. Well.

CASE X. A. C., aged twenty-three years, married.

Present Complaint: Since November 18, 1894, has flowed some every day. Severe pain in both ovarian regions.

Diagnosis: Chronic peritonitis.

Operation, May 10th. Omentum, uterus, both tubes and ovaries were matted together by adhesions. Both tubes enlarged and thickened. Tubes and ovaries removed.

Discharged June 3d. Well.

CASE XI. F. F. P., aged twenty years, single.

Present Complaint: Enlargement of the abdomen for the past three months. For three years off and on severe pain in the lower part of the abdomen with sagging and dragging down. Backache. Unable to work.

Menstruation began at sixteen years; flow slight, lasting seven to ten days, irregular, very painful.

Diagnosis: Large tumor, filling the lower abdomen. Owing to the severe pain it was thought to be a fibroid.

Operation, May 18th. On opening the abdomen a tumor ten inches in length, the shape of a Rugby football, containing hair, teeth and bone was found growing from the left side with a small, short pedicle. The right ovary was much enlarged and was removed.

Discharged June 9th. Well.

CASE XII. M. M., aged twenty-five years, single.

Present Complaint: Backache with sagging and dragging down. Unable to work.

Diagnosis: Cystic tumor of the right ovary the size of a cocoanut.

Operation, May 18th. Multilocular cysto-adenoma on the right side. The left ovary was cystic and the size of a lemon. It was removed.

Discharged June 7th. Well.

CASE XIII. C. H., aged twenty-nine years, married.

Present Complaint: Dysmenorrhea and constant pain in the lower part of the abdomen.

Marital History: No children. No miscarriages.

Menstruation began at thirteen years. Was regular up to sixteen years of age, but since then menstruation has occurred not oftener than three or four times a year, and during the past two or three years has been unwell once in eight or ten months.

Diagnosis: Chronic salpingitis.

Operation, May 25th. Double hydrosalpinx found. Both tubes and ovaries removed.

Discharged June 13th. Well.

CASE XIV. M. E. T., aged twenty-three years, single.

Present Complaint: Headache, backache, and pain in the left inguinal region for four years.

Menstruation began at fourteen years; flow moderate, lasting five to seven days, regular, painful throughout.

Diagnosis: Fibroid in the posterior uterine wall.

Operation, June 1st. Fibroid, the size of a hen's egg, enucleated from the posterior wall of the uterus. Opening in uterine walls closed by over and over suture of silk.

Ready for discharge June 26th. Waiting for abdominal belt.

HYSTERECTOMIES (WOMAN'S CHARITY CLUB HOSPITAL).

CASE I. Fibroid. A. E., aged thirty seven years, colored.

Present Complaint: Severe pain throughout the lower abdomen incapacitating her for work. Weakness from loss of blood and night-sweats. Loss of flesh and strength.

Menstruation began at fourteen years; flow very profuse, accompanied by fainting spells, lasting four days, regular, no pain.

Diagnosis: A mass, solid, firmly bound in the pelvis, very sensitive, the size of a cocoanut, was found. This extended above the pelvis nearly half-way to the umbilicus. The temperature varied between 101° and 104°, and the pulse between 115 and 130 beats. There had been chills. Pyosalpinx or pus somewhere in the pelvis was expected, but nothing was found to account for the temperature, pulse and chills.

Operation, February 19th. With great difficulty the fibroid was shelled out of the pelvis, owing to adhesions which buried it posteriorly so completely that the fingers could not be got down between it and

the pelvis. Complete hysterectomy. Vagina packed with iodoform gauze. Vagina closed with silk. Peritoneum closed over vagina with silk. No drainage. It was the most difficult hysterectomy I have done. The mass was made up of three large fibroids, partly subserous and partly interstitial. The interior of the uterus contained over two dozen nodules, varying in size from a pea up to a pullet's egg. Some were pedunculated, while others were more or less buried in the uterine walls.

Discharged April 26th. Convalescence was long and tedious.

CASE II. Carcinoma. L. P., white, aged thirty-six years, married.

Present Complaint: Weakness from loss of blood.

Marital History: Three children. No miscarriages.

Menstruation began at thirteen years, flow has increased since last September, at times severe hemorrhage at menstrual periods; regular, no pain, lasting five days.

Thirteen years ago had a carcinoma removed from her shoulder. There is now a constant pinkish colored vaginal discharge.

Diagnosis: Carcinoma of the cervix, not yet involving the vagina.

Operation, March 28th. Extensive adhesions between uterus, tubes and omentum, but no evidence that the disease had got outside the uterus. Complete hysterectomy. Vagina packed with iodoform gauze. Vagina not closed. Peritoneum closed over vagina. Silk used throughout the operation. No drainage.

Discharged April 25th. Well, to all appearances. Examination showed that the disease involved only the cervix.

August 1st. No flowing, pain, or vaginal discharge since getting home. She wrote that she was feeling better than for years.

CASE III. Intra-ligamentous fibroid. C. B. A., white, aged thirty-five years, married.

Present Complaint: Pain in the left ovarian region and in thighs and legs for two years. Constant, severe backache and frequent headaches.

Marital History: One child. Four miscarriages.

Menstruation began at fourteen years; flow moderate, lasting four or five days, regular; pain during the first two days.

Diagnosis: Fibroid growing from the right side of the uterus.

Operation, May 21st. On opening the abdomen the fibroid was found to be between the layers of the right broad ligament. Clamping and cutting the broad ligament on the left side in order to get more room, the broad ligament on the right side was slit through with a knife and the tumor enucleated. After it was shelled out, it was found to be attached to the uterus, half-way between cervix and fundus, by a pedicle no broader than two fingers. The cavity in the broad ligament was filled in by bringing the tissues together with buried silk sutures and the whole was covered over with peritoneum. The uterus was amputated at the internal os. Silk used throughout the operation. No drainage.

Discharged June 20th. Well.

CASE IV. Carcinoma. J. H. C., white, aged forty-four years, married.

Present Complaint: Backache for eighteen years. Constant flowing for the past two months. Been poorly for two years.

Marital History: Three children, last born eighteen years ago. No miscarriages.

Menstruation began at sixteen years; flow profuse, lasting about a week; irregular for past two years, no pain. During past three months several uterine hemorrhages.

Diagnosis: Carcinoma, extending posteriorly onto the vagina.

Operation, May 23d. As much vagina as was possible was dissected up, the opening into the peritoneal cavity behind being just above the rectum. The flaps of vagina were then folded over the cervix that had been curetted and cauterized and fastened securely by silk. The abdomen was then opened and a complete hysterectomy done. Vagina packed with iodoform gauze. Vagina closed with catgut. Peritoneum closed over the vagina with silk. Silk used elsewhere in the peritoneal cavity. No drainage.

Discharged June 16th. Weak, but feeling well. No pain and no vaginal discharge.

August 1, 1895. Examination showed no return of the disease.

CASE V. Pregnancy complicated with carcinoma. E. S., white, aged twenty-eight years, married.

Present Complaint: Loss of strength from flowing. Daily loss of blood since February, 1895. When there was no bleeding there was a profuse watery discharge.

Marital History: Five children. No miscarriages.

Menstruation began at thirteen years; flow moderate, lasting four or five days, regular until January last, not painful. More or less pain in the lower part of abdomen since February. Had never missed a menstrual period. Had no feeling as if she was pregnant.

Diagnosis: The vagina was velvety to the touch and of a violet color. The uterus reached to a point midway between the symphysis and the umbilicus. No fetal heart sounds heard. The posterior lip of cervix was the seat of quite extensive carcinomatous disease.

Operation, May 31st. Complete hysterectomy. Vagina packed from above with iodoform gauze. Vagina closed with silk. Peritoneum closed over vagina with silk. No drainage. Owing to the slipping of a clamp, about two ounces of blood were lost. From the beginning of the operation until the patient was ready for bed the time consumed was seventy-five minutes. The cervix was curetted and cauterized before opening the abdomen.

Discharged June 20th. Well.

August 1, 1895. Examination showed no return of the disease.

Dr. W. F. Whitney's Report. The specimen from the case of Mrs. E. S. consisted of the upper part of the uterus, in which was a fetus intact of about the fifth month. Section through the lower part showed a slight infiltration of what appeared to be glandular masses in places with solid masses of cells. In the part received the amount of disease is very slight, but there seems to be little doubt that it is of the nature of an adeno-carcinoma.

HYSTERECTOMIES (ST. ELIZABETH'S HOSPITAL).

CASE I. E. F., aged thirty-two years, single, white. Present Complaint: Constant flowing for two weeks. Dragging and sagging down with backache.

Menstruation began at fourteen years; flow quite free, lasting four or five days, regular, no pain.

Diagnosis: Cystoma of the right ovary.

Operation, March 30th. On opening the abdomen a large fibroid was found. Cervix, after removal of fibroid at the internal os, was sewed over and over with silk. This stump was covered over with peritoneum held in place by fine silk. No drainage. Uterine cavity almost wholly obliterated by the fibroid.

Discharged April 20th. Well.

Convalescence was uninterrupted.

August 1, 1895. Still remains well.

The fibroid was as large as a fetal head. The ovaries were large and flattened. Each measured three inches long by one and three-quarters inches wide.

CASE II. J. W. W., aged forty years, married, white.

Present Complaint: Constant pain for six weeks in the abdomen below the umbilicus. Constant feeling of pressure in abdomen. Indigestion, constipation, sleeplessness.

Marital History: Married six years. One child three years ago. One abortion five years ago.

Menstruation began at fifteen years; flow slight, lasting two days, always irregular, no pain.

Present Illness: Nervous, thin and worried. Four years ago discovered the tumor.

Operation, April 1st. The fibroid was as large as the uterus at seven months. The uterus was cut off at the internal os and the cervix sewed over and over and covered with peritoneum as in Case No. I. No drainage.

Discharged April 28th. Well.

August 1, 1895. Strong and well. Doing her housework.

CASE III. A. S., aged forty-four years, married, white.

Present Complaint: For the past four years has had frequent flowing spells caused by excitement or fright, or jolting on riding in the street-cars. Much reduced in health and strength.

Marital History: Two children. Two miscarriages.

Menstruation began at thirteen years; flow profuse, lasting seven days, regular. Severe dysmenorrhea.

Present Illness: Jaundiced from head to foot. The eyes were a bright yellow, and the skin covering the face and body was of a dirty, yellowish-white color. This suggested carcinoma; but Dr. John L. Morse, after a careful examination of the blood, excluded cancer and attributed the color of the skin to anemia from loss of blood.

Diagnosis: Fibroid, the size of a football.

Operation, April 10th. The uterus was cut off at the internal os, and the cervix sewed over and over and covered with peritoneum, as in Case No. I. No drainage. Convalescence was uninterrupted.

Discharged May 9th. Well.

CASE IV. S. S., aged forty-two years, widow, white.

Present Complaint: Backache, with flowing off and on for three years. Unable to work.

Present Illness: Has been losing strength for some months. During what she supposed was her last menstrual period she lost so much blood that her life was despaired of.

Diagnosis: Fibroid of the uterus, the size of a cocoanut.

Operation, May 14th. The uterus was cut off at the internal os, and the cervix sewed over and over and

covered with peritoneum, as in Case No. I. No drainage. In this case nothing but catgut was used within the peritoneal cavity.

Convalescence: For twenty-four hours her condition was perfectly satisfactory. Suddenly her pulse shot up to 120 and 130; and in spite of all we could do she died on the third day.

Autopsy: No distention of the abdomen. Very little fluid within the abdominal cavity. No blood. Stumps looked healthy. No flakes of lymph. No evidences of peritonitis.

Discharged May 17th. Dead.

RAPID INCREASE OF OPACITY IN SENILE CATARACTS.

BY F. W. ELLIS, M.D., MONSON, MASS.

SENILE cataracts, as a rule, develop very slowly. The opacity may increase almost imperceptibly from month to month, but it is never safe to predict what the course of the disease will be. Many of the standard text-books of ophthalmology mention the impossibility of an accurate forecast of events in the development of a cataract, and state that a cataractous lens, which has remained comparatively clear for a long time, may become completely opaque in a few months, or even weeks. The possibility of such an occurrence should always be borne in mind in making a prognosis.

It may not be so generally known that the time requisite for rendering an incomplete cataract entirely opaque may be extremely short—much less, in fact, than the few weeks frequently stated as the extreme limit. I do not remember ever having seen any statement in ophthalmological literature to this effect, but my own limited experience has demonstrated that it is possible for a cataractous lens still permitting a very considerable amount of vision to become entirely opaque, without any obvious cause, in a very few days. It does not seem likely that the masters of our profession have not noted similar occurrences in their vast experience, but it is singular that treatises on eye diseases are universally silent upon this point. It may be profitable to mention a few cases that have presented themselves to me in my practice, which have more or less interest in this connection.

In October, 1890, I was consulted by a gentleman sixty-six years of age. I found that the vision of his right eye was $\frac{1}{2}$, and that of his left $\frac{20}{20}$. The right eye contained a well-advanced cataract, and the lens of the other showed traces of the same disease. I saw the patient at intervals after that, but made no record of his condition until April, 1894. The patient had been able to get about alone, and could read and write with difficulty. He noticed one day in the latter part of April that his vision was rapidly failing. He came to my office in great alarm. I found with the ophthalmoscope that the opacity had greatly increased, although I could still obtain a slight reflex from the fundus. A day or two later the lens became greatly swollen and entirely opaque, and the patient was led about the streets almost entirely blind. He was deeply sensible of his affliction as he had been able to read a letter only a few days before. No cause for the sudden change in the condition of the left eye could be discovered. As the cataract in the right eye was fully ripe, I removed it a few days later, with ex-

cellent resultant vision. I have not yet operated upon the left eye, as the patient is well satisfied with his present vision. If he consents to the operation, I shall be greatly interested in its result. In this case there was no chance for error, as the patient was wholly dependent upon his left eye for vision, and was consequently able to note almost the moment when the remarkable change in its lens began.

While treating the patient whose record I have just given, I was consulted by a lady, aged sixty-eight, whose lenses showed the commencement of cataract. A few months later, I found a large, swollen cataract in the right eye. The condition of the left eye had not greatly changed. The right lens was completely opaque, and the anterior chamber very shallow. The patient asserted that the change in her eye took place very suddenly, but, as she still possessed considerable vision in her other eye, it is obviously impossible to indicate with the certainty of the preceding case the time when the lens became completely cataractous. There is little doubt that the change was very abrupt. As in the preceding case there was no apparent cause for the occurrence. The condition of the left eye had not greatly changed. I removed the cataract by simple extraction, last May, and a few weeks later her vision was $\frac{2}{L}^0$.

June 1, 1895, I extracted a large, very opaque cataract from the right eye of a woman aged fifty-seven. The result was most excellent, but could not be accurately recorded, as the patient could not read. The left eye had been destroyed by small-pox when the patient was a child. It was stated that the vision had been considerably impaired for a long time, but was suddenly lost about five months previously. Up to that time, the patient had been able to do her work at home, but in a day or two she was unable to move about without assistance, and rapidly became entirely blind. As the patient had but one eye, there could be no mistake as to the time when the great change in the transparency of the lens took place.

Although the two last cases are not so remarkable as the first, they are nevertheless significant. In all the cases there was a large, swollen lens, and a shallow anterior chamber. In each there was a sudden loss of vision in the affected eye. In the two instances in which the cataracts were removed the fundi were found normal.

Although we may not have data enough for profitable speculation as to the causes of these remarkable changes in senile cataracts, it may be allowable to consider the possibility of a rupture of the capsule of the lens at some point, due to the pathological process. Although we have no proof of such an occurrence in these cases, such an accident would serve very well to explain their peculiar features.

I have ventured to call the attention of readers of the JOURNAL to this subject in order that more careful attention may be given to the study of cases of the character I have described.

A JAPANESE SURGEON HONORED BY THE EMPEROR OF CHINA. — The surgeon to the Mikado, who dressed the wound of Li-Hung-Chang after the attack made upon the Chinese plenipotentiary at Simonoseki, has at Li's request had the Order of the Double Dragon, Third Civil Class, conferred upon him by the Emperor of China.

AN UNUSUAL CASE OF AORTIC REGURGITATION.

BY HERMAN F. VICKERY, M.D.,
Instructor in Clinical Medicine, Harvard University.

ON February 18, 1895, I had the honor of exhibiting to the Boston Society for Medical Improvement a patient who had presented himself in my service at the Massachusetts General Hospital, three days before, with a rather remarkable story and interesting physical signs.

The man is forty years old, large and well-built. He was a seaman till twelve years ago, when he took to railroad work and mining, being employed sometimes at one and sometimes at the other. He was working in a mine when he became ill. His habits as to liquor had been very moderate. He once had gonorrhea, but he denies other venereal disease. Five years ago, he was ill with rheumatism in the shoulders, accompanied by some local tenderness and swelling. This kept him in bed one week and interrupted his work for three weeks. Otherwise he enjoyed good health till one week before the onset of his present illness. During that week, he felt drowsy and languid; yet he kept at work. The night before the attack, he went to bed feeling pretty well, and he did not notice anything peculiar about himself. The next morning his companion in the hut waked him up to ask him what the matter was. He answered that nothing was wrong; but his friend insisted that there was a noise to be heard inside of him, as if a blood-vessel had given way. Then he listened, and he also could hear it. On further investigation by him and his friends, it was found that this sound could be heard at a distance of eight feet. Since then, shortness of breath has prevented his doing any work. The dyspnea was greater the first three months than since. The event occurred four months before I saw him.

On examination there were found a water-hammer pulse, a pistol-shot sound in the arteries, a beautiful capillary pulse in the lips and in the nails, and an aortic regurgitant murmur with peculiarities about to be described. The heart was hypertrophied, with its apex in the sixth space and slightly displaced to the left. Over the aortic valve there was a loud diastolic murmur, which could be heard not only there, but two inches from the man without touching him at all, and over his entire body: the thorax and abdomen; the neck, up to the level of the ears; in front of the ears; at the angle of the jaw; the occiput; the upper part of the humeri; the outer part and top of the shoulders; and downwards to the crest of the iliac bones, back and front.

It is interesting to note that while the murmur was audible over the humerus it was not to be detected over the brachial artery. It seemed to be conducted by the bony skeleton and the muscles rather than by the blood-vessels; which conclusion other observers have arrived at in similar cases.

Of course, what had happened to this man was the sudden rupture of an already diseased aortic valve.

GIFTS TO THE MEDICAL DEPARTMENT OF YALE UNIVERSITY. — In the report of the Treasurer of Yale University it is stated that gifts to the Medical Department during the past year amounted to \$2,600, of which \$1,800 was given by Mrs. H. Farnam.

A CASE OF FATAL DIARRHEA (CHOLERA) DUE TO ASCARIDES.

BY N. C. MITRA, M.A., M.B., RANCHI, BENGAL, INDIA.

It is something unusual that ascarides would set up fatal diarrhea. Many nervous complaints have been found associated with the presence of these worms; but I have not had occasion to come across a case as noted below. Considering the rarity of such complaints, I believe it would be of some interest to the reader to peruse notes of such a case.

I may mention, in passing, that this place is notorious for affections of round worms. Children are specially subject to them. And it is after the rains in August and September that the affection is most prevalent.

The patient, a child ten years of age, was sent to the local municipal hospital for treatment of diarrhea. The patient looked very ill. The eyes were sunken, the pulse small and thready, the face shrunken and anxious. On inquiry I learned that she had passed that morning four or five watery motions, and along with her motions, one big round worm. Had it not been for the presence of this worm, I would have treated it as a case of diarrhea. But this single worm pointed to no other conclusion than that this diarrhea was set up by worms. Acting on this diagnosis, I gave her one two-grain powder of *santonine*, and in addition, a stimulant mixture to brace her up. Next morning she passed two worms. The medicine was continued, and she passed the following day nine worms, the day after nine worms, next day 28 worms, then 31, till in eight days she passed 111 worms. The diarrhea was kept under control by suitable astringents; but she gradually got worse, and died a week later.

Considering the number of worms passed, namely, 111, it is no wonder that these set up an irritation which brought on the fatal diarrhea.

Whether the diarrhea was due to quite a distinct cause and that the worms did not contribute to the affection are questions which I leave to the decision of the reader. But I am always of the opinion that this diarrhea of the patient was brought on by the presence of these worms. It would be a wonder if such an enormous number of worms would not set up nervous irritation of the bowels resulting in such an acute diarrhea as detailed above. And the death can properly be attributed to severe nervous exhaustion which ended fatally.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D.

DOUBLE CASTRATION FOR HYPERTROPHY OF THE PROSTATE.

AN especially notable article is that of White, of Philadelphia,¹ of the experience up to date from reliable sources of the results of double castration for hypertrophy of the prostate. This is prefaced by a short discussion as to the causation of the disease, and followed by an experimental study and summary of

the evidence in regard to the effects of (a) unilateral castration, (b) ligation of the vas, (c) ligation of the spermatic and deferential arteries, (d) ligation of the entire cord.

The conclusions reached by White are as follows:

(1) The function of the testis, like that of the ovary, is twofold—reproduction of the species, and the development and preservation of the secondary sexual characteristics of the individual. The need for the exercise of the latter function ceases when full adult life is reached; but it is possible that the activity of the testis and ovary in this respect does not disappear coincidentally, and that hypertrophies in closely-allied organs like the prostate and uterus are the result of this misdirected energy. This hypothesis would increase the analogy between the fibro-myomata of the uterus and the adeno-fibromata of the prostate, which, from a clinical standpoint, is already very striking, and is further strengthened by the almost identical results of castration in the two conditions.

(2) The theoretical objections which have been urged against the operation of double castration have been fully negated by clinical experience, which shows that in a very large proportion of cases (87.2 per cent.) rapid atrophy of the prostatic enlargement follows the operation, and that disappearance or great lessening in degree of long-standing cystitis (52 per cent.), more or less return of vesical contractility (66 per cent.), amelioration of the most troublesome symptoms (83 per cent.), and the return to local conditions not very far removed from normal (46.4 per cent.), may be expected in a considerable number of cases.

(3) The deaths have been 20 in 111 cases (18 per cent.). (White excludes 13 of these deaths as due to the operation, and we think with justice.) This would leave a mortality of 7.1 per cent.

(4) Comparison with other operative procedures seems to justify the statement that castration offers a better prospect of permanent return to nearly normal conditions than does any other method of treatment.

(5) The evidence as to unilateral castration is at present contradictory, but there can be no doubt that in some cases it is followed by unilateral atrophy of the prostate, and in two cases at least it has resulted in a very marked improvement of symptoms.

(6) My experiments on dogs have shown in nearly every case in which the vas deferens was tied or divided on both sides, that without much change in the testicles there were beginning atrophy and considerable loss of weight of the prostate.

(7) Ligation of the vascular constituents of the cord or of the whole cord produces atrophy of the prostate, but in my experiments only after causing disorganization of the testis.

A table of the cases is appended to this very interesting article of White's.

MOVABLE KIDNEY.

Albarran² presents the most important paper published up to this time upon the subject. He notes, in the first place, that the symptoms bear no definite relation to the degree of mobility of the organ. Some patients exhibiting the most serious conditions with a kidney but slightly movable, whilst others experience almost no discomfort with a kidney that is really floating.

¹ *Annals of Surgery*, July, 1895.² *Annals des Maladies des Org. Gen.-urin*, July and August, 1895.

The symptoms may be classified under three principal headings:

I. Pain.

II. Nervous symptoms.

III. Digestive disturbances.

These are frequently associated in the same individual; sometimes simultaneously, at other times in alternation.

Pain.—This varies from a slight feeling of discomfort in the hypochondrium, more marked after muscular exertion, to almost constant pain, which incapacitates the patients or may confine them to bed. Or, again, it may occur in paroxysms of great intensity and variable duration. The pain frequently resembles that of nephritic colic. Reflex disturbances, such as vomiting and considerable prostration, are sometimes associated with these attacks, which have then been called strangulation of the kidney.

The author then refers to the various theories which have been advanced to explain these attacks of pain, such as dragging upon the nerve plexus, constriction of the blood-vessels of the kidney or of the ureter. In support of the latter Albarran speaks of one of his own cases in which he discovered, upon operating, a twist of the ureter due to retroversion of the kidney. It is well established that the attacks of intermittent hydro-nephrosis which occur in movable kidneys are due to a twist of the ureter.

Albarran believes that the greater part of the pain, and especially of the crisis of pain, in these cases are referable either to a twist or to compression of the ureter. He quotes Sinitzine's case, who could produce such attacks in a patient with exstrophy of the bladder by compressing the orifice of one of the ureters. In one of the author's cases, occasion arose to place two catheters *à demeure* in the ureters. Whenever the mouth of either of the catheters was closed the patient experienced pain just as violent as that which occurs in strangulation of the kidney, and the pain immediately disappeared if the closed catheter was removed.

The author explains the great variation in different individuals in respect to the degree of pain by supposing that in the cases in which the pain is but slight, the ureter as well as the kidney is movable, and consequently there is no twist or compression of it, and only the pain due to the dragging of the nerve plexus on the kidney is present. If, on the contrary, when the kidney moves the ureter remains relatively fixed, compression or twist does occur, and there follows the more intense pain due to the acute retention of urine in the kidney.

Nervous Symptoms.—These are extremely variable, ranging from slight disturbances to pronounced neurasthenia or hysteria. They resemble closely those exhibited by women who have affections of the genital organs. It is notably common, moreover, to find some lesion of the uterus or its appendages associated with lesion of the kidney. Some writers maintain that afflictions of the uterus and tubes are due to movable kidney while others consider the converse of this to be true. The author takes the view that it is simply coincidence, both lesions being of common occurrence. The complete picture of hysteria is often associated with movable kidney. Albarran considers movable kidney to be a sign of degeneration, and cites eight or ten cases in his own experience in which the patients were well-marked mental degenerates.

Digestive Disturbances.—These are very frequent, and are referred by the author to mechanical compression of the intestine by the displaced kidney, or to dragging of the duodenum; secondly, to reflex nervous action; thirdly, to enteroptosis associated with movable kidney.

The digestive disturbances are in the form of a tonic dyspepsia with constipation and dilatation of the stomach, or sometimes they occur as neuralgic pains in the stomach, watery eructations or attacks of vomiting.

Albarran considers that the relaxation of the abdominal walls (enteroptosis) has but little to do with causing movable kidney, a great many patients who have the affection having firm abdominal walls.

The three local conditions accompanying movable kidney are hydro-nephrosis, pyelo-nephritis, pyo-nephrosis.

Treatment.—The intermittent hydro-nephrosis already referred to, yields the most excellent results to nephrorrhaphy. The four methods of treatment are mentioned as being massage, apparatuses for retaining the kidney in position, nephrectomy and nephrorrhaphy. Nephrectomy is rejected by every one. Massage, advocated by Kumpf, may be of service in giving tonic to relaxed abdominal walls but no further. Operation should never be attempted until apparatus to retain the kidney in position has been tried and has failed.

The gravity of movable kidney is undoubted. The operation of nephrorrhaphy is a very safe one and in its results has been wholly successful, that is to say, has caused disappearance of all symptoms in 88 per cent. of the cases collected by the author up to the present time.

The operation should not be undertaken during an attack of kidney strangulation. The kidney may usually be returned to its normal position by raising the pelvis as in the position of Trendelenburg. If the acute attack should persist and threaten serious danger to the patient in spite of all attempts at replacing the kidney, the operation must be undertaken without undue delay. In cases where hysterical symptoms are well-marked, operation should be delayed as long as possible, and should only be resorted to when the resources of apparatus for retaining the kidney in position have been wholly exhausted.

Albarran's paper offers a very hopeful outlook for the operation of nephrorrhaphy if due care is exercised in selecting cases for its application.

The article contains a valuable *résumé* of the operative experience up to the present time, including many of the author's cases as well as descriptions of the technique of the different methods by which nephrorrhaphy has been practised, and it is deserving of careful study.

EXPERIMENTAL REMOVAL OF PORTIONS OF THE KIDNEY.

Dr. J. R. Bradford^{*} states that the object of these experiments was to investigate the changes in the urine and in the general nutrition that occurred when an animal had but a fraction of one kidney available for the discharge of the renal functions. The experiments were carried out on dogs, the ingesta and excreta being determined before and after the operation. The nitrogen was determined by Kjeldtal's method. A wedge-shaped portion was excised from

^{*} Lancet, May 11, 1895, page 1185.

the middle zone of one kidney and the cut surfaces approximated by sutures. After an interval of some weeks the entire opposite kidney was excised. The results may be summarized as follows:

Removal of a portion of one kidney is followed by a variable amount of general atrophy of that kidney and by hypertrophy of the opposite kidney, provided the operation be performed in adult animals. Removal of a portion of one kidney only, is followed by a slight increase in the amount of urine excreted. This increase is sometimes only temporary, and there are no other ill effects. If after having excised a portion of one kidney the entire kidney of the opposite side be removed, varying results are seen. If only some two-thirds of the total kidney weight has been removed altogether at the two operations, the animal remains in fair health and does not emaciate. The quantity of urine excreted, however, is greatly increased, that is, doubled or trebled in amount. There is no increased excretion of urea. On the other hand, if as much as three-quarters of the total kidney weight has been removed, then there is a still greater increase in the amount of urine excreted and in addition there is a considerable increase in the daily urea excretion; the animal emaciates rapidly, and dies within a few weeks of the second operation. Excision of a wedge from each kidney is followed by the excretion of a large amount of urine, but there is no increased excretion of urea and the animal remains in good health. Hence, when the renal tissue is reduced to but one-fourth of its original weight, there is not only no diminution in the amount of urine and urea excreted, but, on the contrary, a great increase, the increase in them being dependent upon rapid emaciation, which is not checked by a liberal diet.

TUBERCULOSIS OF THE GENITO-URINARY ORGANS.

A short account is given by Trendelenburg⁴ of three operations undertaken at different times upon a girl twenty-two years of age, on account of tuberculosis of the genito-urinary organs: first, extirpation of the urethra and a portion of the bladder; second, removal of one kidney, and third, extirpation of the rest of the bladder, with implantation of the ureter into the sigmoid flexure. The patient recovered. The urine at first could be held from two to four hours, later, however, for but a short time.

PRIMARY CANCER OF THE URETHRA.

Albarran⁵ reports a case of the above. The patient, forty-four years of age, had never had gonorrhea nor suffered any injury, but had suffered since four years of age from difficulty in urination. Ten months before cancerous symptoms were noticed, a fistula spontaneously formed upon the upper surface of the urethra toward the base of the penis. A large swelling shortly afterwards appeared and extended over the scrotum, upon the surface of which several other fistulæ formed, through which almost all the urine was evacuated. The case proved to be one of primary carcinoma of the urethra.

Total emasculation and extirpation of the inguinal glands was practised in Albarran's case, and was followed by recovery, which up to the time of writing had been maintained three months.

⁴ Centralblatt für die Krankheiten der Harn-und Sexual-Organen, August 31, 1895, page 385.

⁵ Annals des Maladies des Org. gén.-urin., Mai, 1895, s. 447.

Cabot reports⁶ another similar case. The patient was an elderly man who had experienced difficulty in passing water a year before. Nine weeks previous to the first observation, a painful swelling appeared in the perineum. A fortnight later this was incised and pus was evacuated. A fistulous tract persisted, and the swelling did not disappear, but on the contrary enlarged. Another fistulous opening appeared upon its surface. All the urine was passed through these fistulæ. A small portion of the growth was examined microscopically, and found to be cancerous; its cells were small and cylindrical, and its urethral origin was evident.

Cabot refers to five other cases reported by F. Tilden Brown, New York, namely, those of Schustler, Thiersch, Guyon, Tyzebicky and Geriard. These with Alberran's and Oberländer's are the only cases reported up to the present time.

Reports of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, WINDSOR HOTEL, MONTREAL, CAN., SEPTEMBER 17-19, 1895.

(Continued from No. 22, page 550.)

THE EPITRICHIAL LAYER OF THE EPIDERMIS AND ITS RELATIONSHIP TO ICHTHYOSIS CONGENITA,

by DR. J. T. BOWEN, of Boston, Mass.

Attention was called to a well-marked layer of cells in the epiderm of embryos forming a distinct membrane covering the hairs in certain lower animals. In man this layer has not received recognition. The reader's attention had been directed to the subject by the observation of Dr. C. S. Minot that certain shreds of fetal skin contained a layer of large polygonal cells, with a granular body in the centre, and within this, a nucleolus. He thought these cells a part of the epitrichial layer described by Melcker in 1864, and since forgotten.

The reader of the paper has found that in embryos of from two to three months, the epidermis has an outermost layer of large nucleated polygonal cells of peculiar shape. In the sixth month this layer has disappeared over most parts of the body. The resemblance of this layer of cells to the epitrichium covering the hairs and the epitrichial layer of certain animals makes the author conclude that they are homologous structures.

A case was related of a child born with a thin, perfectly smooth membrane covering it and closely adherent, suggesting a paraffine paper envelope. This layer began to peel off after five weeks in large strips leaving normal-looking skin. There were no fissures as in ichthyosis; this condition seemed to be due to the persistence of the epitrichial layer, and the author believes that similar cases reported by Hallopeau, Grass and Török belong to the same category. Instead of gradually exfoliating, and disappearing by the seventh fetal month the epitrichial layer retains its integrity. The true horny layer underneath desquamates in small scales after the covering has been removed.

DR. WHITE: Referring to the desquamation of the

⁶ Boston Medical and Surgical Journal, September 26, 1895.

early formed hairs which takes place in utero, he wished to know from Dr. Bowen if he had noticed whether or not they were connected with this epitrighial layer, or whether they penetrated deeper and were a part of the composition of the fetus. Relative to the disease ichthyosis as illustrated by the plate of Hebra, the latter authority regarded it as a practically fatal disease, although he had known cases to recover. It was quite evident that he regarded the condition thus depicted as something far more serious than this adult desquamation.

DR. SHEPHERD: This paper showed the importance of the study of embryology. Many of the anomalies which occur are easily explained by the theory of persistence of a fetal condition. It seemed to him that the reader's theory was a very correct one.

DR. BOWEN, in answer to Dr. White, said that in the animals experimented upon, the hairs were all underneath the epitrighial membrane which was situated outside them. In man the hairs did not appear until after this membrane was lost, at least not to any extent. In regard to Hebra's case, he did not wish to be dogmatic; he only said it resembled such a case.

A UNIQUE CASE OF AGMINATE FOLLICULITIS OF PARASITIC ORIGIN,

by DR. M. B. HARTZELL, of Philadelphia.

A man of thirty-two presented two varieties of lesions on the leg, belonging to some morbid process: an oval, elevated patch, covered with scanty crusts over a bright red, uneven, granular surface; smaller patches, closely examined, were seen to be made up of swollen and inflamed hair follicles. There were also pin-head to pea-sized pustules in groups and singly. The primary lesions were pustular and increased the patch by appearing at the periphery. Some furuncles formed. Examined portions showed a small cavity surrounding the hair in the upper part of the epidermis, a few spaces and mycelial threads. The rete was thickened, the follicles were enlarged and distorted. In some sections were grape-like clusters of spires attached to mycelium. The fungus presented larger elements than are usually seen in *tinea circinata*. Under sulphur improvement began at once, but the disease had existed for about ten months, incapacitating the patient for about half the time. Contact with animals as a source of infection could not be made out. The author believes that the agminate folliculitis of authors is most probably a deep trichophytosis such as here described. Particular attention is called to the Biondi-Haiden hair stain as applicable for the trichophyton. The case illustrates that the trichophytosis may cause extensive painful disease in other locations than upon the hairy parts.

DR. WIGGLESWORTH wished to ask Dr. Hartzell whether he considered there was any relation as to the extent and severity of the lesion and the source from which it was derived, whether from the horse or some smaller animal.

DR. WHITE thought we recognized how deeply into the skin some forms of bouton can penetrate in seeing kerion, a much more common type of this affection than the agminate forms. It was on the scalp and not on face that he had seen these agminate forms penetrate so deeply. We do see, however, in favus that this plant is capable of penetrating through the tissues of the skin even down to periosteum, and pro-

duce changes there. It would seem, therefore, that both these forms of vegetable parasitic affections were capable of going down to great depths, whereas in versicolor and *airasma* penetration is always confined to the upper part of the epithelial layer.

DR. ELLIOT mentioned that in the mycelium of Dr. Hodson the fungus penetrated very deeply.

DR. HYDE said that in connection with the question of Dr. Wigglesworth he was certain that in certain soils the parasite flourished better than in others, and that contagion from favorable sources was most likely to be severe. However, this is a ground on which the speaker could only conjecture. He had seen a couple of cases of exceedingly severe trichophyton derived from sheep in sheep-shearing cases brought a long distance from the city; and in these cases it has always taken the form of sycosis. He had never seen this severe form of trichophyton to which he now refers developed on the scalp; but in one instance he saw it well marked on the non-hairy part of the skin. Referring to the remarks in (*re airasma?*) he was a little bit surprised that this disease is not more frequently diagnosed. In one of his cases the signs were developed on the surface of the chest and belly, places where disease is not often seen.

DR. FOX objected to the title of the paper, and thought the case ought to have been reported as a unique case of trichophytosis, as the present name gave one the idea that it was something apart from, instead of a peculiar form of, the latter disease. Most of them had seen these peculiar forms of trichophytosis which occasionally develop these small follicular patches; and it is possible the same condition might take place upon hair of a dog.

DR. SHERWELL, at former meetings, had spoken of the ravages of trichophyton in lower animals. He thought scratching had something to do with the implication of tissues. He often wondered if a parasite could penetrate tissues in a natural way without the assistance of scratching, and whether it could really live lower than the epithelial layer in the natural condition of skin.

DR. ROBINSON, many years ago, wrote a paper on this fungus, which article was first to set forth the claim of a parasite being able to penetrate into the tissue.

DR. HARTZELL, in answer to Dr. Wigglesworth, said he believed the severity of the disease was determined to a very considerable extent by the variety of the plant, but much more upon the character of the sore. The fungus, he thought, grew much more luxuriously in deep cases than upon the surface, and the elements were larger than in the superficial varieties. In this case there was a double infection, and he believed that to a certain extent there was an antagonism between the staphylococcus and the trichophyton. The fungus did not grow well in the pustules; but was found deep down where there were no pus cells. This was an uncommon case. We are all familiar with deep trichophytosis as it appears on the scalp and beard; but this is a different thing. He would like to hear as to identity or non-identity of this disease with the agminate folliculitis of the French. He gave it the name he did because of its clinical features rather than on account of its etiology; it did not resemble the ordinary ring-worm. He had already mentioned the fact that he thought there were staphylococci in the pustules.

A CONTRIBUTION TO THE STUDY OF MYCETOMA, by DR. J. N. HYDE, of Chicago, Ill.

This patient described was born in America, of Bohemian parents, and had never travelled out of his native State. The disorder began thirteen years ago at the age of seven. He was in the habit of wading in the river near his home in Iowa. A hard nodule first appeared within the skin of the foot sole, and gradually spread until the anterior third of the foot was extensively involved.

The diagnosis, tuberculosis and sarcoma had been made by various physicians. The feature was fungoid projections from irregular surfaces of infiltration. A central canal perforated the axis of each tubercle, often blocked by flabby granulation. Examination showed granulation tissue, with a considerable number of giant cells in the derma. Nothing resembling the "clubs" of other observers were found.

Madura foot is apparently a local disorder. The differences between the fungus of mycetoma and that of actinomycosis is that the latter grows readily in a hydrogen atmosphere, and the former with much greater slowness. They differ also in the rapidity with which they take up aniline stain. There is no agreement as to what constitutes the differences between the white, red and black varieties. In some cases where fish-roe-like particles have been surgically evacuated from sinuses existing in unquestioned subjects of madura foot, no fistulous tracts have opened externally to the outer surface of the skin.

The author concludes that there are clinical symptoms of mycetoma which are to be recognized in some cases and not in others. Unquestioned instances are on record where none of the usual features were exhibited. The constant symptoms are practically reduced to a characteristic deformity of the affected part, predominately the foot, but also the hand, knee, and a few other regions. There is a history of slow involvement of tissues. There is a notable absence of pain and of complicating accidents, such as erysipelas, eczema, etc.

Separate vegetable fungi appear in granulation or necrotic tissue with a number of unusually large giant cells which seem to be exercising a phagocytic effect upon the intruder. In a well-marked case there is usually a central body made up of semilunar or reniform bodies traversed by a network of mycelium.

There are clinical symptoms of mycetoma which are to be recognized in some forms and not in others. These may be termed non-essential features of the malady. They are (a) the appearance of blackish or reddish granules of pigment free and within the cells furnished by the secretion; (b) the discovery of particles resembling the roe of fish, either expelled from the sinuses or imprisoned within the unbroken surface of the skin; (c) the occurrence of sinuses leading from without inward as far as a muscle, tendon or blood-vessel. Cases of unquestioned mycetoma are on record where none of these features are exhibited.

DR. GRAHAM was much interested in the case, especially as Dr. Adami, of McGill University of Montreal, had shown a case of "madura foot" at a recent meeting of American physicians held in Washington. Prof. Adami made a minute study of pathological features; the speaker did not know the clinical features. Patient was a Canadian—had never lived out of Canada; he lived near a river, and he gave a history of exposure.

DR. ELLIOT wished to know whether Dr. Hyde made an absolute distinction between the fungus that caused madura foot, and that recognized as the cause of actinomycosis.

DR. HYDE said he was not justified in drawing a conclusion, so far, from his observations on this case. But from Indian observations, and his experience of this case combined, he was inclined to think that there were probably several varieties of the ray fungus, and that the variety causing madura foot was not identical with that causing actinomycosis. He thought there might be an American variety of the ray fungus which caused mycetoma.

DR. ELLIOT's reason for asking was on account of a peculiar case of actinomycosis seen last winter. He had seen three cases of this disease, one case did not affect the jaw at all, but commenced primarily in the abdominal canal, a fistula ani being the first symptom. There was no doubt as to identity of the disease, as he had made a pathological examination and found the ray fungus abundant in the secretion.

His other two cases were typical ones affecting primarily the lower jaw, and extending from there. These cases of actinomycosis had a peculiar hardness about the wound or fistula, which has always been signalized as characteristic of actinomycosis. So far as he knew, this symptom was wanting in madura foot.

NOTES ON DRUG ERUPTIONS,

by DR. J. A. FORDYCE, of New York.

The speaker referred to the nodular form of iodic eruption, in a woman where the lesions reached the size of the fist, and were not to be looked upon as erythema nodosum. It is probable that all iodic eruptions are secondary to certain vascular changes, and this may account for the exaggerated lesions seen upon a paralyzed member.

Another case was of a rupia-like eruption due to the iodide of potassium but simulating syphilis, in a syphilitic subject. The lesion healed under boric-acid ointment. A second case of similar nature showed ulcerations, which healed when the iodides were stopped. The lesions in both cases corresponded with the anthracoid variety of iodide eruptions. The cases would seem to show that the skin in some persons reacts to iodide, and in much the same manner as to the syphilitic process.

A colored plate was shown of an erythematous rash covering the whole central portion of the body as a diffuse, and the other parts as a scattered, eruption following the use of mercurial ointment.

Another case similarly produced was one of erythema scarlatiniforme which had been taken for scarlet fever.

The last case was one of erythematous eruption from the internal use of boric acid given in thirty-grain daily doses for a month. A multiform erythema of the trunk and a swelling of the upper lids were present. There was also inflammation of the conjunctiva. On stopping the boric acid the symptoms disappeared. Other cases have been reported from this cause, but the author has seen no mention of the hard edema of the eyelids seen in his case.

DR. JACKSON was called a few months ago, in consultation, to a case supposed to be scarlatina. The patient had been sick several days when he saw him. It commenced in the form of a little irritation about his genital region; a doctor called and prescribed blue ointment; then these erythematous rashes began to

spread until they involved a large portion of the surface. The doctor's diagnosis was scarlet fever, and as such it was reported to the board of health. Dr. Jackson being then called in, found the patient without fever, without any of the other clinical signs of scarlet fever, except the rash, and decided then that it was a scarlatiniforme rash from mercurial ointment.

DR. WHITE had occasionally observed that the use of stimulating applications to the skin was capable of lighting up widely spread dermatic conditions. He had seen two instances of boric-acid eruptions, which made him take a special interest in those reported here; he thinks not many such are to be found in books.

DR. KLOTZ had seen an erythema developed after general inunctions of the body for syphilis. He had recently seen a case of fatal poisoning following the use of boric acid, which is generally considered an innocent drug. He had seen a dermatitis occur after the prolonged use of small doses. In the fatal case, death was due to an acute desquamative nephritis, the result of its irritative effect on the kidneys. He thought there was some doubt whether death was due to the poison or to the kidney trouble.

A REMARKABLE DRUG ERUPTION,

by DR. F. J. SHEPHERD, of Montreal.

A patient in the Montreal General Hospital, suffering from a swelling of the knees due to acute synovitis, was given three twenty-grain doses of salicylate of sodium when an urticaria-like eruption appeared and soon became petechial. These lesions were followed by deep sloughing, leaving ulcerations slow to heal. The upper portion of the body, especially the region of the shoulders, was mostly affected. There was also an eruption in the pharynx and larynx leading to edema and alarming symptoms. The eruption disappeared only after thirty days. In some instances the whole spot became dark from infiltrated blood, and at times the whole body was covered with coffee-colored spots; some disappeared, going through the various color stages of a bruise. Local gangrene occurred, especially over the shoulders, but also in the mouth and pharynx. About the shoulders gangrenous areas, ranging in size from a fifty-cent piece to that of the palm, were seen. (These were all shown in photographs.) During the separation of the sloughs there was a rise of from two to three degrees of temperature.

The patient was presented at the meeting, and showed extensive red cicatrices in the regions where sloughing had taken place. A small ulcer on the right arm still remained.

DR. ELLIOT thought the cause was the administration of sodium salicylate, and did not think the manifestations were peliosis rheumatica.

DR. BRONSON thought it an interesting as well as puzzling case. He thought the diagnosis should be a composite one, partly peliosis rheumatica modified by the use of the drug, salicylate of soda. Peliosis rheumatica never, as far as he knew, caused gangrene, although the hemorrhage might be accounted for.

DR. WHITE said one might think of three affections in connection with these symptoms:

(1) Peliosis rheumatica, but the distribution and outcome of the disease are entirely at variance with that affection.

(2) Drug eruptions. As these have no bounds set to them, and our knowledge of them is at present very limited, it would be no way warrantable to conclude that it might be a manifestation of salicylic-acid poisoning.

(3) The next affection to be considered is a rare hemorrhagic form of dermatitis, dermatitis multiformis or herpiformis. The early urticarial nature of the lesion, the vesicular, bullous, and hemorrhages are all within the limits of this affection. The only objections against it are the gangrenous and necrotic condition at the end of the process. Were it not for the symptoms of synovitis, etc., preceding the exhibition of the drug, he should have been inclined to favor the drug as a cause of the eruption.

DR. MORROW believed patient's skin had a very marked urticarial reaction, and he had no hesitation in attributing the lesion to the action of the drug.

DR. ALLEN had seen some severe cases of eruption after salicylates in rheumatic patients, but never anything equal to this. Still he could hardly doubt the causal action of the drug.

DR. MORROW: Drug eruptions were caused by two conditions: (1) a certain receptivity of the system which may be acquired or created by pathological phenomena; (2) Idiosyncrasy. The first may have been present at the time the drug was first given, and absent now or on a subsequent occasion. He did not, therefore, think that even if it were found the man could take the salicylates now with impunity, it would prove that the drug had nothing to do with causing the eruption in the first instance.

DR. SHEPHERD only began to doubt the sodium salicylate as a cause, when he noticed crops of the eruption continuing to appear after the stoppage of the drug. Then the eruption was preceded by the rheumatic pains. Then the duration seemed to be incompatible with such small doses of the drug as had been given (only four doses amounting to eighty grains). Hutchison reported a case of purpura thrombica which resembled this one.

(To be continued.)

Recent Literature.

Pediatrics. The Hygienic and Medicinal Treatment of Children. By THOMAS MORGAN ROTCH, M.D., Professor of the Diseases of Children, Harvard University. Philadelphia: J. B. Lippincott Co., 1896.

The book is well printed, and contains a larger number of pictures than any other work on the same subject. Most of these are very fine, but some of them seem rather unnecessary. The colored plates are much above the average. The blood plate and those of vaccinia and of the throat, as well as that showing the napkins, are especially good. The numerous tables and diagrams will prove of great value to the student. The arrangement is original, and on the whole very satisfactory. We are glad to find typhoid where it belongs, among diseases of the gastro-enteric tract, but fail to see why vaccinia should be included in the chapter on the hygiene of the nursery. Dr. Rotch has not only made a new departure in writing in the first person, but has shown that, in his hands at least, it is forcible and well adapted for a text-book. The pathology is concise, up to date, and amply suf-

ficient for a work which is intended to be mainly clinical. The clinical manifestations of disease are everywhere described very fully, and illustrative cases are abundant. The supreme importance of nursing and feeding in the treatment of disease in children is everywhere emphasized. Treatment by drugs is always simple and occupies a very subordinate position. We feel, however, that the author, in his anxiety to avoid useless and harmful remedies, has gone too far and not allowed drugs the place which they deserve. As would be expected from Dr. Rotch's previous work, the sections on development, feeding, and the diseases of the gastro-enteric tract are exceptionally full and complete.

The chapters on the infant at term and on normal development are full, in many respects original, and of great value for reference. Dane's work on the foot is of especial interest, but requires verification. We are glad to see that Dr. Rotch emphasizes the danger of nasal obstruction in young infants.

Too much cannot be said in praise of the article on feeding. It contains the results of years of original and careful work on infant feeding and is the latest and most complete exposition of Dr. Rotch's well-known views on this subject. How much we owe him for providing us with a rational method of feeding babies and for introducing the laboratories where this method can be accurately and scientifically carried out can only be appreciated by those who have had the ability and opportunity to test it thoroughly. The tables for the home modification of milk will prove invaluable to those who do not live within reach of a laboratory and also to those to whom expense is an object.

We have not seen elsewhere so complete an article on premature infants.

The article on the blood is by far the most satisfactory which we have yet seen in English. It gives concisely and clearly practically all that is definitely known of the blood at the present time, and must prove of great value for reference. The position taken on the anemias is especially good, but the blood examinations given for pernicious anemia are certainly not convincing of the accuracy of the diagnosis. Nor can we agree with the statements regarding the leucocytosis of pneumonia. The lymphocytosis of typhoid is not mentioned and the estivo-autumnal parasite is hardly given due prominence. The list of references at the close of this article only makes us regret that the author has not similarly favored us elsewhere.

The chapters on the diseases of the new-born are on the whole fairly satisfactory when the obscurity of the subject is taken into consideration. The paragraphs on hemophilia hardly gives a true idea of the condition, however.

The chapters on the exanthemata are full and admit of nothing but favorable criticism. The description of the kidneys of scarlet fever is especially good.

In the chapters on the diseases of the nervous system the author has devoted himself largely to the clinical side and has not attempted to go into pathological details. The descriptions of the symptoms and course of the various diseases and conditions are full and accurate and the illustrative cases very instructive. We feel, however, that a more careful explanation of the relationship of the symptoms to the pathological lesions would have made the subject

clearer. The classification, as the author states, is merely a list of the different diseases and not founded on a purely pathological or symptomatic basis. We feel, nevertheless, that to classify diseases and symptoms of the same diseases together as if of equal importance, is irrational and likely to mislead. The important subject of reflex nervous disturbances in children is considered very fully and many interesting points are brought out. We are surprised to find that craniectomy is not mentioned in the treatment of microcephalus and feel that sufficient importance has not been attached to the lesions which convulsions may cause.

The chapter on diphtheria is free from all useless padding up to date, and yet conservative. We are extremely glad to see that the use of irritating applications to the throat, unfortunately too much employed in Boston heretofore, is discountenanced and the danger of excessive zeal in local treatment emphasized.

In the division on the diseases of the gastro-enteric tract we find the first systematic work based on the classification recently adopted by the American Pediatric Society. This classification is founded on the etiology of disease, which, in the present state of our knowledge concerning this very obscure class of diseases in early life, seems by far the most rational basis. Criticism on this division must largely depend on whether this classification is accepted or not. Although it is far from being entirely satisfactory, yet it is much better than anything we have had previously, and is founded on the lines in which progress will probably be made in the future. Clinically we have found it very useful and satisfactory. One of its great merits is that it avoids useless, unmeaning, and misleading terms. The unreliability of symptoms and the similarity of those arising from different pathological conditions, is everywhere recognized and the consequent difficulty of diagnosis pointed out. The rarity of the more serious pathological conditions in early childhood and the great importance of the nervous and functional disturbances is duly impressed. Feeding is rightly made of supreme importance in the treatment of these diseases, and drugs are placed in the extremely subordinate position which they should occupy. The pathological plates in this section surpass any which we have ever seen. On the whole we must consider this one of the strongest divisions of the book.

The division on the diseases of the respiratory organs is uniformly good; the article on bronchopneumonia exceptionally so. We are glad to see that "capillary bronchitis" is conspicuous by its absence.

Considerable space is given to congenital diseases of the heart. The acute carditis of children, upon which Sturges laid so much stress, is not mentioned, however. Pericarditis is taken up at length and the author's original experiments, which led to his recommendation that the pericardium be tapped in the fifth right interspace, fully described. We feel that Dr. Rotch's work in this direction has not been so fully appreciated here as abroad, where Ebstein has recently confirmed his results. The unclassified diseases of the last division seem worthy of more detailed consideration although no important points have been omitted.

On the whole, it is the most satisfactory individual work on the Diseases of Children which has been published in English and is a credit to Boston and to Harvard University.

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DIAGNOSIS OF MALARIAL FEVERS BY ORGANISMS IN THE BLOOD.

IN a recent paper on "The Practical Value of Laveran's Discovery,"¹ Dr. Wm. Osler, of Baltimore, Professor in Johns Hopkins University, states that the medical profession has not yet fully realized "that the diagnosis of the malarial fevers can be made with certainty by the blood-examination."

From a study of the mortality statistics of the cities of the Atlantic sea-board, Dr. Osler points out that the mortality ascribed to malaria is far greater than his nine years' experience with accurately diagnosticated malaria shows it should be. This condition of things he believes to be due to inaccurate diagnosis and to the deeply-rooted tendency among medical men to consider all fatal cases of recurrent rigors, the causes of which are not clearly apparent, as of malarial origin, when with more probability they may be due to tuberculosis, typhoid fever or some other infectious process. Dr. Osler also takes the ground that it is high time that boards of health should refuse to accept the diagnosis of malaria as a cause of death without more definite evidence than is now required.

In view of these positive statements by such a distinguished and experienced observer, it is surprising to read a recent monograph from India, by one surgeon, Lieutenant-Colonel E. Lawrie, M.B., in which the existence of Laveran's parasite in malaria in general, and in the fevers of India in particular, is denied in the most positive terms. At this late day, after all the brilliant work of European and American investigators on the nature and life history of that organism, a general statement of this kind must be supported by a very convincing array of facts or be treated with contempt.

The monograph before us, at first glance, presents all the appearances of a first-class objective study of a fairly large number of cases of malarial fever in hospital practice, and therefore seems to merit more atten-

tion than a mere speculative essay. A careful perusal of the work, however, shows that as a contribution to the pathology of the blood in the Indian fevers it is worse than valueless, but that it has some utility as proving how necessary it is to have an elementary knowledge of microscopical technique before entering upon the study of the blood.

From Dr. Lawrie's descriptions it is clear that his methods of preparing blood for microscopical examination were ridiculously bad, in most of his cases, so that it would be impossible to make an adequate study of his preparations, while in other cases a peculiar mental bias, together with a lack of skill in using the microscope, render it certain that he could or would not recognize the *plasmodium malarie* if it were before his eyes. This mental bias was apparently produced by indignation at certain remarks made by Dr. Ernest Hart in an address before the Indian Medical Congress of 1894, in which he pointed out that the profession in India had not begun to apply modern methods to the study of the interesting forms of remittent fever around them. These remarks of Dr. Hart are thus commented upon by Dr. Lawrie in his opening paragraphs: "Having diagnosed malarial fever, without difficulty, for many years by means of the temperature, the pulse, the tongue and the condition of the bowels, and the state of the spleen, its periodicity and its susceptibility to quinine, I confess that I was sceptical regarding the amount of assistance to be derived from the microscope in the diagnosis of malaria."

This reveals the attitude of mind in which the investigation was begun and carried out. The polemical tone of the publication is shown by that frequent use of the term "plasmodists" to indicate the large and increasing body of medical men who have become familiar with the appearances of the *plasmodium malarie* in the blood, and from the use of such phrases as "burst the malarial bubble" and "we hereby challenge any plasmodist to demonstrate the existence in the blood of a living malarial parasite."

Pseudo-scientific papers, such as this one, containing the results of incompetent observation by a man of apparently high professional standing, do much harm by obstructing the progress of medical knowledge, for the general medical public to whom they are addressed cannot gauge them at their true value. We trust that this publication does not reflect the attitude of many of the profession in India; if it does, it offers a sad commentary on the condition of medical culture in that country.

THE BURIED TENDON SUTURE.

At the last meeting of the Southern Surgical and Gynecological Association, held in Washington, Dr. H. O. Marcy, of Boston, read an instructive paper upon the history of the buried animal suture, and the best methods for its preservation and use. Since Dr. Marcy was the first to suggest the employment of buried sutures and demonstrate their value, his con-

¹ Medical News, November 23, 1895.

tributions upon the subject are of more than ordinary importance. His first contribution upon the buried catgut suture was published in 1870. In 1880 he substituted tendon for catgut, as in every way superior, and in many articles has called the attention of the profession to the importance of its general adoption.

Dr. Marcy stated that the defect of catgut is inherent in its structure, and it cannot be rendered satisfactory by any method of preparation. "The connective tissue sheath of the intestine of the sheep from which catgut is manufactured has its ultimate fibres disposed in an oblique direction crossing diagonally. This serves the physiological purpose of foreshortening and distention as well as strength." The violin string (catgut of commerce) is not unlike a very thin piece of tissue silk which has been cut diagonally and then twisted. This would make a very imperfect fish-line, and the comparison is not overdrawn. When dry, the gut is strong; but when wet, it is flat, elastic, and slippery. Chromicizing only partially remedies this defect, and sterilization by any process cannot correct the damage which the intercellular cement substance has sustained from bacterial infection, and the maceration, to which, in preparation, the catgut is necessarily subjected.

Properly prepared tendon not only escapes these injuries, but has an entirely different ultimate structure. The connective-tissue cells are disposed parallel to each other and are the strongest structures of the animal economy. Of equal weight, carefully selected tendon will sustain a tension equal to that of silver wire. Tendons taken from the freshly-killed animal are quickly sun dried and kept dry until their final preparation. Soaked in a 1 to 1,000 mercuric solution until supple, the tendons are carefully cleaned, assorted, and dried between sterilized towels. They are then chromicized until of a dark golden-yellow color, and preserved in sterilized linseed oil to which one-tenth part of the crystals of carbolic acid has been added.

Sutures thus prepared improve with age. When desired for use they are soaked in a 1 to 1,000 solution of bichloride of mercury until supple. Preservation in absolute alcohol, boiling in it under pressure, boiling in kumol (oil of caraway seed)—indeed, preparation by any of the many methods suggested for the sterilization of catgut—serve only to injure the inherent structure of tendon, and are not to be commended.

The tendons from the tail of the smaller varieties of the kangaroo furnish by far the most valuable suture material yet found. The anatomical construction of the psoas muscles of the rat, squirrel, and the opossum is not unlike that of the kangaroo; each fasciculus having its independent tendon extending the entire length of the tail. The tendons of these smaller animals are too short and too fine for general use, those from the large kangaroo too large. The latter when sub-divided fray and are less valuable.

Dr. Marcy reported that from various sources kangaroo tendons have been put upon the market which are very defective. One lot of three hundred pounds,

collected for him, was almost entirely from the large kangaroo, and so undesirable that he refused its acceptance. This has found its way into the American market, and is being distributed to the profession. Selected tendon should be furnished, all prepared, at ten dollars per hundred, although usually sold at a much higher price.

Dr. Marcy, in closing his paper, expressed the belief that all aseptic wounds, including even the larger amputations, should be closed in layers by buried tendon sutures without drainage. The edges of the skin should be coapted by means of a parallel continuous buried suture (sub-cuticular), and the wound sealed with iodoform collodion, strengthened by a few fibres of cotton.

The advantages of the buried sutures are briefly as follows: Aseptic, buried in aseptic wounds, they remain aseptic and the repair is primary without inflammation, pain, or suppuration. The iodoform collodion seal renders subsequent infection impossible. No sutures are to be removed, and no other dressing is required. The tendon is absorbed so slowly that it may be traced in the tissues months after implantation, and ultimately it is replaced by a band of vitalized connective tissue which serves as a permanent re-enforcement of the united structures.

MEDICAL NOTES.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.—At a meeting of the Executive Committee of the Congress of American Physicians and Surgeons, held in New York City, November 23d, the following officers were elected: President, Dr. Wm. H. Welch, Baltimore, Md.; Secretary, Dr. Wm. H. Carmalt, New Haven, Conn.; Treasurer, Dr. Newton M. Shaffer, New York City; Chairman of Executive Committee, Dr. Landon Carter Gray, New York City; Secretary of Executive Committee, Dr. Wm. K. Simpson, New York City. The next meeting of the Congress will be held at Washington, D. C., in May, 1897.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, November 27, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 161, scarlet fever 37, measles 3, typhoid fever 20. For the week ending December 4, 1895, the following cases were reported: Diphtheria 132; scarlet fever 20; measles 3; typhoid fever 19.

THE MEDICAL DEPARTMENT OF DARTMOUTH COLLEGE.—The graduating exercises of the Medical Department of Dartmouth College were held on November 26th. The graduating class numbered thirty-eight members. The plan of teaching in this college includes a term of lectures with quizzes, extending from about the middle of July until the last of November, and a term more exclusively of recitations and labora-

tory work, extending from January 1st until the last of June. The students are arranged in three classes, and are required to complete the work of each year in regular order, passing an examination at the close of each year in the studies of that year. The Mary Hitchcock Memorial Hospital affords increased facilities for clinical instruction. It is a Cottage Hospital of thirty-six beds and is constructed after the most approved modern style for such buildings. A large and beautifully-lighted amphitheatre is provided for witnessing operations, which are gratuitously performed by members of the faculty before the class, during the year.

NEW YORK.

CIVIL SERVICE RULES APPLIED TO HOSPITAL APPOINTMENTS.—At a meeting of the Medical Society of the County of New York held November 26th, a resolution was adopted urging the mayor to place all appointments of visiting and assistant physicians and surgeons and all salaried resident medical officers of all the hospitals, asylums and other institutions under the control of the Commissioners of Public Charities and Correction under civil service rules.

THE STATE BOARD OF HEALTH AND THE MILK-SUPPLY OF CITIES.—At a meeting of the State Board of Health held at the Murray Hill Hotel on November 29th, it was decided to adopt vigorous measures to insure the purity of the milk-supply of the larger cities. The continuation of the work of destroying tuberculous cattle was resolved upon, and, in addition, a plan was proposed by President Wilson and Commissioner George B. Fowler, of the New York City Health Department, for the protection of the cities by the systematic inspection of dairies and farm-yards. It requires that before shipping their milk all dairymen and farmers must have the certificate of an inspector as to the cleanliness of the surroundings and the health of the cows. Owing to lack of funds this plan cannot be carried out at present, but all the precautions possible will be taken. Documents are to be issued by the board to the farmers and to consumers in the cities giving information and advice in regard to the purity of milk and the danger of disease. An effort will be made to secure a larger appropriation from the legislature at its approaching session, and a committee consisting of Health Officer Doty and Drs. Cassidy and Lewis was appointed to attend to the matter. Reports made at the meeting showed that during the past two months 139 head of cattle were killed on account of tuberculosis.

PROFESSOR MARAGLIANO'S SERUM GIVEN A TRIAL IN NEW YORK.—Dr. Francesco Carlucci, who attended the recent medical congress in Rome and later received a limited supply of his serum from Professor Maragliano, has used it with favorable results in three cases of tuberculosis in the wards of the Italian Hospital on Second Avenue. In one of these, in which the patient was in a much more advanced stage of the

disease than Maragliano would have admitted for the trial of the remedy, the good effects seem to have been quite remarkable. He is a young Italian fruit-dealer whose mother died of tuberculosis, and when he was admitted to the hospital, on November 3d, his condition was so serious that it was not thought possible that he could survive more than a few days. The first injection, of one cubic centimetre of the serum, was made on November 6th. At that time his pulse was 130, respiration 34, and temperature 101°. The pulse rose to 136, the temperature remained the same, and the respiration fell to 32. Before the second injection, two days later, the temperature diminished, respiration became more nearly normal, and the pulse fell to 114. No reaction followed the injections, which were made every other day. On November 16th daily injections were begun. On November 22d the temperature was 99°, respiration, 22, and pulse 108, and on November 29th, the temperature, respiration and pulse were about the same. In addition, night-sweats, cough and expectoration have diminished, the strength and appetite have gained very materially, and the patient has greatly improved in every way. Dr. Carlucci recently cabled to Professor Maragliano for a further supply of the serum.

LEPROSY IN NEW YORK.—An Italian leper, thirty-two years of age, was removed to the hospital on North Brothers Island on November 25th. The patient, though born in Italy, had lived in Brazil for some years. He states that he removed to New York fifteen years ago, and the disease apparently originated there, as the authorities of the Bureau of Contagious Diseases who pronounced it to be leprosy are of the opinion that it has probably not existed more than a year. There is at present at North Brothers Island one other leper, a Chinese laundryman. It is stated that this is the first case of leprosy in a native of Italy that has come to the notice of the Health Department.

SUMMARY DISMISSAL OF THE MEDICAL STAFF OF THE FIRE DEPARTMENT.—The Board of Fire Commissioners have, for reasons best known to themselves, summarily dismissed the four physicians composing the medical staff of the Department, without preferring any charges against them, and reduced the staff to three. About the middle of November the Commissioners asked for the resignations of the Department physicians. Only one of them complied with this request. The physicians dismissed were Drs. Frank L. Ives, Robert A. Joyce, James A. McLoehlin and John J. Quigley. The three appointed in their place were Drs. F. A. Lyons, C. B. Ramsdell and Francis M. Banta, who were selected as heading the civil service list. Of the four medical officers, Dr. Ives has been in the service twenty years, and Dr. Joyce, fourteen years, and they both entered before the civil service rules were applied to the Department. Dr. Quigley, who has served four years, and Dr. McLoehlin, who has served three years, both passed civil service examinations. It is probable that the legality of the action of the Fire Commissioners in this matter

will be contested. Only within the past week President Cruger of the Board of Park Commissioners asked for and received an opinion from the Corporation Counsel upon the particular point involved in the case. The latter informed the Park Board that it could dismiss any men who were paid by the day, but salaried men under civil service protection could not be removed except for cause and after proper trial.

Miscellany.

MEDICAL OFFICERS OF THE STATE MILITIA AND THE ARMY MEDICAL SCHOOL, WASHINGTON.

THE improvement during the past few years of our volunteer militia or national guard, has been marked, especially in the medical department. Medical men are now willing to enter the service, notwithstanding that in this State there is a stiff entrance examination of four to five hours in length, and an uncertain tenure of office. Men who would formerly have shunned such a position, owing to the odium which in times past attached to a militia service, now seek for vacant positions. Positions are now offered to medical men with the idea that they will do good professional work, and at the same time learn the technical duties of a medical-military officer; the summer camp is now in reality a school of instruction.

The tenure of office of medical officers unfortunately does not depend on good work and behavior, for the commanding officers are liable to change, and not infrequently men who are deeply interested in their work are forced to leave the service by the resignation of their commanding officer.

The medical department of the army has recognized the improved character of the militia medical service and has extended its cordial support, as shown by the following letter:

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
WASHINGTON, November 18, 1895.

GEN. E. J. FORSTER, *Surgeon-General of Massachusetts*.
SIR:—I have the honor, by direction of the Surgeon-General, to forward you the enclosed programme of the coming session of the Army Medical School, which has just been published.

Referring to communications from the former Surgeon-General, State of Massachusetts, General Burrell, in regard to the admission of medical officers of the volunteer militia to the School, the Surgeon-General would most heartily favor such a proposition, but it is proper to point out that, as you will see from the printed programme, much of the instruction given at the School would not be applicable to the needs of your service. The spaces for students in the pathological and chemical laboratories are entirely filled by our own student officers, nor would such instruction be specially desirable for gentlemen of the volunteer militia, since similar instruction could be obtained more conveniently in Boston.

If any medical officer of your service desires to avail himself of any part of this instruction that is available for him, such as the lectures and instruction in Hospital Corps Drill and First Aid, his application, approved by you, will be submitted to the Secretary of War by the Surgeon-General, cordially approved.

The lecture rooms of the School are always open to officers of your service who may chance to be in the city, and they will be very welcome.

Very respectfully,
C. H. ALDEN, *Assistant Surgeon-General U. S. Army*.

ARMY MEDICAL SCHOOL, WASHINGTON, D. C.

Session of 1895-96, beginning November 18, 1895, ending March 13, 1896.

ORDER OF DUTIES.

Daily except Saturdays, Sundays and Holidays:

- 9 A. M. to 12 M., Instruction in Pathological Laboratory.
- 1 P. M. to 2.50 P. M., Instruction in Chemical Laboratory.
- 3 P. M., Lecture.

Saturdays:

- 9 A. M. to 10.15 A. M., Instruction in Hospital Corps Drill and First Aid at Washington Barracks, D. C.
 - 11 A. M. to 12 M., Instruction in Equestrian at Fort Myer, Va.
- There are no exercises on Sundays, Thanksgiving Day, December 25 to January 1, inclusive, and Washington's birthday.

The lectures will be delivered as follows:

- Duties of Medical Officers, Mondays.
- Military Surgery, Tuesdays.
- Military Medicine, Alternate Wednesdays.
- Military Hygiene, Thursdays.

Hours for instruction in Operative Surgery will be designated by the Professor of Military Surgery.

AUXILIARY LECTURES.

- Military Law, Lt. Col. G. B. Davis, Dep. Judge Adv. Gen., Prof. Mil. Law, U. S. Mil. Academy, March 2 to 6, inclusive.
 - Mental Diseases (Clinical), at Govt. Hospital for Insane, Washington, Fridays, Nov. 29, Dec. 13, Jan. 3 and 17.
 - The Army Medical Library, Dr. Robert Fletcher, F.R.C.S., Eng., Wednesdays, Feb. 19.
 - Parasites in Man, Prof. C. W. Stiles, Ph.D., Dept. Agriculture, Wednesdays, Nov. 27, Dec. 11, Jan. 8 and 22.
 - Instruction in Optometry, to be hereafter announced.
- Due notice of any change of program will be posted on the bulletin board.

WALTER REED,
Major and Surgeon, U. S. Army,
Secretary of the Faculty.

Any medical officer desiring to avail himself of the opportunities afforded by the above letter, will confer with Surgeon-General Dr. Edward J. Forster, of Massachusetts, in person or by letter.

Correspondence.

THE STUDY OF DERMATOLOGY IN EUROPE.

(Concluded from No. 22, p. 555.)

BRESLAU.

BRESLAU, the capital of Silesia, deserves in every way a much longer visit than I made there. After all the kindness which I received in Europe, it would be difficult to say that still more was shown me in Breslau than elsewhere, but nothing could exceed the hospitality of Professor Neisser.

The hospital in Breslau is only a few years old, and the neatness and cleanness of everything under the charge of Professor Neisser was impressed upon me all the more, coming as I did from the unhygienic old convent which now serves as the hospital of Prague. My first morning in Breslau was one of my pleasantest in Europe. Professor Neisser called for me in his carriage, and we drove out of town to the hospital which he has been so instrumental in having built. Everything is a model in its way, and everything is assembled under one roof. We first entered his private room, and from there began an inspection of the building, going directly into the library, where all the important treatises upon dermatology, old and new, are to be seen on the shelves, and all the magazines are to be found on the tables. The walls of the library and the adjoining lecture-room are extremely interesting on account of the photographs of men living and dead who have advanced the science of dermatology. The lecture-room is extremely well-lighted and very practical for teaching the skin. A platform stands in the middle of the room and on each side are benches for the students. I think that this allows more students a nearer view than an amphitheatre does. On the walls were small bottles filled with a great variety of the ointments, pastes, powders, washes, etc., which figure in the dermatological therapy of to-day. This collection was to me unique—I mean a purely dermatological one—and I merely mention it to show how thoroughly Professor Neisser has installed himself in his new hospital.

In the adjoining room is stored a wonderful collection of water-colors, large photographs, stereoscopic pictures and colored plates arranged on shelves in alphabetical order, so that one can find the object of one's search in a few moments. The photographs are the best I have ever seen,

and are large, very clear and well-lighted, and the common and rare diseases almost all appear in the list. Before a window in the corridor stands a large stereoscope in which one can see to great advantage the wonderful effect of stereoscopy as applied to dermatological photographs. The effect is so magical that I felt as though I were being deceived, and that I were looking at a living being rather than at a picture. This method of demonstrating a skin disease to the student is to my mind second only to the models of Baretta of Paris, and Professor Neisser has so many rare diseases illustrated in his collection, that I felt as though I were attending some imaginary clinic of only rare and puzzling dermatoses.

The laboratories were the next rooms which occupied our attention. There are three large, airy and light rooms with great windows. The desks are covered with white porcelain and allow ample space for each worker. Everything was so scrupulously clean, and my guide and his assistants so cordial and kind, that I regretted more than ever the very long visit I made in Vienna. The students have material given them to investigate, and Professor Neisser is extremely generous with his time and advice, so that the student who has been seeking in all Europe a city where he can procure material and receive instruction from one of the best of modern dermatological pathologists—such a man, I say, can surely feel that in Breslau he has at last found his goal, and that in the delightful laboratories under the charge of Professor Neisser he can well afford to remain for months.

A large series of rooms is devoted to the out-patient department. They are all refreshingly clean and well ventilated, and comprise rooms for waiting, for interviewing, for examining on the table, for operating and for dressing. Every chamber, every instrument case, every article of furniture bore the same mark of neatness and cleanliness which had been so conspicuous in the rooms which I had previously seen. The out-patient clinic is large, though not so vast as the Parisian one. I did not have much opportunity to note the variety of cases for myself, but I can promise that from the house-patients and from the photographs and stereoscopic pictures I have before alluded to there must be an unusual number of wonderful cases observed every year. Breslau is so situated geographically that it draws upon a vast territory for its supply of patients, who flock to this capital of Silesia in great and interesting numbers.

It was not until the following day that Professor Neisser took me through his wards. At the time of my visit I saw no extremely unusual cases, and my host apologized for the paucity of his curiosities, which every man takes great pride in showing to the foreign visitor. But, for my part, the instructive cases of lupus, lupus erythematosus, leprosy, epithelioma, psoriasis, etc., well compensated for the lack of more uncommon types. The wards were extremely clean and airy, and the walls were covered with beautiful engravings of ancient Greece and Rome. So at last I had completed the tour of the hospital, the interior of which seemed to me to be the cleanest and most attractive of any I had seen in Europe.

The day before I left Breslau was one which I shall long remember. Dr. Jadassohn—whom I had previously met at Professor Neisser's house—drove me to the large, old and attractive hospital of the "All-holy Trinity," with its quaint old buildings, and its beautiful old garden overlooking the river Oder and filled with superb old elms and horse chestnuts. I had expected on entering the old building to find it exhibiting the usual signs of old age, but the same idea of health and cleanliness which actuated the authorities in Professor Neisser's hospital was equally patent here, and every bed, every floor, every wall of this large hospital was as fresh and hygienic and attractive as if it had been built the previous day.

The hospital is a general one in character, but Dr. Jadassohn has at least one hundred beds for skin and venereal diseases and a large out-patient department under his control. Overlooking the river is a laboratory where he and his assistants can work to great advantage. The

visit was naturally a long and very interesting one. Dr. Jadassohn told me that most of the unusual cases went to Professor Neisser's hospital, but with the case of universal scleroderma and the many interesting examples of syphilis and other diseases, it seemed to me that he was a little too modest. After the visit, I waited in the laboratory while Dr. Jadassohn and one of his assistants showed me some rare and interesting microscopic slides, and then we drove out to Professor Neisser's clinic to see a few cases which he, with his great kindness, had requested to present themselves on that day for my especial benefit. They were examples which once in a while stagger the expert in dermatology—no matter how old he is, how much he has seen at home or abroad, or how much he has read and studied; even Professor Neisser could give me no diagnosis. To see several such anomalies in so short a space of time was bewildering. It was a proof to me of the idea which I had received from the photographs, that Professor Neisser has indeed a wonderful source from which he can draw his material. As a rule, it is country people who are the most atypical in their dermatoses, and so the vast province of Silesia with its one central capital proves to be no exception to the rule.

This reception of dermatological enigmas was the last scientific event of my most instructive and happy visit in Breslau, and I think I left no city in Europe so sorrowfully and regretfully as I did this one with its many hospitable people and its many-sided attractions. Surely no future student of dermatology should fail to allow Breslau a fair portion of his time in Europe; my inability to do so was one of the greatest errors I could have committed.

BERLIN.

Berlin is a curious city dermatologically, for none of the great hospitals have any clinics for the treatment of the skin. This appears to make the German capital unique among all other large cities, but still I think my assertion is correct. My purpose in visiting Berlin was to see the private clinic of Dr. Lassar, whose name is the most prominent in the dermatology of Berlin to-day.

Dr. Lassar was still another instance of the hospitality and cordiality of foreign physicians. After a little conversation, we started upon our tour of inspection. Dr. Lassar's so-called clinic is in reality a hospital very richly equipped with all that is necessary for the reception and treatment and study of skin diseases. We first visited the waiting-room, dressing-rooms and office for private patients, which are in the same building, but isolated completely and guarded by a very zealous custodian. From this department, we went to that part of the house which is devoted to the poor, and there looked in upon the bathing-rooms, where medicated baths of all description were in progress. The rooms for the out-patients are very well arranged, and trained nurses are in daily attendance. Adjoining them is a large, well-lighted room devoted to the lectures which Dr. Lassar gives daily to a large body of students, who appeared to have more knowledge of cutaneous diseases than any similar class I have ever seen. The talks are clinical and rather informal, and Dr. Lassar is constantly calling upon some member of the class to make a diagnosis or to describe to the others the lesions which he sees upon a given skin. The instruction is supplemented by many good wax models. Continuing our inspection, we entered a large room filled to overflowing with wax models of all sizes—in fact, several entire figures were represented in wax, and very cleverly, too. Off of this little museum is a small workshop where the numerous casts are being manufactured constantly by a man who works entirely for Dr. Lassar and who daily adds to the collection of models and photographs in this small hospital. On the upper stories are bedrooms and an attractive operating-room, and over all we found the laboratories. So one may see how complete this little establishment is; and during my week with my kind host I saw very many instructive cases and heard several good lectures.

As I said above, the dermatology of Berlin is governed almost entirely by private individuals. There are several

other clinics, but my time was so short that I unfortunately was obliged to leave them without even a passing glimpse. A friend spoke very well of Dr. Joseph's, but personally I did not visit it.

With the termination of my seven days in Berlin my wanderings in clinics unknown to me were finished and my home journey took me again to my ideal St. Louis in Paris and finally to London. It has been a long story for my readers, I fear; but I have tried to describe all I saw as minutely and carefully as possible, so that any one desirous of devoting some time to the study of dermatology in Europe could learn what advantages and what disadvantages are to be encountered in the various cities which I was fortunate enough to visit. I hope I have been fair and just in my estimate and criticism of the men whom I met and their methods. If at times I have said things uncomplimentary, it has been solely for the possible advantage of future young men who may study in Europe. I trust I have been impartial and just.

Before closing this sketch of my studies, I want to formulate a plan of work which I would have followed if I had known before all that experience has taught me of European dermatologists and their clinics and laboratories. I should give the following as my advice, considering the time to be enjoyed as two years and three months. I mention the cities in the order and the time of the year most advantageous from my observations, and it will be noticed that the names of four cities appear which I have not described, because opportunity for visiting them was not practicable for me. Bergen I should go to in order to see more leprosy than could be found even in Trondjhem. Buda Pesth would be very valuable for microscopic work under Török. Hamburg would allow one a chance to consider the unique ideas of Unna and to work in his laboratory; and Lille would afford an opportunity for study under Leloir, whose work with the microscope has made his name so prominent:

1. Paris	Oct. 1 to Aug. 1	Ten months
2. Christiania } Bergen } Trondjhem }	Aug. 1 to Aug. 10	Ten days
3. Buda Pesth	Aug. 10 to Oct. 10	Two months
4. Vienna	Oct. 10 to Feb. 10	Four months
5. Prague	Feb. 10 to May 10	Three months
6. Breslau	May 10 to Aug. 10	Three months
7. Berlin	Aug. 10 to Aug. 17	One week
8. Hamburg	Aug. 17 to Sept. 17	One month
9. Bonn	Sept. 17 to Sept. 30	Two weeks
10. London	Sept. 30 to Oct. 30	One month
11. Lille	Oct. 30 to Nov. 30	One month
12. Paris	Nov. 30 to Dec. 7	One week

CHARLES J. WHITE, M.D.

DEATH BY SUBMERSION.

WASHINGTON, D. C., November 30, 1895.

MR. EDITOR:—In looking over your issue of the 28th inst., I find a letter from Dr. Hunt asking for information in regard to drowning. In addition to your interesting communication in the same number of your JOURNAL, I will call the doctor's attention to an article by Dr. Irving C. Rosse on "Death by Submersion" in the first volume of Witthaus' and Becker's "Medical Jurisprudence" in which the subject is thoroughly brought up to date. Perhaps Dr. Hunt has read this work already.

I remain yours, respectfully, E. L. MORGAN, M.D.

[The position taken in Dr. Rosse's article with regard to the time of possible recovery after submersion is in entire accord with the view expressed in our editorial. The only definite statement made on this point by Dr. Rosse in the work referred to is, "Life is extinct in the majority of cases after two minutes, and the chance of restoration after five minutes of complete submersion is doubtful." In Woodman and Tidy's "Forensic Medicine," p. 923, is the statement that Dr. Wooley, who was for many years medical officer of the Royal Humane Society of London, in all his enormous experience met with but two cases of recovery after five minutes' submersion.—ED.]

RESUSCITATION AFTER SUBMERSION.

BOSTON, December 2, 1895.

MR. EDITOR:—Your editorial, "Resuscitation after Submersion," together with Dr. Hunt's letter interest me, inasmuch as I have had a certain amount of experience in cases of drowning. Of five which I have seen, three are worth mentioning.

The first was that of a man who had been submerged possibly twenty minutes. In this instance prolonged efforts at resuscitation were of no avail.

The second case was that of a man who was seen to throw up his arms and sink while swimming a short distance from the shore. Possibly ten minutes elapsed before the body was recovered and artificial respiration commenced. Ten minutes later I reached the spot and finding upon inquiry that no effort had been made (aside from suspending him by the feet) to get rid of the water in the lungs and stomach, I placed him face downwards upon a barrel and lay upon him with my entire weight, two or three times, the result being a discharge of a large quantity of water from the mouth. Artificial respiration was again commenced and continued while he was being transported to a blacksmith's shop where heat, hypodermic injections of stimulants and the usual means of resuscitation were employed and persisted in for more than an hour without success.

The third case was that of a boy who was rescued after a very brief submersion (two or three minutes) and who promptly responded to artificial respiration. There were râles heard at the bases of both lungs, showing that a small amount of water had passed down the trachea; these, however, disappeared within twenty-four hours, their departure being, perhaps, hastened by digitalis and brandy.

Upon the whole, I am not inclined to take a cheerful view of drowning. Possibly the "rhythmical tractions of the tongue," from which such brilliant results have been obtained in France during the past year in children apparently still-born may give better results than the usual method of artificial respiration in cases of drowning. The partial recovery of a suicide by hanging (lately cited in the *Tribune Médicale*), in which this method was employed, is somewhat encouraging.

Yours truly,

F. GORDON MORRILL, M.D.

THE INDEX MEDICUS.


WASHINGTON, D. C., November 27, 1895.

MR. EDITOR:—We ask permission to state that the plan proposed for continuing the publication of the *Index Medicus* having been successful, no more subscriptions can be received.

JOHN S. BILLINGS, M.D., }
ROBERT FLETCHER, M.D., } *Editors.*

METEOROLOGICAL RECORD.

For the week ending November 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Weath'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S..17	29.94	44	47	40	85	100	92	S.E.	S.E.	3	8	O.	R.	.58
M..18	29.95	50	58	41	85	61	75	W.	W.	13	4	C.	O.	.16
F..19	29.88	54	63	46	86	91	88	S.E.	S.E.	7	6	C.	F.	—
W..20	29.26	55	61	49	94	100	97	S.	W.	7	10	O.	O.	.98
T..21	29.79	28	32	25	82	68	75	W.	W.	25	17	C.	C.	.19
F..22	30.58	28	36	21	73	75	73	W.	E.	7	5	C.	O.	—
S..23	30.31	42	57	28	90	70	80	N.W.	S.W.	5	21	O.	R.	—
														1.91

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 23, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York . . .	1,892,332	676	243	13.95	20.70	3.03	.75	5.25
Chicago . . .	1,678,967	416	154	20.40	13.34	4.60	3.12	12.24
Philadelphia . .	1,164,060	386	117	13.52	11.18	.78	1.82	9.10
Brooklyn . . .	1,100,000	358	125	15.12	9.99	1.89	1.35	8.37
St. Louis . . .	560,000	—	—	—	—	—	—	—
Boston . . .	491,205	211	62	13.16	10.34	—	.94	10.81
Baltimore . . .	496,315	168	57	12.00	8.40	2.40	1.20	4.80
Cincinnati . . .	356,000	98	28	12.24	15.30	3.06	2.04	6.12
Cleveland . . .	311,557	—	—	—	—	—	—	—
Washington . .	275,500	99	28	15.15	8.08	5.05	7.07	—
Pittsburg . . .	238,617	90	32	19.98	8.88	3.33	7.77	5.55
Milwaukee . . .	205,000	—	—	—	—	—	—	—
Nashville . . .	87,764	27	3	14.80	18.50	7.40	7.40	—
Charleston . . .	65,165	29	8	10.35	20.70	6.90	—	3.45
Portland . . .	40,000	—	—	—	—	—	—	—
Worcester . . .	98,687	26	12	19.25	—	3.85	3.85	—
Fall River . . .	88,020	39	18	10.24	5.12	5.12	2.56	—
Lowell . . .	84,359	30	13	6.66	10.00	3.33	—	3.33
Cambridge . . .	81,519	20	5	10.00	5.00	—	—	10.00
Lynn . . .	62,355	23	6	13.05	17.40	—	—	8.70
New Bedford . .	55,254	16	5	12.50	12.50	12.50	—	—
Springfield . .	51,534	10	3	20.00	10.00	10.00	—	10.00
Lawrence . . .	52,153	10	2	10.00	20.00	—	—	10.00
Holyoke . . .	40,149	—	—	—	—	—	—	—
Salem . . .	34,437	9	3	11.11	—	11.11	—	—
Brocton . . .	33,157	8	1	—	12.50	—	—	—
Haverhill . . .	30,185	4	0	—	25.00	—	—	—
Malden . . .	29,706	8	1	12.50	—	12.50	—	—
Chelsea . . .	31,295	15	4	20.00	46.66	—	—	13.33
Fitchburg . . .	26,394	3	0	33.33	33.33	—	—	—
Newton . . .	27,622	8	2	12.50	12.50	—	—	12.50
Gloucester . . .	27,663	—	—	—	—	—	—	—
Taunton . . .	27,093	3	1	—	—	—	—	—
Waltham . . .	20,877	6	1	—	33.33	—	—	—
Quincy . . .	20,712	—	—	—	—	—	—	—
Pittsfield . . .	20,447	4	1	—	50.00	—	—	—
Everett . . .	18,578	—	—	—	—	—	—	—
Northampton . .	16,738	2	1	—	—	—	—	—
Newburyport . .	14,554	5	0	—	—	—	—	—
Amesbury . . .	10,920	—	—	—	—	—	—	—

Deaths reported 2,892; under five years of age 970; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 429, consumption 319, acute lung diseases 311, diphtheria and croup 211, diarrheal diseases 78, typhoid fever 56, scarlet fever 20, measles 18, whooping-cough 16, cerebro-spinal meningitis 15, malarial fever 9, erysipelas 6.

From scarlet fever New York 7, Brooklyn 4, Philadelphia and Pittsburgh 3 each, Boston, Fall River and Lynn 1 each. From measles New York 10, Baltimore 3, Providence 2, Philadelphia, Brooklyn and Cincinnati 1 each. From whooping-cough New York 6, Brooklyn 4, Philadelphia 3, Boston, Providence and Worcester 1 each. From cerebro spinal meningitis Chicago 5, New York Washington and Worcester 2 each, Baltimore, Boston, Somerville and Chelsea 1 each. From malarial fever New York and Brooklyn 3 each, Baltimore 2, Washington 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending November 16th, the death-rate was 19.1. Deaths reported 3,876; acute diseases of the respiratory organs (London) 340, measles 163, diphtheria and croup 107, diarrheal 83, whooping-cough 66, fever of, scarlet fever 58, small-pox (West Ham) 1.

The death-rates ranged from 10.0 in Huddersfield to 36.4 in Blackburn; Birmingham 20.4, Bradford 18.9, Cardiff 18.4, Gateshead 22.8, Hull 17.3, Leeds 16.5, Leicester 13.2, Liverpool 30.8, London 17.9, Manchester 22.0, Newcastle-on-Tyne 18.6, Nottingham 20.9, Portsmouth 14.9, Sheffield 15.7, West Ham 15.0.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 30, 1895

F. ANDERSON, surgeon, detached from the "Amphitrite" and ordered to the "Dolphin."

P. M. RINNY, surgeon, detached from the "Dolphin" and placed on waiting orders.

J. E. GARDNER, surgeon, detached from Port Royal Station and ordered to the "Amphitrite."

I. W. KITE, passed assistant surgeon, detached from the "Franklin" and ordered to the Naval Hospital, New York.

T. A. BERRYHILL, passed assistant surgeon, detached from the Naval Hospital, New York, and ordered to the Port Royal Naval Station.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 23, 1895, TO NOVEMBER 29, 1895.

Leave of absence for one month, to take effect about December 4, 1895, is hereby granted MAJOR GEORGE W. ADAIR, surgeon, Washington Barracks, D.C.

INTERNATIONAL CONGRESS OF PSYCHOLOGY.

The Third International Congress of Psychology will be held at Munich from the 4th to the 7th of August, 1896. Prof. Dr. Lipps, München, Georgenstrasse, is Chairman of the Committee of Reception.

The opening of the Congress will take place on the morning of August 4, 1896, in the great "Aula" of the Royal University. All psychologists and all educated persons who desire to further the progress of psychology and to foster personal relations among the students of psychology in different nations are invited to take part in the meetings of the Congress. Female members will have the same rights as male.

The languages used at the Congress may be German, French, English and Italian.

The Congress will perform its work in general and sectional meetings. The division of the sections will be arranged according to the papers and addresses which may be offered. The meetings take place at the Royal University. The length of the papers or addresses at the sectional meetings is limited to twenty minutes. It is hoped that any member who takes part in the discussion will, to ensure a correct report of his speech, give the chief points of it (on a form which will be provided) either during or at the close of the meeting.

Any psychologist who offers a paper or address is requested to send to the Secretary before the beginning of the Congress a short written abstract of its contents. These abstracts will be printed and distributed amongst the audience, so that the different languages used at the Congress may be better understood.

Programme of Work. — I. Psycho-physiology. II. Psychology of the Normal Individual. — III. Psycho-pathology. — IV. Comparative Psychology.

Members who intend to lecture at this Congress are requested to announce their themes and to send extracts of them to the Secretary's office (Munich, Max-Josephstrasse 2) before the 15th of May, 1896.

For themes announced after the 15th of May the committee cannot promise admittance. It is very desirable to give orders for lodgings in advance, because at the beginning of August the hotels of Munich are very full.

Arriving members of the Congress may inquire at the station after the bureau of the Verein zur Förderung des Fremdenverkehrs, and they will willingly give all information about hotels, pensions and private lodgings to be recommended.

The Secretary's office from the 3d of August during the Congress is at the Royal University (Ludwigstrasse 17).

Prof. William James, 95 Irving Court, Cambridge, Mass. Prof. G. S. Fullerton, 116 Spruce Street, Philadelphia, Penn. Prof. Stanley Hall, Clark University, Worcester, Mass. Dr. Newbold, University of Pennsylvania, Philadelphia, Penn. Prof. H. Donaldson, Chicago, Ill., are the American members of the International Committee of Organization.

The General Secretary of the Committee is Dr. Frhr. von Schrenck-Notzing, München, Max-Josephstrasse.

RECENT DEATH.

DR. F. P. PORCHER, a well-known physician and botanist, died at Charleston, S. C., on November 19th, at the age of seventy. He was professor of materia medica and therapeutics in the Medical College of the State of South Carolina and was the author of works on pharmaceutical botany.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, December 12th, at 8 P. M., by ASST. PROF. FRANKLIN DEXTER. Subject: "A Glance at the Structural Plan of the Brain." The profession are invited.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Symptomatic Anæmia. By W. Blair Stewart, A.M., M.D., Atlantic City, N. J. Reprint. 1895.

The Technique of Tenotomy of the Ocular Muscles. By Leartus Connor, A.M., M.D., Detroit, Mich. Reprint. 1895.

Traumatic Separation (Compound) of the Lower Epiphysis of the Femur. Craniectomy; An Improved Technique. By A. H. Meisenbach, M.D., St. Louis. Reprints. 1895.

Original Articles.

THE BACTERIOLOGICAL EXAMINATION OF NINE AUTOPSIES ON CASES OF DIPHTHERIA TREATED WITH ANTITOXIN.¹

BY WM. ROYAL STOKES, M.D.,
Resident Assistant Pathologist, Boston City Hospital.

THE occurrence in diphtheria of a general infection with one or more of the pyogenic organisms in addition to that with the bacillus diphtheriæ has only recently been satisfactorily demonstrated.

Barbier² and others, have pointed out from conclusions based mainly upon the bacterial examination of the throat, and clinical observation, the existence of two distinct forms of diphtheria, one a simple infection with the bacillus diphtheriæ, the other a mixed infection with one or more of the pyogenic cocci. The objective demonstration, however, at autopsies on diphtheria, of the invasion of the various organs by pyogenic cocci has received but little attention.

Geneserich,³ in the examination of 25 autopsies, found the streptococcus in the blood and internal organs of four cases, and in a number of others the staphylococcus pyogenes albus was present. Wright and Stokes,⁴ in 21 out of 31 cases, or in nearly 70 per cent., found a more or less general invasion of the internal organs by the pyogenic bacteria, of which the streptococcus was the one most frequently observed. Reiche⁵ has recently examined cultures from the spleen and kidney of 42 cases of diphtheria, in 64 per cent. of which he found streptococci and staphylococci together, and in 41 per cent. of which streptococci were found alone. Ricker⁶ has also demonstrated streptococci in pure culture from the liver of a fetus, and in a placenta from a woman six months pregnant, who died of septic diphtheria.

These observations are of interest as showing, not only that diphtheria in the majority of cases is not an infection with the bacillus diphtheriæ alone, but also because they explain the inefficiency of antitoxin in many cases, for this agent cannot be assumed to act against any other organism than the bacillus diphtheriæ.

Besides this matter of poly-infection in diphtheria, the occurrence of this bacillus in the various internal organs has only recently been demonstrated as frequent, and is of considerable interest.

Until the work of Frosch⁷ in 1893 it was generally believed that the bacillus diphtheriæ was only to be found in the local lesions. This investigation, however, proved that the bacillus invaded the internal organs by demonstrating its presence in cultures made from large amounts of material taken from the blood and various organs of individuals dead of diphtheria. Kolisko and Paltauf⁸ have also reported the presence of this organism in the spleen of one case; Schmorl⁹ in the cervical glands, in seven out of ten cases; and Booker¹⁰ has recently obtained it in cultures from the spleen, submaxillary gland, lung, and blood of the heart. Kutcher¹¹ observed it once in the liver, and once in

the kidney; and Wright and Stokes⁴ found it in the lung in 30 out of 31 cases, in the liver in 9 out of 29 cases, in the kidney in 6 out of 31, in the spleen in 5 out of 31, in the blood of the heart in 5 out of 26, in the brain tissue in 2 out of 5 cases, in the mucous membrane of the stomach in 3 cases, and often in the mesenteric, cervical, and bronchial lymphatic glands.

As a rule, the bacilli are only found in these situations in small numbers, and their occurrence here should not be considered as in any way tending to disprove the idea that diphtheria is essentially a toxemia. The bacilli must be considered as gaining admission to the circulating blood, in a certain sense, accidentally.

As a contribution to these subjects in the bacteriology of diphtheria, the results of the examination of nine autopsies on diphtheria cases performed at the Boston City Hospital since January 1st are here reported.

These were all uncomplicated cases of diphtheria, in which antitoxin had been administered.

The method of examination consisted in making cultures on coagulated blood-serum "slants" (Löffler's mixture) from the lung, liver, spleen, kidney and the blood of the heart. In all of the cases the bacillus diphtheriæ was found post-mortem in cultures from the respiratory tract.

In eight of the nine cases of uncomplicated diphtheria to which antitoxin had been given, the bacteriological examination at the autopsy showed a more or less well-marked invasion of the blood by the pyogenic cocci. The results in detail are as follows: In five cases the streptococcus was found in the liver, spleen, kidney and the blood of the heart; in one case in the kidney and blood of the heart; and in one case in the spleen. The pneumococcus (*micrococcus lanceolatus*) was found only infrequently, it being observed in two cases in the kidney, in one of which the streptococcus was also found in the spleen. In the cultures from one case the only organism present was the bacillus coli communis.

In the lungs of all these cases were found the bacillus diphtheriæ, streptococci, pneumococci, and the staphylococcus pyogenes aureus, either alone or in various combinations.

The presence of the organisms mentioned above in the various viscera enables us to better understand the fatal issue in spite of the antitoxin given; for this agent, as stated above, cannot be assumed to act against any other organism than the bacillus diphtheriæ.

Welch¹² has lately published the statistics of 7,166 cases of diphtheria treated by antitoxin, in which the percentage of fatal cases was only 17. In 2,276 cases in which this remedy was not used, he found the fatality to be 42 per cent.

He considers anti-diphtheritic serum a specific curative agent for diphtheria, and shows that if antitoxin be given during the first three days of the attack, the fatality is much less than in cases in which the serum is given later in the disease.

He also thinks that this serum may prevent the development of secondary infections, and that the failure of antitoxin to cure may at times be due to the presence of other complicating bacteria.

Assuming, therefore, beyond peradventure, the efficacy of this remedy, the importance of its early and thorough administration cannot be overestimated, for by this means the dangers of secondary infection may

¹² Johns Hopkins Hospital Bulletin, Nos. 52-58, July and August, 1895.

¹ From the Pathological Laboratory of the Boston City Hospital.

² Archives de méd. expér., 1891, No. 3.

³ Jahrbuch f. Kinderheilkunde, xxxviii, 1894, Heft 2 und 3.

⁴ Boston Medical and Surgical Journal, March 21, 28 and April 4, 1895.

⁵ Centralblatt f. innere Medizin, xvi, 1895, No. 3.

⁶ Centralblatt f. allg. Path. und path. Anatom., Bd. vi, No. 3.

⁷ Zeitschrift f. Hygiene, Bd. xiii, 1893.

⁸ Wiener klin. Woch., 1889.

⁹ Schmidt's Jahresbericht, Bd. 237, Heft 1.

¹⁰ Archives of Pediatrics vol. x, 1893.

¹¹ Zeitschrift f. Hygiene, xviii, 1.

not only be lessened, but if this condition be present, the system may possibly be better prepared to overcome the ill effects of the various complicating bacteria present in the body.

As to the occurrence of the bacillus diphtheriæ in the internal organs in these nine cases, it cannot be said that it has been met with any less frequently than in other cases which have come to autopsy at the City Hospital, and which are referred to above. In these antitoxin cases it has been found in the kidney in four cases, and once in the heart and spleen respectively.

CLINICAL EXPERIENCE IN ABDOMINAL SURGERY AT THE MASSACHUSETTS GENERAL HOSPITAL.

BY J. COLLINS WARREN, M.D.

(Continued from No. 23, p. 559.)

Pyosalpinx, Tubercular Peritonitis, Laparotomy, Recovery.—This girl, twenty years of age and unmarried, entered January 16, 1894, in a very weak and debilitated condition. Her symptoms she dates from last May, when she had a sharp pain in the lower abdomen during the first day of menstruation. This pain returned with succeeding periods until October, since which time she has not flowed. Her first catamenia was at fifteen; then to sea-bathing she ascribes amenorrhea for three months. Since then she has been fairly regular. Ten weeks ago very severe pain in hips and back, not at menstrual time. The pain was ushered in with a chill and vomiting. The chills recurred, and she has been in bed for seven weeks.

On physical examination nothing but tenderness could be made out to right of uterus. As the temperature continued high, it was decided to operate.

January 26th, in the Trendelenburg position, a four-inch median incision below the umbilicus showed the omentum and intestines to be adherent to the abdominal parietes. The intestines were glued together and covered with minute tubercles, a small amount of hemorrhagic fluid escaped. A localized abscess cavity was found in the right pelvis. In this cavity was the thickened and tortuous right Fallopian tube, which was tied close to the uterus and removed. The cavity was then sponged and packed with iodoform gauze, and the external wound was dressed with aseptic gauze.

There was considerable shock after the operation. For several days there was a very free purulent and fecal discharge. The wound was treated with irrigations of corrosive sublimate (1 to 10,000), and later with sulpho-naphthol and styrene. Recovery was rather slow, and on March 12th she was sent to the Convalescent Home to recuperate her strength. The sinuses were still discharging, but there was marked improvement in her general condition.

Patient gained in health and strength until the autumn of 1894. After that she failed slowly, and died January 23, 1895.

OÖPHORECTOMY.

There were in all seven cases of oöphorectomy, with no deaths. One was for fibroid tumor of the uterus, already reported. One was for neurasthenia and dysmenorrhea; in this case the report, eight months later was, "Health still poor." In another case a small ventral hernia was reported eight months

later. Three cases are selected for this report, as having special points of interest.

Dermoid Tumor of Ovary, Laparotomy, Recovery.—E. H., married, aged fifty-seven years, entered the hospital December 17, 1893. In May, 1893, she experienced a sharp pain in the lower abdomen just above the symphysis, with a frequent desire to micturate. This lasted a few hours. In June she had another attack, which to a certain extent has persisted. Climacteric eight years ago. Constipated. She is well developed and nourished. To the left of the uterus is a tumor the size of orange. Not tender.

Operation in Trendelenburg position. A four-inch median abdominal incision disclosed a tumor of the left ovary, connected to the uterus by a small pedicle which included the tube. With the trocar about six ounces of thick gelatinous matter was evacuated, and the tumor was removed. Abdominal wound closed.

Uneventful recovery. One month from operation she was discharged well.

On opening the cyst after removal, it was found to contain hair, a tooth and adipose tissue—a true teratoma. A portrait of this tumor may be seen on page 750 of my "Surgical Pathology."

Extra-Uterine Pregnancy (?), Ovarian Cyst, Laparotomy, Appendectomy, Recovery.—The patient, a married woman of forty-three years, entered the hospital December 27, 1893. For six years she has had a dragging-down sensation—uterine. For two years "nervous prostration." Six years ago she bore a child, and one year ago she miscarried at three months. Three months ago she considered herself one month pregnant, although catamenia had appeared. She had a sudden severe pain above and to right of umbilicus. Has lost flesh and strength. Feels better when standing. Appetite good. By vagina a cyst can be felt in posterior cul-de-sac.

Operation was performed January 5, 1894, in the Trendelenburg position. A five-inch median incision was made. A cyst, the size of a lemon, occupied the position of the left ovary, and the left Fallopian tube was dilated to the size of a walnut. From this dilated part, which was about an inch from the uterus, escaped what was apparently a large clot. No fetal structures were observed. The tube and cyst were removed close to the uterus. The uterus contained three or four small mural fibroids which were not disturbed. The appendix vermiformis was accidentally exposed during the operation, and was found to contain several concretions, and was ligatured and removed. The abdominal wound was closed.

On the eighth day the stitches were removed. The patient made an absolutely uneventful recovery, and was discharged on the twenty-sixth day.

August 6, 1895. Patient reports herself in good health. The catamenia have been regular as "clock-work" since the operation. There is no hernia.

Retention Cyst of Ovary, Ovariectomy and Ventral Fixation, Recovery.—Single, twenty years old. Entered February 9, 1894. When nine years old sustained injury to lower spine from fall, necessitating cushioned seat ever since. Suffers from backache, etc. Catamenia began at thirteen, never regular. Three years ago again fell; symptoms aggravated. Douching and packing for six months without relief. Two years ago pain in epigastrium; dull at first, then sharp, accompanied by nausea and vomiting; chill, with temperature 104°. In bed two weeks. Trouble

with micturition; bearing-down pains, not at menstrual period. Several attacks of epigastric pain, becoming abdominal and lasting two days. Four weeks ago an attack was followed by severe rectal pain. Said to have had *la grippe*. One week later passed pus by rectum. At that time "bunch" felt in rectum, and thinks fistula (recto-vaginal) existed. Invalid for years.

Physical examination showed the uterus sharply retroflexed and bound by adhesions. There was some tenderness in the right posterior cul-de-sac with a small indistinct convoluted mass.

February 21st, in Trendelenburg position, the abdominal cavity was opened by a five-inch median incision. The adhesions of the uterus were freed, and the right tube and ovary, enlarged, cystic, and with a hematoma in the ovary, were ligatured with silk, and removed one inch from the uterus. The uterus was then sutured to the anterior abdominal wall with buried silkworm-gut and the external wound closed with the same material. A dry sterile dressing and swathe were applied.

After the operation, for a day or two there was considerable pain and some vomiting, requiring nutrient enemata. The wound healed by first intention, and she made a good convalescence, being discharged on the twenty-fourth day.

July, 1895. Has had some attacks of pain since discharge. Now gaining and doing well. Gain not so marked or rapid as hoped for. No examination of uterus has been made.

SUPRAPUBIC CYSTOTOMY.

Suprapubic Cystotomy for Cystitis.—J. J. K., aged forty, born in Cape Breton and living in Wakefield, entered the hospital December 16, 1893. Seven months before he had been divulsed for strictures. At that time no stone was found. Sounds have been passed since about twice a week. About a fortnight after leaving the hospital he began to pass blood, which has increased steadily in amount. There has been also an increasing dull, steady pain in the bladder. Micturition has been very frequent. For five weeks gravel has been passed.

Examination showed considerable pallor. There were four strictures of the penile urethra admitting a No. 20 F. bougie, and one of the membranous through which a searcher could easily be passed. No stone was found, but a roughness was felt on the left side of the neck of the bladder. An examination of the urine, December 19th, showed the presence of blood, triple-phosphates and urate of ammonia and cells from neck of bladder. No cells indicative of morbid growth, alkaline, 1029.

January 3, 1894. Blood has been passed constantly, and with great tenesmus. A cystoscopic examination was made, and a mass on the left side near the neck of the bladder was seen projecting from the bladder wall, and covered with a white phosphatic deposit. There were shreds hanging from this mass, and from the bladder wall, which was everywhere hyperemic.

January 8, 1894. With the patient in the Trendelenburg posture the bladder was filled with warm water and the rectum was distended with a colpeurynter. A vertical cut, three inches long, was then made into the prevesical space. The bladder was exposed, seized with tenacula, and opened by a cut an inch and a half long. No new growth was found, but the bladder

was seen to be covered with phosphatic crystals and the projecting mass seen with the aid of the cystoscope proved to be a fold of the bladder wall. The bladder was drained with two rubber tubes and gauze, inserted through the wound.

No infiltration occurred. The wound had closed by March 17th, about nine weeks after operation, and micturition was normal in every way. He was discharged well, April, 1895.

SARCOMA OF ABDOMINAL WALL.

Fibro-Sarcoma of Abdominal Wall, Excision, Recovery.—E. M., aged thirty-three, married, born in Ireland and living in Cambridge, entered the hospital January 4, 1894. Her family and previous history negative. A year-and four months before, she noticed a lump about the size of a hen's egg in the right side, neither painful nor tender. This has gradually increased in size till it now causes much inconvenience in moving and in adjusting clothes. There has been no loss of flesh or strength.

Examination showed the woman well developed and nourished. Presents in right iliac fossa a rounded, not nodulated, dull tumor, the size of a child's head. The skin not adherent. No redness. The tumor was movable except when fixed by flexion of the thigh.

January 10th. By an elliptical incision, seven inches long, at the under and outer margin of the tumor, it was shelled out from its attachments by blunt dissection. It sprang apparently from the fascia of the internal oblique muscle. The peritoneum was not opened. The different muscular layers were united with interrupted silk sutures, and the skin with silkworm-gut.

January 31st. Has healed by first intention. Discharged well.

Tumor pronounced by Dr. Whitney to be fibro-sarcoma.

August 15, 1895. Patient reports that there is no return of the disease nor any appearance of hernia, and that she is quite well.

VENTRAL FIXATION.

Procidentia Uteri, Ventral Fixation, Recovery.—A widow, forty-five years old, entered November 3, 1894. Three months ago, while working, sustained a sudden prolapse of uterus, which she tried ineffectually to reduce. Nothing has been done for it, and on entrance the entire uterus was found protruding. It was enlarged, and there was a foul odor and considerable discharge flowing from many excoriations. The cervix was torn, and there were friction abrasions about vaginal wall and vulva, and a small abscess in the perineal body from which pus flowed. The prolapse was reduced without ether, and the patient was put to bed.

After a prolonged local treatment, employed for the purpose of diminishing the size of the uterus and relieving an endometritis, on November 30th, having gained strength, the uterus was thoroughly curetted and packed with iodoform gauze. The organ, which was retroverted and retroflexed, was propped up by gauze in the posterior cul-de-sac.

On December 6th she was etherized, and the abdominal cavity opened. The uterus was drawn up from the pelvis and fastened by three silk sutures to the anterior abdominal wall. The wound healed by first intention, and the patient made an uneventful recovery.

On January 3, 1895, with the uterus in excellent position in all postures, a supporter was fitted, and she was discharged well, twenty-eight days after the operation.

August 29, 1895. Uterus remains in place. The patient can feel a slight sagging when working very hard. It has never appeared at the vulva since the operation. Feels better than she has for a long time, and is able to do a hard day's work.

Retroversion of Uterus, Ventral Fixation, Recovery.—A. E., age twenty, single, entered December 14, 1895. Two years ago she began to masturbate, and four or five days after the first attempt she had her first epileptic attack. She was observed in the hospital, and had one attack before operation. The uterus was found retroverted and freely movable, at other times antroverted. It was curetted, and the posterior cul-de-sac packed. Pessary caused too much discomfort, and packing did not relieve. Had other attacks which Dr. Walton considered true epilepsy and advised removal of possible reflex causes. It was therefore decided to perform ventral fixation to prevent the great freedom of displacement of the uterus.

On January 9, 1895, the abdomen was opened by a median incision, and the uterus sutured to the parietes by three silk stitches. The wound was closed in layers, and a dry sterile dressing applied.

Had an attack after the operation. Later had much pain in left iliac region, running into thigh, with tenesmus and symptoms of pressure upon rectum. Vaginal examination reveals a firm, regular, tender mass in the posterior cul-de-sac. Uterus in place; no leucocytosis; probably a hematoma. The wound had closed by first intention. Flaxseed poultices and hot vaginal douches were given with relief.

After this she made a good recovery; and February 16, 1895, five weeks after the operation, she left the hospital greatly relieved.

August 29, 1895. No relief to epilepsy. Habits and mental condition not improved. Considerable leucorrhoea. Uterus in good position.

The following is a list of the cases treated:

	Cases.	Recov.	Deaths.
Appendicitis, acute	15	13	2
Appendicitis, recurrent . . .	3	3	..
Cholecystotomy	2	1	1
Cystotomy, suprapubic . . .	1	1	..
Exploratory laparotomy . . .	6	5	1
Radical cure of hernia . . .	10	10	..
Hysterectomy	4	3	1
Hysterorraphy	1	1	..
Intestinal obstruction . . .	3	2	1
Nephrothotomy	1	1	..
Oophorectomy	7	7	..
Salpingitis, purulent	11	10	1
Sarcoma of abdominal wall . .	1	1	..
Ventral fixation	2	2	..
	67	60	7

Total mortality, 10.4 per cent.

In analyzing the causes of death, we find in the case of appendicitis one death due to delay in the operation. In the case of cholecystotomy the necrosis of liver was due possibly to injury during the process of manipulation of the duct. It is not rare for a case to fail and die with persistent vomiting, after operation on the gall bladder, without assignable cause. In the present case the sepsis found about the duct was probably merely an accompaniment of the final hours of a fatal illness. The absence of all sepsis until the last moment is suggestive of this sequence of events. The death following an exploratory laparotomy was

in no way due to the operation, which was resorted to as the only hope for a desperate case. In the fatal case of hysterectomy death was due to hemorrhage; clearly a preventable cause. The case of death following a Littré operation was that of a patient exhausted by malignant disease and a chronic obstruction. The operation probably hastened death but a day or two. The death from salpingitis was one which could hardly be attributable to the operation, as that was not resorted to until all other means had failed to restore the strength of the patient to the living point. Leaving out these cases in which the operation does not appear to have contributed to the fatal result, there remain but three cases in which death may have been said to be due to the treatment.

SYPHILITIC WARTS.

BY JAMES E. FREE, M.D., BILLINGS, MONTANA.

THE civilization peculiar to the brand-new West, is responsible for different kinds of venereal diseases. Fifty prostitutes in a town of twenty-five hundred inhabitants insures a constant supply of gonococci and also numerous cases of syphilis. Prostitutes make a business of examining candidates for bedfellowship. A prevalent opinion, especially among philanthropists, is that the Indian squaw is a model of chastity. God spare the model! Even some of the girls who have been to the schools on the Atlantic coast are common property for white men. What their habits with the bucks are is not known, but many white devils contract venereal diseases from the "blankets."

Syphilitic warts are recognized by the fraternity as dangerous, and consequently the pimps, tin-horn gamblers, and hangers-on are anxious for treatment as soon as such lesions show themselves. The wart is usually within a radius of a few inches of the genitals, although any situation, where heat and moisture are retained, may be infected; such for instance as the commissures of the lips, between the toes, in the axilla or on the nose. They are very contagious. Contagious surfaces like the scrotum and thigh are likely to infect each other. The warts have a stale, flat, unprofitable odor, which is recognized by the bystander sooner than by the proprietor. There is a sort of eczematous ooze from the surface of the wart. Rapid proliferation of tissue is probably caused in the first place by the irritant effect of syphilitic poison to the peripheral nerve terminals. This neuritis brings a quantity of blood to the spot. The layers of the skin are engorged and distended. It is easier to attract the blood than to dispose of it. Efforts to make room for this blood causes the new growth to hypertrophy. Bleeding from the wart is a common accident of no particular significance. It only shows that the heart exerts power enough to break through the spongy barriers which the wart has constructed between it and the outer world. Blood with secondary syphilis in it does not possess the elements in condition to do normal constructive work. The discharge is caused by the squeezing through this mass of illy-organized tissue of the watery constituents of the blood. Blood in the wart is semi-stagnant. It is, therefore, a splendid place for degeneration and necrosis, which explains the fetid smell.

The chancre is the step-brother of the syphilitic wart. Both are illegitimate children. The chancre has the

appearance of being caused by a powerful escharotic. First of all there must be a solution of continuity in the tissue. A nerve filament is irritated. It is such an insignificant process that it escapes notice, but it extends and involves other terminals. They become infiltrated and indurated. Function is disturbed. The small circle of tissue which these nerve filaments supply with impulses begins to suffer. Blood-vessels become dilated because of inhibition of vaso-motor control. The syphilitic virus here comes into contact with the blood, which finds difficulty in escaping from the inflamed patch, owing to interrupted connection with the central nervous mechanism. Nature takes alarm and hurries her forces to the rescue. She tries to build a wall of fibrinous deposit between the infected spot and surrounding structures. The chancre usually has its boundary line as well marked as a spot of gangrene. Before the inflammatory action has gone very far, the syphilitic poison has entered the general system, so that nature's prophylactic measures are of no avail. By the end of a month every fibre of the body has been invaded. The peripheral nerves seem to suffer first and most severely. This is probably due to the delicacy of their construction and function. The contaminated blood penetrates the cells, and introduces the poison into the sentient structure inside of the sheath. A general rebellion of the network of peripheral nerves follows, which is the syphilitic rash. This rash probably comes out on the mucous surfaces, especially on the gastric and intestinal membranes, and here is the key to the digestive disturbances, the malaise and headache. In the aggregate the inflammatory process is sufficiently widespread to explain the high temperature. The increased heat of the body lasts long enough to effect a chemical alteration in the syphilitic poison, which in the future expends its virulence on the deeper structures. All the exanthemata have the same predilection for the surface of the body at the commencement of their course. Variola makes the most vicious attack, and is met by the stubbornest resistance. Each exanthem is girdled, and the blood-supply shut off. Necrosis and exfoliation is the result.

In the woman, syphilitic warts have the appearance of being much more serious than in the man, owing to the fact that the moist tissue which shades insensibly from mucous membrane to skin, is so abundant. And it is on this half-breed space that this vegetating parasite thrives best. Speedy relief is always demanded, and the victim is sure her last conquest is to blame. Nearly all the sufferers are alcoholic inebriates. It is possible that the irritating effect of alcohol, combined with its stimulant property, will explain the birth of the wart.

Caustics locally, and mercury internally, seems to be the usual order of treatment. An escharotic acts by causing an albuminous deposit in and on the growth. The albumin clogs every orifice and produces induration and edema. It interferes with every function of the structure and arrests circulation. Without blood to maintain life, the tissue dies and sloughs off. Removal by this method leaves a scar.

Another method advocated by Dumesnil, of St. Louis, consists of bathing the surface with a bichloride solution, drying it, and then dusting calomel in large quantity upon the mass. The antiseptic quality of the bichloride kills the virus that is within reach. It also exerts an astringent effect. Calomel dries up

the once moist surface. It was the escaping secretion which kept the wart alive and growing. When it fails, growth ceases. The process of disappearance usually begins at the outside. What circulation there is in the wart begins to contract in area. This diminishes the distention. The wart has no organized nerve supply, but may be tender because it makes trouble for the nervous apparatus directly beneath it. When there is no longer an outlet for the mucoid secretion, there is probably a coagulation of the constituents inside the area covered by the calomel. This process soon obliterates the lumen of the capillaries of the wart. Finding its occupation and its nourishment gone, the wart gives up the ghost, and a rejuvenated surface comes into view.

Another method of dealing with the warts is by injecting a ten-per-cent. solution of cocaine. Cocaine is a caustic. An injection sets up an inflammatory disturbance around the base of the wart. Fibrinous exudation takes place and disorganizes the circulation. The arrangement by which the blood-vessels of the skin have been tapped to supply the wart nourishment, can be imagined to resemble a narrow neck, communicating with a big bottle. When the bottle is full it cannot be emptied fast enough. The pressure of the heart has more effect on the elastic tissue than in forcing the blood into the venous channels. An inflammation of the tissues beneath the wart means starvation for it. A severe phlogistic process may make the wart have a shrivelled, bloodless look in short order, but usually the disappearance occurs gradually.

Clinical Department.

CASES OF INTEREST FROM THE SUMMER GYNECOLOGICAL SERVICE AT THE BOSTON CITY HOSPITAL.¹

BY JOHN G. BLAKE, M.D.

THE following cases selected from the summer service of the City Hospital are thought to be of sufficient interest to report to this Society.

They comprise a death following Alexander's operation; death from pulmonary embolism resulting from thrombosis in the iliac vein, and that following induced abortion five months before; two cases of malignant disease of the uterus and vagina of a very rare form; recovery after laparotomy in advanced pregnancy, followed by premature labor at sixth month, placenta previa, profuse hemorrhage, instrumental delivery and rapid restoration of health; and a case of tubercular disease with large distention of tubes without symptoms and with a markedly displaced and adherent uterus. The histories of these cases are from the hospital records.

STERILITY: ALEXANDER OPERATION, DILATING AND CURETTING, DEATH.

D. G., aged thirty-one. Married three years. No children. Entered Gynecological Service June 10, 1895. Had had leucorrhea for four or five years. Menstruation irregular, with considerable pain during the first day, sometimes being confined to bed.

Physical examination. Uterus retroverted in marked degree. Sound enters to a depth of three inches. A moderate amount of uterine discharge.

¹ Read before the Obstetrical Society of Boston, October 12, 1895.

Operation. Ether. Dr. Blake. June 13th. The uterus was dilated, curetted, and packed with iodoform gauze. Uterus was replaced, and a hard rubber pessary inserted to hold it in position. Alexander's operation was then performed. On the left side a careful search for the round ligament was unsuccessful. On the right the ligament was easily found, and secured in the usual manner. A search was again made on the left side, but without success. The incisions were carefully cleansed with corrosive, superfluous fat removed, and edges approximated by means of deep silkworm-gut and intermediate silk sutures. Wounds were dressed with iodoform gauze and colodion.

June 14th, A.M. Since operation there has been considerable pain in the abdomen, which is swollen, tympanitic and very sensitive to touch. Patient vomited several times during the night and this morning. In the afternoon the gauze was removed from the uterus. Corrosive douche given. Wounds inspected. About the incision on the left side there is a slight duskiness and slight swelling. Patient seen by Dr. Blake this afternoon and the diagnosis of acute peritonitis was made. Patient is very sick; tenderness and tympanites are increased; face flushed.

During the afternoon and evening patient grew rapidly worse; the pulse could not be counted. Patient did not respond to treatment, and died at 9.30 P.M. All efforts to obtain an autopsy were unsuccessful.

PULMONARY EMBOLISM.

This was caused by thrombus of the iliac vein, the result of induced abortion five months before.

D. W., aged twenty, entered the hospital June 15, 1895. Her complaint was flowing for six weeks, due to induced abortion. Her mother and father died of phthisis. In December, 1894, when two and a half months pregnant, abortion was induced by insertion of a catheter into the uterus. Flowing ensued, and continued for three weeks. For the next three months her catamenial flow, previously of moderate amount and duration, continued but one day at each period. She has had very much abdominal pain and has lost flesh. Six weeks ago profuse flowing began, characterized by large clots at first, and, with one brief remission has continued. During most of the time the odor has been foul.

Examination revealed the uterus reaching to two inches above the umbilicus, and very movable. From the patulous os uteri exuded a profuse muco-sanguineous discharge containing small shreds of tissue and with a somewhat foul odor. Depth of uterus five inches.

On the next day the uterus was curetted under ether, and a considerable amount of *débris* removed. Profuse hemorrhage was checked by a hot intra-uterine douche of corrosive sublimate, and the uterine cavity packed with iodoform gauze. Its depth had now decreased by an inch. Stimulants and ergot were administered. She made a good recovery from ether. The uterus was douched each day after this.

Two days after the operation excessive pain and tenderness developed in the right inguinal region, but disappeared during the next week. Although very anemic-looking, she seemed gradually to improve until July 4th, when her temperature suddenly rose to 103°. The depth of the uterus was then three and

a half inches, and the appendages apparently were normal. Four days later her temperature was 99°, and she showed such marked improvement that by July 11th she sat up for a little while.

On the morning of July 14th, one month after the operation, she had symptoms of collapse; her temperature fell to 96.8°, and her pulse rose to 140. Respiration was shallow and very rapid. She had no pain, but complained of terrible distress. As the stomach rejected everything, stimulants and nourishment were administered by the rectum. She improved very slightly under stimulation. Dr. Williams saw her, and found dulness at upper lobe and apex of right lung. The dyspnea became more distressing. She failed rapidly, and died that evening (July 14th) after being comatose for four hours. Diagnosis of pulmonary embolism made by Dr. Blake.

Dr. Draper performed the autopsy, at which the following lesions were found:

There was marked anemia of all the organs. Both pulmonary arteries contained large firm thrombi, that of the right being of the size of a man's thumb. There was pulmonary edema and a pneumonia of the right upper lobe, probably of septic origin. The spleen was enlarged, and the kidney contained a small purulent focus. There was a general peritonitis of very recent origin, as evidenced by the extreme delicacy of the adhesions, and an old pelvic peritonitis with very dense adhesions. Both tubes were enlarged and full of pus, the left having apparently ruptured. The uterus was three inches long, and although the canal contained some pus its mucous lining was apparently healthy. There was a thrombus fully eight inches long in the right internal iliac vein, and this was evidently the source of the pulmonary embolism. The head was not opened.

LAPAROTOMY FOR SUPPOSED EXTRA-UTERINE PREGNANCY; PLACENTA PREVIA; DIFFICULT LABOR; RECOVERY.

A. M., twenty-six years old, married six months, a native of New Brunswick, entered July 8, 1895. She considers herself pregnant, her last menstruation being February 28, 1895. For five days she has had pains in the lower abdomen. Seven years ago she had a premature delivery at eight months attended by convulsions. For the past two years she has had a very profuse leucorrheal discharge. She is habitually constipated, and her general condition seems to be not very good. On entrance she had a pulse of 114 and a temperature of 100.2° F. For five days she has had a steady pain across the lower abdomen, never very distinctly localized, but more severe in the left inguinal region, and accompanied by bloating. No cause can be assigned for these pains by the patient. She has had no movement of the bowels in the past five days. The pain has grown constantly worse, and she has had severe vomiting.

Examination showed a swelling to the right of the median line of the abdomen, of about the size of a fetal head. This possibly is a uterine pregnancy of the fifth month. To the left of the median line, in the region of the spleen, is a swelling much smaller than the first. There is marked tenderness over both swellings, more pronounced over the left. Digital examination finds a bilaterally lacerated cervix very deep in the pelvis, more or less to the right and the os very patulous. No evidence of peri-uterine inflammation

found. The patient's general condition and abdominal tenderness suggest a possible peritonitis, with the nature of the swelling in the splenic region in doubt, but with a strong suspicion of extra-uterine pregnancy.

The patient was seen in consultation by Dr. Watson, who advised immediate transfer to the surgical side, where he operated.

By a median incision he exposed the normally developed uterus five months pregnant. An incision was then made in the left linea semilunaris over the tumor in that region, which proved to be the left Fallopian tube and ovary, with an extravasation of blood into the broad ligament of the size of a small cocoon. The tube was bent upon itself in such a manner that the fimbriated extremity of the tube and the ovary were adherent to the uterine portion of the tube. The latter, constituting the pedicle of the tumor was somewhat longer than the thumb, and twisted upon itself. The outer part of the tumor was considerably dilated. The middle portion contained from ten to twelve ounces of bloody fluid, and lay just below the left kidney. There were some dense adhesions to the sigmoid flexure, which were tied and cut, others being separated by the fingers. The tumor was removed close to the uterus.

The pathologist reports the clot to be simply blood, and the other to be a hemorrhagic cyst of the ovary.

After the operation the patient did pretty well for four weeks. She had considerable pain partially relieved by catharsis. A stitch abscess developed, burrowed in the abdominal walls, and under primary anesthesia was laid open and drained. This relieved the pain. The next day she had first a slight bleeding and then an alarming hemorrhage from the vagina. This was August 12th. A diagnosis of placenta previa was made. The placenta was separated, and a fetus of about six months' development was delivered by Dr. Blake with the aid of a pair of Simpson's forceps. The patient's condition after this required salt solution and stimulants. She made a good recovery; the lochia ceased in two weeks, and in sixteen days after the delivery she was sitting up.

The above only faintly describes the difficulty attending delivery. An unyielding os, constant hemorrhage, a placenta to separate before reaching the fetus, an almost exhausted patient and unsuitable instruments, made a combination of difficulties which are not entirely unknown to members of this Society.

GIANT-CELL SARCOMA OF UTERUS AND VAGINA.

Two cases of sarcoma uteri are mainly of pathological importance and interest.

The first, the one where no autopsy could be obtained, claimed to have been well until a year ago. Age forty, married, no children or miscarriages. Has phthisis and nephritis. Edema of face, ankles and other parts of the body. Cervical and inguinal glands enlarged. Cervix uteri enlarged, reddened, and almost raw in appearance. Behind it a swollen, eroded area of vagina, about twice the size of a ten-cent piece. Both cervix and this elevated patch bled at the slightest touch. Tissue seemed markedly friable. Clinical diagnosis of carcinoma made.

A specimen taken from cervix with Mixter's punch is reported upon by Dr. Councilman as follows: "Malignant. The mucous membrane normal; beneath this there is a small cell infiltration; and next to this, extending as far as section reaches, a homogeneous

mass of rather large round, oval or irregular cells with large oval nuclei. Some of the nuclei are tremendous in size, and many bear beautiful kariokinetic figures. A number of giant-cells present. Anatomical diagnosis: giant-cell sarcoma of uterus. This condition is very rare. Growth rapid."

Second case. Patient thin and cachectic, age fifty-eight, married. Menopause about fourteen years ago. Nine children and three or four miscarriages between 1855 and 1866. Entered mainly on account of foul, grayish, vaginal discharge, first noticed nine weeks previous. Examination showed a vagina very much contracted by the cancerous growth, which appeared to have invaded every part. Cervix obliterated. A gray slough noticeable over the entire surface. Odor very foul. Clinical diagnosis of carcinoma made, and a specimen taken with Mixter's punch.

Pathological report: "Malignant. The mucous membrane normal, and beneath this there is a small cell-infiltration, and extending downwards from this a tissue composed of spindle-shaped cells separated at times by a fine fibrous stroma and containing many giant cells, cells with large nuclei and many kariokinetic figures. Spindle giant-cell sarcoma. A very rare tumor. The growth is apparently very rapid."

In both cases illness and pain had developed rapidly. In neither was there hemorrhage at any time. Both had severe diarrhea at times; also incontinence of urine and urethral tenesmus at the last. Mental confusion and delirium at times were present in both from the time of coming under observation. In both the stools were of extremely foul odor. Both were kept comfortable by symptomatic treatment until their death, the first fifteen days after entrance, the second in a month and ten days.

In the second, the anatomical diagnosis, by Dr. Stokes, was as follows: Barrel-shaped chest. Emaciation. Healed tuberculosis of right lung. Emphysema. Chronic diffuse nephritis of granular variety. Remains of kidney infarction. Abscess of both kidneys of the ascending variety from bladder. Acute pyelitis. Acute purulent cystitis. Thrombosis of superior mesenteric artery, with embolism of finer branches. Beginning gangrene of ileum. Chronic endarteritis of aorta. Primary sarcoma of vagina including uterus and surrounding pelvic tissues.¹

Dr. Councilman has kindly consented to make some remarks on this particular form of disease.

STERILITY.

M. S., aged twenty-eight years, married five years, a native of Ireland, entered Ward S, July 22, 1895, on account of vomiting, pain in legs and bearing-down pains extending over a period of three years. Her family and past personal history are negative. She began to menstruate at thirteen years, and has flowed profusely for eight and nine days at a time, passing clots. The menstrual period has been preceded by a week of pain severe enough to confine her to bed. She has never borne children, but four years ago was prematurely delivered, by some unknown cause, at six or seven months. Her temperature on entrance was 98.4° F., pulse 62. She says that she has always been well and a hard worker. About three or four years ago she began to be troubled by bad headaches and "dry heaving," beginning two weeks before catamenia

¹ Autopsy Records, vol. xix, page 114.

were due and continuing until the menstrual flow began. She has had no local symptoms whatever.

On July 22d Dr. Watson recommended her transfer to the surgical side, for laparotomy, separation of the adhesions and ventro-fixation of the uterus. This was because examination showed a retroversion of the uterus with firm adhesions. She was transferred July 23d, and July 25th Dr. Watson opened abdomen by a median incision. He found both tubes dilated and twisted and curled upon themselves. The uterus was very much retroverted and with the tubes was bound down by very firm adhesions. It being considered best to remove the tubes, this was done with great difficulty. The adhesions were tied off and the tubes removed close to the uterus. The ovarian vessels were ligated and the ovaries left *in situ*. Uterus could not be restored by reason of the firmness of the adhesions. The contents of the tubes were caseous, and Dr. Stokes thinks them undoubtedly tuberculous.

There is no phthisis in her family history. The case is reported simply to show the extent and character of pelvic disease which may exist without giving rise to the slightest distress, unsuspected by patient, and not in any way impairing health. Patient's only object in seeking medical assistance was to be cured of her sterility, which unfortunately we were unable to do.

A CASE OF PENETRATING WOUND OF THE ABDOMEN AND LARGE INTESTINE.

ABDOMINAL SECTION. SUTURE OF THE INTESTINE. RECOVERY.

BY F. C. THAYER, M.D., WATERVILLE, ME.,
Surgeon-General, State of Maine.

ABDOMINAL section for penetrating wounds of the abdomen and intestine is not of such frequent occurrence but that a report of the following case may be of some interest.

July 30, 1895. J. S., age twenty-six years, while at work at an irregular moulder, was struck in the abdomen by a tool thrown from that machine. He walked to a physician's office, fifty rods' distance, and was soon after taken home, where I saw him nearly three hours after the accident.

Evidences of free hemorrhage and shock were manifest. He was extremely pale, no pulse could be felt at the wrist, and altogether the case presented a very wretched outlook. I ordered a normal salt solution enema with whiskey, while I looked at the wound, which was an irregular incision, an inch and one-half long, just above the umbilicus and nearly to the outer border of the right rectus muscle.

It had evidently penetrated the wall, for the omentum was presenting, and I was informed by one of the physicians present that he had already had his finger in the abdominal cavity.

As quickly as proper arrangements could be made (instruments, dressings, sponges, etc.), were taken from my office already sterilized), the patient was etherized, and the wound already made was enlarged by an incision three inches in length. The abdomen was full of blood, which welled up through the opening made so as to be well-nigh appalling. A hurried examination of the parts immediately subadjacent to the wound, not revealing the source of the hemorrhage, I began a systematic search for the cause. After a

long, persistent, patient exploration, I found the occasion of the bleeding to be a wound of the transverse colon, one and one-half inches from the hepatic flexure, and on its posterior aspect; the wound was an inch and three-quarters in length, and parallel with the axis of the intestine. There was not much extravasation of the contents of the intestine, although some fecal matter was discovered in the region of the wound. The vessels were ligated and the wound of the intestine closed with the Lembert suture, catgut being used for both ligature and suture. The abdominal cavity was then washed out with a hot, normal salt solution, a liberal quantity being used, as it required a good deal of flushing to get rid of the small clots which were present. The cavity being thoroughly dried, the abdominal wound was closed without drainage. Time of operation one hour and ten minutes.

The patient was put to bed, with no pulse at the wrist, and a heart's action of 160, but quite steady. Hot-water bottles were placed about him, and a half-pint of normal salt solution with three ounces of whiskey was given as an enema before he was taken from the table. One-thirtieth of a grain of strychnia was given hypodermically twice during the operation. This was continued every four hours during the night, and the salt solution was repeated every six hours. He vomited more or less during the night, but on the whole, got quite an amount of sleep.

July 31st, 7 A. M. Temperature 97°, no pulse at wrist; heart's action 140 and fairly steady. During the day one-thirtieth of a grain of strychnia was exhibited every four hours; normal salt solution enema were given every six hours, which served materially to relieve the thirst and feeling of prostration. At 9 P. M. the temperature was 99.8°, no pulse; nutrient enema were given and retained.

August 1st. Slept one-third of the time during the night. Temperature at 7 A. M. 99.6°, pulse 118. At 9 A. M., after a salt enema, he passed a good deal of flatus. At 10.45 A. M. had a slight movement of the bowels with considerable flatus. At 4.30 P. M. had a natural movement of the bowels. At 6 P. M. temperature 98.6°, pulse 95.

August 2d. Had a restful night. At 7 A. M. temperature 98.6°, pulse 84. Nutrient enema given every six hours; milk and lime water, in small quantity, taken with good result. At 6 P. M. temperature 99.8°, pulse 80.

August 3d. Took twelve ounces of milk during the night. At 7 A. M. temperature 98.8°, pulse 80. At 12 M. temperature 99.6°, pulse 95. Face flushed; complained of pain in left side. At 3 P. M. temperature 100.6°, pulse 96. At 6 P. M. temperature 101°, pulse 100. One-half Seidlitz powder given at 6.30 P. M., and at 7 P. M. another half. At 7.30 P. M. bowels moved; three watery movements before midnight. Temperature 100°, pulse 88, 12 P. M.

August 4th. At 7 A. M. temperature 99.6°, pulse 88. At 9 A. M. temperature 99.8°. At 12 M. temperature 100°; 4 P. M. temperature 102°. Thinking there must be some trouble about the wound, I removed the dressings and found at its upper part a well-defined cellulitis, undoubtedly occasioned by septic infection introduced at the time of injury or by an unclean finger. The upper stitch being removed, the edges of the wound were pulled apart, and nearly a tablespoonful of pus flowed out. The abscess cavity

was washed with a half-saturated solution of boric acid and the wound redressed. At 9 P. M. the temperature had fallen to 100°. He had a comfortable night, and the next morning, August 5th, expressed himself as feeling "first-rate" and wished for something more substantial to eat.

August 6th. At 7 A. M. temperature 99°; wound dressed; stitches removed.

August 7th. On this date an accident occurred, which fortunately did but little more than to frighten nurse and patient. During the night, *while asleep*, he got up and walked around the bed, finding himself standing on the floor when awakened by an outcry made by the nurse when she discovered her patient on his feet at the foot of the bed. No harm was done save a separation of the skin through the whole length of the wound.

The progress of the case from this on was uneventful, save that the temperature did not reach the normal point for three weeks, varying from 99° to 101°. At the end of four weeks he began to sit up a little, and was discharged in five weeks from the occurrence of the injury. He is now perfectly well, attending to his usual work.

A CASE OF SPONTANEOUS RUPTURE OF THE UTERUS.¹

BY CHARLES W. TOWNSEND, M.D.

MRS. M., thirty-two years old, an out-patient of the Boston Lying-in Hospital, was first seen by me September 2, 1895, at one A. M., and the following history obtained from the hospital attendant. Her previous seven labors were all normal and all short except the last, which lasted nineteen hours. No instruments used.

The present labor began at six in the evening September 1st, and the os was fully dilated by ten o'clock; and fifteen minutes later the head in O. L. A. position had descended to the perineum. After waiting two hours, as the child was not born, the attendant prepared to send for the out-patient house-officer. While writing the note the woman suddenly exclaimed, "Doctor, quick! The child is moving. It's coming up my throat." Shortly after she complained of an agonizing, burning pain in the left hypochondrium, and said that her labor pains had left her. She also called to be fanned and to have the windows open, and became blanched. She vomited two or three times. An examination immediately after the first outcry showed that the head had receded nearly out of reach, and for the first time there was a discharge of blood from the vagina. The diagnosis of rupture of the uterus with internal hemorrhage was clear, and the out-patient physician so telephoned to me.

The patient, an enormously fat woman with a huge abdomen, was in a small attic room, very filthy and devoid of common necessities. Her condition was one of profound collapse with rapid, thready, irregular pulse, lips almost white, and gasping respiration. To carry her in that condition with a ruptured uterus down the steep, narrow stairs to a hospital seemed certain death, and laparotomy under the condition of the patient and with her surroundings seemed to both Dr. Haven, who came to my assistance, and to myself to be equally hopeless.

Immediate delivery through the vulva was the only alternative. On attempting to pass a catheter it was found to go in through the urethra but to come out into the vagina, about two inches up through a broad transverse rent. Forceps with Reynolds's axis-traction rods were applied, but the head would not come down. Craniotomy at this point would have been the proper operation, but this was not done as it was not definitely known whether the child was alive or not, and objections to a destructive operation had been made. The forceps slipped, and on attempting to reapply them, the head receded, so that the examining arm was inserted nearly to the elbow in order to reach it. Forceps were then clearly out of the question, and nothing was left but to turn the child already wholly in the abdominal cavity and deliver by the feet. The cord was found to be pulseless. The turning was easy, but the extraction, owing to the very large size of the child, was difficult. The child was dead, and was found by tested scales to weigh thirteen pounds. The placenta was free in the abdominal cavity, and was extracted together with large, dark clots.

The woman was by this time pulseless, but reacted after an intravenous injection of a pint of salt solution (given by the out-patient house physician, Dr. Chute) and hypodermic injections of brandy and strychnine. Ergot was also given hypodermically. The uterus contracted well and there was scarcely any external hemorrhage.

The patient reacted well; her pulse returned at the wrist, and after twenty-four hours there seemed to be some chance of a spontaneous recovery. Vomiting was a distressing symptom, and her abdomen became distended. The urine appeared to be passed normally. Her temperature, 102° twelve hours after delivery, returned to normal the next day, and varied between normal and 101° till her death. The pulse fell to 100 the morning after delivery, but soon went up to 120 and 130, and was always of very poor strength. The patient died suddenly at the beginning of the fourth day.

The externe, Mr. A. N. Broughton, deserves much credit for his devoted attention to the patient throughout the case.

As there had been reports of violent treatment by the husband just before the labor, an autopsy was made by Dr. George Stedman. There was no evidence of violence. The body of the uterus was large; close to the vaginal junction was a large transverse rent, involving the vagina and a portion of the bladder. The intestines were blown up with gas, and showed in places beginning peritonitis. The heart was in an extreme state of fatty degeneration.

Medical Progress.

REPORT ON DISEASES OF CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

INTRA-UTERINE INFECTION WITH TYPHOID FEVER.¹

FREUND and Levy report the case of a mother, twenty-four years old, a multipara, who contracted typhoid fever in the fifth month of her pregnancy. This caused a miscarriage in the fourth week of the

¹ Read before the Obstetrical Society of Boston, October 12, 1895.

¹ Freund and Levy: Berl. klin. Woch., 1895, No. 25; Revue Mens. des Maladies de l'Enfance, November, 1895.

disease. The labor was conducted under strict anti-septic precautions. The autopsy and bacteriological examination of the fetus were made twenty minutes after delivery.

Cultures were made from the placenta; also from the spleen, and blood taken from the heart of the infant. The typhoid bacillus was found in all of them. The differential diagnosis between the colon bacillus and the typhoid bacillus was established by culture media and inoculations of animals. Cultures taken from the surface of the placenta and from the vernix caseosa were sterile, which excluded accidental infection.

The pathological lesions consisted of a slight enlargement of the spleen and some increase in the pulp. The Peyer's patches were not ulcerated, and the mucous membrane of the intestine was normal. The authors attributed the absence of specific lesions to the septicemic character of intra-uterine infections in general, and to the fact that the infection did not take place from the intestine.

ICTERUS NEONATORUM: THEORY OF QUINCKE, BY SCHREIBER.²

Of all the theories thus far advanced, this of Quincke's is, according to the author, the only one which satisfactorily explains all the facts. This theory attributes the occurrence of icterus chiefly to the persistence of the canal of the ductus venosus (*veineaux d'Arantius*). Owing to this persistence, the bile pigment absorbed from the surface of the intestine passes into the general circulation instead of being retained in the liver. Several secondary conditions which favor the occurrence of icterus are the abundant production of bile at this time from destruction of red corpuscles; the small amount of urine passed; the richness of the meconium in bile pigment, and the non-transformation in the intestine of bilirubin into urobilin because of the absence of putrefaction in the intestinal contents in the new-born. As for the persistence of the canal, Quincke cites five cases; the author has observed seven cases; and Elsässer found that in 200 infants who died in the first eight days, the canal was closed in 23, and was closed only three times in 78 cases which died very soon after birth.

The author made a number of injection experiments on new-born infants, and found the injected material in the ductus venosus in all cases. The injections were made into the umbilical vein, the portal vein and into the heart.

In another series of experiments the author demonstrated that the blood of the intestines passed into the vena cava by means of the hemorrhoidal veins, without going through the liver. Experiments were also made upon dogs with reference to the absorption of bile pigment from the intestines. The author injected bile into the rectum, in some cases ligating the rectum, in others not, and found in all cases that the urine contained bile pigment, and histologically bile pigment was found in the hemorrhoidal veins.

THE NATURE OF BARLOW'S DISEASE.³

Authors still disagree as to the nature of Barlow's disease. Some consider it a manifestation of infantile rhachitis and others regard it as infantile scorbutus.

² From *I and L'Ann. Berl. Klin. Woch.*, 1895, No. 25, *Revue Mens. des Maladies de l'Enfance*, November, 1895.

³ Fürst, *loc. cit.*, No. 18, etc.

Fürst has collected evidence for and against each of these theories.

(a) Reasons why Barlow's disease may be considered a manifestation of hemorrhagic rhachitis:

(1) In the majority of the cases one finds rhachitic modifications of the bones, sometimes manifesting themselves during the disease and at other times already present when the disease begins. Spontaneous fractures and separations of the epiphyses observed in a certain number of cases may also be considered as belonging to the rhachitic diathesis.

(2) The pains in the bones, so frequently present in Barlow's disease, also occur in the beginning of rhachitis at times.

(3) Barlow's disease is especially frequent at an age when rhachitis occurs oftenest.

(4) The clinical symptoms, in so far as the osseous system is concerned, and the anatomical lesions of Barlow's disease are similar to those of rhachitis.

(b) Reasons why Barlow's disease may not be considered a manifestation of rhachitis:

(1) Typical cases of Barlow's disease occur with characteristic hemorrhages and subperiosteal hematoma in which the usual evidences of rhachitis are lacking.

(2) Barlow's disease is extremely rare as compared with the frequency of rhachitis.

(3) The tumefaction of the soft parts, the hemorrhagic exudations under the periosteum and in the medullary portions of the bones and in the serous surfaces are not characteristic of rhachitis.

(4) In Barlow's disease the anemia and cachexia are more marked than in rhachitis.

(5) The medical treatment of rhachitis fails to cure Barlow's disease.

(c) Reasons why Barlow's disease may be attributed to scorbutus:

(1) The occurrence of hemorrhages in the skin, mucous membranes and muscles in both diseases.

(2) The occurrence of a hyperemic swelling in the gums surrounding the teeth. On the other hand, the manifestations in the gums are not always present in Barlow's disease and the subperiosteal hemorrhages do not occur in *typical* cases of scorbutus (?).

(3) The anemia and cachexia have the same characteristics in both diseases.

(4) The antiscorbutic treatment prevents the infants from having Barlow's disease and cures the disease when it has occurred. The same treatment has no effect upon rhachitis.

(5) Both Barlow's disease and scorbutus occur chiefly in the wet season.

(d) Reasons against the scorbutic nature of Barlow's disease.

(1) Barlow's disease is rare and is not found in countries in which scorbutus is frequent.

(2) Barlow's disease is sporadic, whereas scorbutus is endemic among individuals who live in the same defective hygienic conditions.

(3) Barlow's disease is a malady of infancy, whereas scorbutus rarely occurs at this age.

(4) The hemorrhagic gingivitis is a typical symptom of scurvy and is exceptional in Barlow's disease (?) and only then when the infant has teeth.

(5) Barlow's disease is chiefly observed in infants belonging to the better classes, while scorbutus occurs commonly among the poorer classes.

(6) Scorbutus is associated with the absence of

vegetables and fresh meats in the alimentation, whereas these two factors are not associated with Barlow's disease.

In analyzing the above facts, Fürst takes the rachitic view of the etiology of the disease, admitting that the special cachexia, of which the exact nature is unknown, prepares the way for the development of the two affections. Probably a nutritive disturbance which on the one hand affects the vessel walls, and on the other, the osseous system. The localization of the subperiosteal hemorrhages at the junction of the epiphysis and diaphysis of the bone can be explained by the hyperemia occasioned by the active growth of bone at this age and place. Under the influence of certain conditions, which have not been determined, the physiological hyperemia may be changed to an inflammatory process causing the rachitis to assume (?) a hemorrhagic form.

TAPPING THE VERTEBRAL CANAL.¹

During the preceding fifteen months Fürbringer has tapped the vertebral canal more than 100 times in 86 cases. The puncture is made in the second, third or fourth intervertebral space in the lumbar part of the spine; the patient sitting up rather than lying on the side. The author states that anesthetics are unnecessary, and that aspiration is more painful than the puncture itself. The needle should penetrate about one centimetre (?) in very young infants and about seven centimetres in adults. The amount of fluid withdrawn may amount to 110 c. c.

Out of 37 cases of tubercular meningitis, of which 27 were verified by autopsy, the tubercle bacillus was not found in seven cases.

Of this 80 per cent. in which the diagnosis was established, there were a number of cases which could not be diagnosticated from the clinical symptoms. The therapeutic results were unsatisfactory.

In three cases of serous meningitis there was a transient amelioration of the symptoms. In one case which presented meningeal symptoms of a foudroyant character the author withdrew "creamy" pus from the canal, and made the diagnosis of cerebro-spinal meningitis, which was verified by the autopsy. In another case, with symptoms of myelitis and pneumonia, a greenish-colored liquid was withdrawn which contained numerous pneumococci. Four times the puncture was made in cases of cerebral tumor. The first gave no result, and the patient was cured by antisyphilitic treatment. In the second case there was temporary relief for a few days. The third case had epileptiform convulsions, and there were changes in the optic disc. The puncture gave relief for a day. The patient died suddenly and the autopsy showed a tumor the size of an apple which could have been easily extirpated. The fourth patient had been trephined without success. The puncture was made later after the symptoms had returned, and was followed by relief for twenty-four hours when he died suddenly.

A. Fränkel, who took part in the discussion, agreed with Fürbringer in general that the operation was harmless if done correctly. The puncture should be made about on the plane of the junction of the superior and middle thirds of a spinous process, about two fingers' breadth from the median line. After

passing through the skin the needle should be directed slightly upwards and inwards, and it then enters the canal without difficulty. He failed to find tubercle bacilli in several cases of tubercular meningitis, notably those in which the arachnoid membrane was affected, and therefore the absence of tubercle bacilli is no proof that the disease does not exist.

Heubner has not obtained any more favorable results than the others therapeutically, but even an amelioration of the symptoms for a few hours is desirable. He recommends the puncture of the vertebral canal in preference to the ventricles in chronic hydrocephalus.

At the Children's Hospital, in Boston, several months ago, there was a child two years old who had marked cerebral symptoms. We punctured the spinal canal, using for the purpose the needle from an anti-toxin syringe, and withdrew six cubic centimetres of a clear fluid which looked like distilled water. No tubercle bacilli were found in this fluid and only rarely a cell of any kind. The albumin was quantitated and found to be less than one-twentieth of one per cent. Cultures made from the fluid were negative. The child showed marked stupor at the time, and when aroused acted as if blind. Examination of the eyes showed them to be normal. There was an acute, double, sero-purulent otitis media; but although paracentesis was performed and the ears carefully treated, the symptoms persisted. These were moderate temperature of an irregular type; marked irritability when roused; rigidity of extremities, and at times slight retraction of the head; considerable stupor; respiration at times irregular; tongue coated; throat negative; pupils equal, moderately contracted, and reacted slowly to light; pulse rapid (140-180); heart and lungs negative; abdomen moderately distended and tympanitic; urine negative; persistent diarrhea, five to six movements daily, of a green color and more fluid than normal.

Immediately after tapping the canal the child became restless, throwing herself about the bed, clutching at her hair and giving vent to short cries. The pulse rose to over 250 in the minute, the respiration was superficial, and the skin was cool and slightly livid. Subcutaneous injections of brandy and ether were given, heaters applied, and the foot of the bed raised. This condition persisted about the same for three-quarters of an hour, and then the child became quieter.

The patient recovered, and the diagnosis was never made. From the examination of the fluid withdrawn from the canal it was evident that there was no inflammatory exudation in it, which was of some value in diagnosis. Although it is not at all uncommon in infants and young children to have cerebral symptoms in cases of otitis media rather than local ones, still, after paracentesis has been performed it is usual for the symptoms to subside very quickly. In this case they persisted for more than a week afterward. If a moderate diarrhea can account for the symptoms in any way, whether toxic or not, it is a unique experience. The child had been ill for ten days, as nearly as we could find out, and remained for three weeks in much the same condition in the hospital. Recovery gradually occurred; the diarrhea ceased; the ears stopped discharging; and the child began to notice her surroundings; but she remained very irritable. This we found by her father's testimony to be her normal

¹ Fürbringer: Soc. Med. Berlin, Mars, 1895; *Revue Mens des Maladies de l'Enfance*, June, 1895.

condition. During the disease she was fed upon milk and lime-water, and took it very well, as a rule. There was but slight emaciation considering the length of her illness. Aside from the diagnosis, it is of interest to note the apparent cerebral symptoms which followed the tapping of the canal, in spite of the fact that only six cubic centimetres of fluid were withdrawn. For a half hour, or more, we expected the child to die.

Reports of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, WINDSOR HOTEL,
MONTREAL, CAN., SEPTEMBER 17-19, 1895.

(Concluded from No. 23, page 572.)

DR. P. A. MORROW, of New York, read a paper on
URTICARIA PIGMENTOSA; A CASE TWENTY YEARS
UNDER OBSERVATION.

The case was the first recognized as one of this affection observed in this country. It is unique in being under observation through infancy into adult life. Many cases show a spontaneous tendency to disappear at about the eighth or ninth year. The skin at the present time shows the property known as factitious urticaria, and this has been a constant feature throughout. The formation of figures upon the skin after irritation shows irregular elevation or a beaded appearance, each head representing the site of a lesion. Quotations were made from an already published description of the case. Lesions suggesting minute pigmentary moles have appeared in recent years, and the large nodular masses formerly present have disappeared to a large extent. There is much less pruritus than formerly.

It must be conceded, the reader says, that in the clinical course of this disease and in the anatomical changes which it presents it shows many points of difference from urticaria perstans.

In the present case the sound skin has always been subject to dermatographism, although in a less marked degree than the pigmented lesions.

It may be questioned whether the urticarial elevations and the pigmented patches are expressions of the same or of different morbid processes. Is there a causal or merely a coincidental connection between them? In the present state of our knowledge it is impossible to give a good satisfactory solution of these pathogenic problems. In most cases there is a history of urticarial attacks preceding the appearance of the pigmented patches. The hyperplasia and pigmentation, the author believes, are the result of the intense and more or less constant congestion of the skin from the frequently recurring attacks. He has always regarded it as belonging to the urticaria group rather than as representing a distinct type of disease. There is probably conjoined with a vasomotor hyper-excitability a disturbance of the trophic centres which regulate nutrition.

DR. WHITE believed one of the most notable features of this disease at present was its greater prevalence, or at least more frequent recognition, in England than in any other civilized part of Europe. The number of cases of this disease recorded in this Association is very small (24).

DR. BRONSON asked Dr. Morrow how long this appearance of factitious urticaria remained, and whether when it disappeared it could be revoked immediately or only after an interval.

DR. MORROW: The patient was stripped forty minutes. Within fifteen or twenty minutes the lines intervening between the lesions would become effaced, and the urticarial elevations still remain persistent. By slightly rubbing the surface these lines had a tendency to reappear. The urticaria on the sound skin had a tendency to disappear in from forty to sixty minutes. The patient himself, on being asked to note particularly the length of time, said two or three hours elapsed before they had entirely disappeared. As to revoking it immediately, he had never tried, but he thought it quite possible.

DR. BRONSON: In a perfectly graphical picture of urticarial pigmentation there is a striking difference between the distinct lines and these little bead-like elevations. The latter are no more numerous at these points than one would expect from common irritation of the surface. The irritation seemed only to affect the old lesions between them in a common factitious urticaria. It seemed to him that this implied something totally distinct between this disease and common urticaria, aside from the other distinctive characters mentioned — accumulation of moss cells and effect of common irritation.

DR. BULKLEY, though considering Dr. Bronson's point of view as very well taken, thought there might be two conditions combined here. He believed more microscopic study was required to enlighten us on the matter.

DR. ELLIOT gave an account of a case of this disease occurring in a man who was under his observation some five or six years ago, and which he reported. The trouble began when the patient was twenty-eight. The lesions were particularly distributed over the trunk. Every one of them presented the peculiar characteristics of urticaria pigmentosa. The pigmentation was dark. He had the man under observation for several months and observed absolutely no change in the condition. He incised half-a-dozen of the spots which showed the moss cells around the vessels. Under these circumstances when we find a condition having all the important characters of any other disease, why exclude it? He remembers Relli some years ago presented a case of urticaria pigmentosa in a man of eighty-three; and it was accepted, although, as a rule, it occurs only in children.

DR. ALLEN had one case of urticaria pigmentosa in his practice, off and on, for the past five or six years. With reference to the rapidity with which the urticarial wheals come out on the permanent lesions, or on the neighboring healthy skin, it often happened that in removing his clothes, or in indulging in a little scratching or rubbing after their removal, there was an almost immediate appearance of plaques as large as the palm, which became diffused over the healthy skin and the dark-brown pigment spots. As to treatment, he had never been able to keep him long enough under treatment to derive any benefit therefrom.

DR. MORROW, in reply to Dr. Elliot's statement, did not express any opinion as to the propriety of excluding or including cases which occur for the first time in adult life. The disease is one essentially peculiar to infancy, and we would naturally not expect it to develop for the first time late in life. Crocker

mentions Dr. Elliot's case in his book, and says he does not regard it as an urticaria pigmentosa.

STATISTICAL REPORT.

DR. HYDE, of Chicago, reported for the Committee on Statistics that, during the year, the total number of skin cases reported by members was 24,321. No cases of sclerema neonatorum, anthrax, myoma, pelagra, nor impetigo herpetiformis have been reported, while of eczema there were 6,270 instances. Syphilis gave 2,432 and acne 2,261. About one-eighth of all cases (3,107) were of the rarer cutaneous affections.

DR. CANTRELL, of Philadelphia, sent a paper entitled

ULERYTHEMA SYCOSIFORM.

A seafaring man, fifty-five years of age, had nine years before suffered for two years with pustular disease of the beard, which got well. In 1891 he presented a similar condition, which was diagnosed as non-parasitic sycosis. This persisted and destroyed much of the beard. There are extensive scar-like areas. The bald patches have a pinkish-red tint, are smooth and satin-like and of glistening atrophic appearance. The borders of the patch are defined. The course, too, shows no similarity with ordinary sycosis. There is permanent alopecia treatment for sycosis aggravates. Mercurials alone do good. No primary pustules were ever present while under observation. Near the periphery of the patch there is less loss of long hair; a few blebs were scattered over the patch having viscid transparent contents, drying into brownish crusts. The disease consists in a follicular and peri-follicular inflammation followed by atrophic scars. The microscope shows sharply defined cell-infiltration, most marked about hair follicles; an overgrowth of connective tissue in corium; no giant cells; no tubercle bacilli.

DR. ALLEN, of New York, read a paper on

ERYSIPELAS,

first speaking of it in its etiological relation to preceding skin lesions and various dermatoses, then of its treatment. One hundred personal cases were analyzed, showing that 50 per cent. had originated in skin injury, of which vaccination furnished twelve instances, and skin diseases the remainder. Fifty per cent. of the cases were facial. Thirty of the last fifty cases seen had been treated by surrounding the advancing patch with strips of adhesive plaster firmly applied to check the spread, and then painting the enclosed area of skin with ichthyol in collodion up to 50 per cent. strength. In fourteen of these thirty cases there was no spreading beyond the barrier. The general impression made upon the reader of the paper had been that this combination of plaster and ichthyol varnish was superior to any other plan of treatment of which he knew.

DR. SHEPHERD said he had seen a great deal of erysipelas, but had never found a remedy which would resist the progress. It is a self-limited disease.

DR. FORDYCE had seen better results from ichthyol than from any other local application.

DR. ZEISLER endorsed Dr. Allen's views on the value of local treatment. In 1892 he had seen considerable erysipelas in the Chicago wards. Boric-acid solutions had been used up to that time, but experi-

mental trial of ichthyol was so successful that it has since been adopted.

DR. WHITE could see no advantage in the bandage. He would consider spreading equal to the width of the bandage or of the distance from the margin of the patch to that of the band, a great deal for a case in which he had begun to apply his favorite treatment of carbolic acid in equal parts of alcohol and water (one drachm to eight ounces). By comparison on opposite sides, it was shown superior to ichthyol.

DR. ROBINSON preferred black wash or the old lead and opium wash. Internally he advocated iron in large dose.

DR. BRONSON approved of ichthyol but also of strong solutions of resorcin.

DR. ELLIOT used a 50-per-cent. solution of ichthyol. A 10-per-cent. solution of chloride of phenol was, however, better.

THE VALUE AND LIMITS OF THE USEFULNESS OF ELECTROLYSIS IN DERMATOLOGY.

DR. ZEISLER being called upon by the Chairman to open a general discussion said he thought not much that was new could be said upon this subject. Electrolysis in hypertrichosis was of all means the best; but he thought it most useful in dealing with stiff hairs, and should not be employed for the lanugo hairs. Its use in nevi he considered limited to small nevi found in infants. One of the superficial nevi with the blood-vessels chiefly on the surface he had recently treated by this means. After fifteen or twenty sittings it did not appear that the results were very brilliant. He then had the patient desist for a few weeks, and report the result. She did so in very encouraging terms. Electrolysis was also useful in small growths of the fibromatous types; here, however, a little more care should be taken in piercing with the needle, as scars are apt to remain. He thought the needle should be inserted in such a way that the action would not be too deep. He used the electric needle also in anthomata, and thought it one of the safest, but not the least painful, methods for operating near the eye. As a local anesthetic, he had not much faith in cocaine; the only way to use it was to impregnate the electrode with the drug, and render the whole area anesthetic.

DR. WHITE agreed in the main with Dr. Zeisler's remarks. He, however, did not recognize the impossibility of removing lanugo hairs; he had done so a number of times. As to the desirability of doing so, that was another matter. He did not think electrolysis suitable for large nevi with hypertrophied vessels. As to port-wine mark, he had been very unsuccessful save when the area affected was very small. He had been using a 20-per-cent. alcoholic solution of cocaine, and he believed it helped to a certain extent. He did not believe there was much absorption by the skin, but imagined that any good effect which followed was due to the penetration of the drug into the hair follicles.

DR. MORROW's experience corresponded with that of the other speakers. Some years ago he had experimented a good deal on the practicability of rendering certain limited areas of the skin anesthetic and he found the most thorough method to be that of cataphoresis. By scratching the surface, the cataphoric action was very materially favored.

DR. HYDE's experience led him to believe that the attempt to remove the fine downy hairs only stimulated others to greater activity of growth. Electrolysis he

believed useful in spider-cancer, with small telangiectodes, and in rosacea affecting the nose where the same condition exists. The operation was unsatisfactory where large vessels existed. He found that cocaine had a tendency to cause dermatitis.

DR. FOX thought there could be no doubt of the value of electrolysis in dermatology, the only question to consider was as to its limits. In hypertrichosis it was not only the best but the only means for the permanent removal of hairs. If the finer hairs can be seen they can be removed. He made a rule never to operate upon hairs that were not conspicuous. The effect of electrolysis is to lessen the growth of hair upon the face. He does not believe that electrolysis ever increases the growth of neighboring hairs. Electrolysis is not more painful than the filling of teeth. Of course, if the needle is not properly introduced it might be very painful. Excellent results might be obtained in nevus pilosus. In vascular nevi his results have not been satisfactory. In the very pinkish wine-mark he preferred dotting the surface with carbolic or nitric acid but in the dark slate-colored wine-marks he believed single or multiple electric needles the best. In anthema he thought he had brilliant success with electrolysis, certainly better than could be obtained with a knife. He doubted if true keloid could be removed by electrolysis. In cases resembling keloid, following syphilitic ulceration of the cervical glands, a very good cicatrix can be produced. In angioma he thought it could be used with success, but not with more than that obtained from other methods. He used it in one case of epithelioma of the lip with good success.

DR. BRONSON thought its chief use was in cosmetic operations, and as to its limits that was for time to decide. The chief disadvantages are pain, the fact that the hairs sometimes appear to be stimulated to increased growth, and the danger of producing scars. In some measure he thought these disadvantages might be avoided. He thought the pain rather insignificant and believed the cramped position was more disagreeable. Increased growth of the hair, he thought undoubtedly occurred in many instances. The lanugo hairs he regarded as microscopic and invisible to ordinary eyesight, and impossible to remove. The finer downy hairs, after removal of their darker and stiffer fellows, were apt to suddenly take on a similar character; and it was by the total removal of these, as well as the larger ones, which ensured success. He had been trying the paste recommended by Unna (ichthyol gr. xx, starch gr. xx, albumin gr. ii, water xxx m.). Painted on at night, it seemed to limit the reaction after operation. He found it succeed in rosacea after ichthyol, resorcin and multiple scarifications had all failed. By making multiple punctures as close together as possible a considerable blanching of the skin resulted. He also found electrolysis useful in hypertrophied cicatrices, as in strumous glands of the neck.

DR. HERTZELL thought, so far as our present experience went, there was very little use in dermatology for electrolysis beyond cosmetic operations, such as removing superfluous hairs, small telangiectodes, etc. He agreed with Dr. Bronson in thinking it of value in rosacea. It destroyed the larger vessels, and the cicatrices following the multiple punctures, by contracting, served to drive the blood out of the part.

DR. JACKSON was in the habit of answering the question of patients as to whether the hair would grow

again, by saying he could not tell how many or how long the hairs might continue to sprout, but he would take them out as fast as they did so. There may be some increased growth after an operation but these hairs would grow anyhow. He believed there were some women's faces where, do what one might, it was impossible to avoid scarring; and he consequently thought it a wise rule never to commit yourself to a strange case by promising that no such effect would ensue. It is especially apt to occur about the corner of the upper lip. The chief difficulty he found about the finer hairs was in telling when they were really removed and not broken off. He had often noticed pigmentation follow the removal of hairs. When patients complain of pain, he employed cocaine. He would be glad if some one could tell him how to prevent or reduce the reactionary inflammation. In the port-wine mark he found linear punctures with a single needle of value. There is no doubt about its efficacy in reducing the color; the art comes in knowing when to stop. In rosacea he thought there was a tendency for the destroyed vessels to reappear. He considered cataphoresis as a very painful method of inducing anesthesia.

DR. MORROW thought Dr. Jackson's experience with cataphoresis must have been due to his using currents of too great strength.

DR. WIGGLESWORTH admitted the truth of Dr. Jackson's remark concerning the futility of treating the large deep vessels in rosacea by electrolysis, he also found that such were pretty sure to grow again. In the case of superficial vessels, however, it is otherwise, and he had often succeeded admirably. In lupus erythematosus one will always get results quite as good as those obtained by incisions. He also found electrolysis successful in treating acne indurata. The best way to use cocaine was in ten-per-cent. alcoholic solution. It should not be rubbed in. Port-wine marks are often aggravated by wrong treatment. One case that had increased in size under applications of potash yielded entirely at one sitting to electrolysis. The current used was ten cells, and the punctures were made around the entire surface. In these rapidly acquired conditions, the results were much better than in the old solidified port-wine marks of birth. He managed to avoid scarring by paying attention to the points already alluded to. The mistakes made he thought were using too strong currents, not looking out for idiosyncrasies, such as a tendency to the formation of keloid or to the development of pigmentation; and if these were more closely considered, scarring would seldom result.

DR. GRAHAM asked if any of the members had ever used electrolysis for the removal of hairs in obstinate syphilis.

DR. ROBINSON's experience was that the irritation caused by the introduction of the needle certainly produced an increased growth of the neighboring hairs. In fracture of the tibia, when the skin is near the broken bone, hairs develop in increased quantities. Shaving is another instance of irritation increasing the growth of hair. For these reasons he never used electrolysis on any part, such as the upper lip, where the hairs are close together; but it was very useful in other parts of the face. Electrolysis is the most satisfactory method we know of in treating hairy nevus; success is always the reward of patience. He thought the method of using the needle had something to do

with the reactionary inflammation. If you go right into the follicle the irritation is less than if you go outside of it. He uses powerful spectacles which enable him to see the opening of every follicle.

DR. ALLEN had of late been using a flat sharp-edged needle, and carrying it slowly from one side to the other he removed warts and moles in a single sitting. This he found the nicest and neatest way. A ten-per-cent. watery solution of cocaine will render so-called seed warts much less sensible to pain. He had removed several large moles lately with the flat needle at one sitting with good result, and knew of no other method whereby they could be removed so quickly and without scarring. Electrolysis was especially adopted for removing hairs from the chin, and it was not so successful in those of the upper lip. Many of these little abnormalities of growth upon the face really enhance the beauty of the individual, and by telling them so, he found it possible to reconcile many ladies. Electrolysis is useful in superficial varieties of port-wine mark, and in such he found the best results were obtained when the needle was used superficially. He did not think the use of glasses was of much importance to find the opening if one could not tell the direction of the follicle. Glasses will not help here. He did not think the deep effect of cocaine necessary, since it was mostly a surface sensitiveness and only the entrance and exit of the needle that caused much pain. He either used benzoated collodion, or a powder.

DR. FORDYCE had during the past year, discarded batteries altogether in favor of Edison's coil, with which one can get a current as low as half a milliamperé.

DR. WHITE called attention to the comparatively few years after Dr. Hardaway had first brought this operation to our notice that all the advantages and disadvantages were known. It seemed to him that there was nothing said to-day that was not known years ago.

DR. ZEISLER did not think so far as the development of new hairs was concerned that electrolysis was the cause. A little stimulation may assist hair already present to grow more rapidly, and he thought that was the most that could be said.

DR. HYDE: A man with an obstinate neuritis over one scapula which he had been blistering and stimulating continually for years had over the affected region a growth of hair two and a half inches long, and nowhere else in that locality. A little downy hair can be produced on the scalp by irritation or stimulation, but it soon drops off.

DR. SHERWELL, while fully agreeing as to the propriety of using electrolysis in hairy moles, as a general remedy in dermatology has been much disappointed in it. He has never seen much good following its use in serious angiomatous conditions; there he found the galvano-cautery or the igneous puncture to give more satisfactory results. For small growths he preferred an elliptical incision which left but a slight scar. He thought the American Indian who continually pulled out the beard had as good success as one sees after electrolysis. He advised pulling.

ELECTION OF OFFICERS.

DR. A. R. Robinson, of New York, was elected President; DR. F. J. Shepherd, of Montreal, Vice-President; DR. C. W. Allen, of New York, Secretary and Treasurer.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

TWENTY-FIRST ANNUAL MEETING, DETROIT, SEPTEMBER 3-6, 1895.

THE Association convened in the Strassburg Academy, and was called to order by DR. H. O. WALKER, of Detroit, Chairman of the Committee of Arrangements.

Prayer was offered by the REV. MARCUS A. BROWNSON, of Detroit.

DR. WALKER then introduced MAYOR PINGREE who paid an eloquent tribute to the medical profession, and extended a cordial greeting to the Association.

The Address of Welcome on behalf of Detroit physicians was made by DR. J. HENRY CAESTENS, of Detroit.

The President of the Association, DR. WM. N. WISHARD, of Indianapolis, delivered

THE PRESIDENTIAL ADDRESS.

He said the importance and advancement of Detroit was represented by the standing and intelligence of the local physicians. He referred to the beginning of the four years' course in medical colleges, and said the fear that the new rule would operate to the disadvantage of the smaller schools was unfounded. The President urged the advisability of publishing the records, papers and discussions in some manner to make them accessible to all members. He recommended a permanent Executive Committee, and regretted that the large number of papers necessitated the holding of two meetings at the same time. He commended the preparations for the Convention, and pledged his earnest efforts to the promotion of the profit and pleasure of the Convention.

The reports of the Secretary and Treasurer were read and accepted.

The reading of the papers was proceeded with, the first one being read by DR. THOMAS HUNT STUCKY, of Louisville, entitled

THE GOLD COMBINATIONS AS ALTERNATIVES.

At a meeting of the Medico-Chirurgical Society of Louisville, April 5, 1894, the author had the pleasure of exhibiting a series of cases who had been taking the preparations of gold and arsenic, known to the profession as *arsenauro* and *mercauro*. He was under the impression at that time that the good effect claimed was produced in three ways: (1) By stimulation of the secreting glands of the stomach; (2) by the probable alterative effect upon these secretions, and (3) that probably there was a local antiseptic influence exerted. The class of patients in which he had used the preparations were people afflicted mostly with consumption, Bright's disease in its various stages, chronic hepatic troubles and convalescents. He made it a rule with all these cases to withdraw all medicine except the combinations of gold and arsenic. He had selected from a series of cases four or five, which he detailed.

He reported a few cases out of a large number to demonstrate in his judgment conclusively that by the combinations of gold and arsenic we have an agent acting as neither of the minerals do when administered separately, or in other words, we have an entirely new agent in so far as therapeutical action is concerned.

LEGITIMATE PHARMACY.

This paper was read by DR. WM. F. BARCLAY, of Pittsburgh. He defined legitimate pharmacy as that which meets the necessities and demands of the regular medical profession and the people.

DR. F. E. STEWART, of Detroit, read a paper on

COD-LIVER OIL.

He considered the powerful stimulant action of cod liver oil on nutrition, also demonstrating with specimens the difference in the color of oil digested from fresh livers and that prepared from putrid livers, the former being pale, golden or light brown, according to the number of hours digested, and the latter dark brown. The darker oils contained more extractive matter. Dr. Stewart said the text-books contained many errors regarding the preparation of cod-liver oil.

DR. D. T. GILLIAM, of Columbus, O., read a paper entitled

UTERINE FIBROIDS — WHEN TO OPERATE.

The medical and electrical treatment of uterine fibroids is to-day in a very unsettled state. While it cannot be denied that amelioration or even recovery has followed such lines of treatment, there has not been that degree of uniformity in results calculated to inspire confidence. To the author's mind there is no better field for a competent observer than the study of the natural history of uterine fibroids. It will enable us to determine the true value of so-called curative agencies. It will insure a more certain prognosis. It will give the proper cue to surgical interference. If out of 100 cases, 90 suffering women can be restored to lives of usefulness and happiness, would it not be better to give them a chance? No surgeon is justified in doing hysterectomy or the more serious operations for uterine fibroids when the patient has not experienced sufficient trouble to make it a menace to her life.

TUBERCULAR PERITONITIS.

This paper was read by DR. L. H. DUNNING, of Indianapolis, Ind.

The mode of invasion, forms of the disease, diagnosis and treatment were considered in the paper, and finally a brief history of five cases was given.

Tubercular peritonitis with effusion is now universally considered a surgical disease. Even in the acute suppurative cases, abdominal section yields a sufficient number of successes to render its employment imperative. Senn excludes all forms of the disease from surgical treatment except the exudative form. Mauchlaire gives as the chief contraindications to surgical treatment, the generalization of the lesion and the existence of profound systemic infection. Linder analyzes the results in 205 operations with a mortality of 7.5 per cent. The deaths resulting in most of these cases were from collapse. In cases of involvement of the tubes and ovaries, they should be extirpated. His experience in two cases leads him to the belief that we should, if possible, avoid using silk ligatures in tying the pedicle when it is necessary to remove the uterine appendages. Two of the five cases reported by the author terminated fatally.

DR. R. S. SUTTON, of Pittsburgh, had seen a good many cases of tubercular peritonitis, upon several of which he had operated successfully. Until within a year he had been in the habit of washing out the cavity with hot water, but now he pays no attention to it,

but simply opens the abdomen and cleans out everything. He is convinced that while hot water does no harm, it does no good in that it has no influence upon the disease. He believes in removing, as far as possible, all diseased organs.

DR. HENRY O. MARCY, of Boston, operated in 1887 for the first time on a case of tubercular peritonitis, the patient making an easy recovery. He had operated several times since then for this disease, with excellent results.

DR. A. H. CORDIER, of Kansas City, Mo., called attention to the fact that Mr. Wells, as early as 1862, operated for tubercular peritonitis, simply incising the abdomen and draining, thus curing his cases. He thinks that drainage is the principal thing that brings about a cure in this disease, but how, is not definitely settled. He said the theory had been advanced by Dr. Morris, of New York, that it is due to the admission of saprophytes into the peritoneal cavity.

DR. BAYARD HOLMES, of Chicago, related an interesting case of adhesive peritonitis cured by operation.

HYSTERECTOMY FOR PUERPERAL SEPSIS. WHEN SHALL IT BE PERFORMED? WITH A REPORT OF FOUR CASES.

The author of this contribution was DR. BAYARD HOLMES, of Chicago.

The paper was divided into five parts: (1) A report of four cases of puerperal sepsis treated by four different methods; (2) the pathology of puerperal sepsis in various stages; (3) curettement in the hands of its advocates; (4) puerperal sepsis as a cause of death in Chicago, New York, Brooklyn, and in the Charity Hospital at Berlin, with an abstract of 79 deaths from puerperal sepsis in 6,635 cases.

The first case was a multipara, twenty-six years of age, of Irish extraction, having a history of tuberculosis of the lungs, confined under unfavorable circumstances with retained placenta, post-partum hemorrhage, delivery without an anesthetic with the hand of the physician, arrest of hemorrhage, gradual sepsis, failure of curettement and death seven weeks after confinement.

The second case was a woman, thirty years of age, normal confinement, with sepsis appearing upon the fourth day of a mild character, gradually increasing until six weeks after delivery. Temperature was high, pulse rapid, and symptoms of peritonitis with obstruction of the bowels. Laparotomy. Removal of the right broad ligament, tube and ovary; drainage through the vagina. Death after eight days, without peritonitis, from phlebitis and pulmonary embolism.

The third case was in a multipara with gonorrheal history — an abortion followed by pelvic inflammation, peritonitis and obstruction three weeks after delivery. Removal of both tubes and abdominal drainage. Death after ten days, without peritonitis, through phlebitis and pulmonary embolism.

The fourth case was a multipara, thirty-two years of age, delivered by a midwife, with a bad history of puerperal infection, rapid onset of a mild infection, no curettement. Obstruction of the bowels, vomiting six weeks after delivery, with evidences of peritoneal effusion. Laparotomy; removal of the uterus and its adnexa; abdominal drainage and recovery. This uterus and these appendages were carefully examined microscopically. There was evidence of necrotic endometritis, suppurative endometritis, suppurative me-

tritis, suppurative lymphangitis in both tubes, with abscess of the ovarian ligament upon the right side and adjacent peritonitis. The blood-vessels throughout the broad ligaments were found indicating a progressive infective thrombosis. The uterine tissue was filled with pus-cells, occupying the perivascular and lymph spaces with occasional obliteration of large blood-vessels. A great number of *mastzellen* were found throughout the infected tissues. The author held that the progress of puerperal infection was in this case through infective thrombosis and suppurative lymphangitis, and that the removal of both tubes and drainage would have been ineffectual. He then proceeded to recount the pathological findings in cases of non-infected puerperal women dying from accidental causes during the first, third and sixth weeks after labor, and also cases dying at somewhat similar times after labor, stating the comparison of the normal and abnormal uterine and peri-uterine tissues.

In the fifth part he gives the following statistics: In the city of Chicago, during the years 1881 to 1894 inclusive, there were 2,127 deaths from puerperal fever. In New York, during six years ending May 31, 1880, there were 250,000 deaths, of whom one-sixth were females, and 2,236 of these deaths were due to the pregnant state; of these, 1,250 were due to puerperal infection. In Brooklyn, with 112,000 deaths during the same period, 53,000 were females; and of these, 867 died of the puerperal state, 462 dying of puerperal sepsis. These figures show the importance of the subject.

The question of treating puerperal infection by *évidement* or curetting was discussed by presenting the work of its own advocates, showing that out of 7,600 cases of labor in the hands of one of the advocates of curettement, 101 were treated by repeated curettement and irrigation. Of these 96 recovered, and 5 died. An abstract of the history of these five cases was presented, showing that there was every reason to believe that after curettement had failed hysterectomy would have proved efficient in saving the patients.

A series of 6,635 cases of confinement occurring in the Charity Hospital in Berlin under the care of Penzoldt, Schwarze, Huenermann and Hochselter during four successive years were then analyzed. Seventy-nine deaths from all cases occurred. Of these deaths, 33 resulted from puerperal sepsis, and in order to fully understand the possibility of these cases, a short epitome of the history of each was presented, showing that only three out of 633 cases were of such a character as to give rise to the suspicion that they might have been saved by a hysterectomy.

The author gave the following conclusions: (1) Puerperal sepsis has its origin in the endometrium and usually travels by the lymph channels or by the thrombosed blood-vessels and the lymph channels together. (2) It still causes almost one-half of the deaths which occur in the puerperal state. (3) Curetting is ineffectual in many cases of puerperal sepsis. (4) The removal of an infected broad ligament and the drainage of a pelvic abscess or peritonitis is often ineffectual. (5) Hysterectomy should be performed, therefore, in such cases of puerperal infection as do not yield to uterine curetting and irrigation. (6) Hysterectomy should be done whenever peritonitis is present in the course of puerperal fever. (7) Hysterectomy should be performed in cases of puerperal

mania where there is a history of endometritis without uremia. (8) Hysterectomy may not be helpful in the course of diphtheritic vaginitis and endometritis. (9) Hysterectomy may not be helpful in cases of rapid early infection. (10) It may not be useful in cases of septic phlebitis reaching outside the pelvis.

DR. WM. H. HUMISTON read a paper entitled

A METHOD OF PREVENTING THIRST FOLLOWING CELIOTOMY.

No one who has had any experience in the after-care of abdominal cases, will deny the important place that thirst occupies. It is the one prominent, annoying and distressing symptom, and I know it can be overcome. This is my method of procedure:

The patient should have the usual preparation for celiotomy, that is, diet, daily baths, cathartics, etc. For three days prior to operation order the patient to drink one pint of hot water an hour before each meal and on retiring, thus drinking two quarts of water each twenty-four hours, the last pint to be taken three hours before the time set for operating. Do not omit to give the water the day previous to the operation, while the patient is restricted to a limited amount of liquid nourishment and the bowels are being unloaded. We thus restore to the system the large loss of fluid occasioned by the free catharsis, and we have the great satisfaction of seeing our patient pass through the trying ordeal of the first thirty-six hours after the operation in comparative comfort, with no thirst, a moist tongue, and an active renal function, represented by an excretion of from twenty-eight to fifty fluid ounces of urine during the first twenty-four hours, catheterization being seldom necessary. This is in keeping with the full character of the pulse noted.

The above details I have recently carried out in twelve cases. To eleven chloroform was administered; to one ether. The time required to complete the operation varied from ten to fifty-five minutes. Whether the case was one of sclerotic ovaries or a pus case with universal adhesion of all the pelvic structures, the result has been uniform and highly satisfactory, thirst being allayed and excretion stimulated.

I believe this method will prove to be efficient in the hands of abdominal surgeons generally, and I publish it early with all confidence that the twelve cases that I have had will soon be fortified by the reports of many hundreds, and that by it we may avoid a condition that is and has been distressing alike to the patient, surgeon and nurse.

CELIOTOMY IN GENERAL SUPPURATIVE PERITONITIS, WITH THE REPORT OF A CASE.

This paper was read by DR. MILES F. PORTER, of Fort Wayne, Ind. The author first quoted Grandin, who says regarding general puerperal peritonitis, "The women die, no matter what the form of treatment employed." Dr. Baldy says, "To my knowledge there has never been reported an undoubted case of general purulent peritonitis from any cause whatever, in which an abdominal section or any other line of treatment has succeeded in saving the patient's life." That the mortality of general septic peritonitis is large all will agree, but that it is always fatal is certainly not true. Dr. Porter then reported the case, and closed by saying that the object in writing the paper was to assist in arousing a sentiment against the too prevalent idea that in general septic peritonitis death is inevitable,

and to encourage in these cases prompt operative interference.

PERITONEAL IRRIGATION AND DRAINAGE,

was the title of a paper read by DR. A. H. CORDIER, of Kansas City, Mo., in which he said that the latest works on abdominal and pelvic surgery contain, like the older text-books, very short and misleading articles on the indications for peritoneal irrigation and drainage; and still less explicit are the directions how to use these agents for good, intelligently and correctly. This diversity of opinion among authors leaves the inexperienced beginner in a position of perplexity and doubt as to the special course he is to pursue in his early work. The same principles hold good in draining the peritoneal cavity that are applicable to other parts of the body. No surgeon, with all the antiseptic precautions possible to be used in opening a diffuse abscess of the thigh or other part of the body, would think of such a thing as at once closing a wound hermetically, leaving many broken-down shreds of diseased tissue dangling in the abscess cavity. He might have irrigated the cavity thoroughly with a 1-1,000 solution, yet he would not feel it safe to close the wound until after he had made counter-openings and introduced a drainage-tube, this being as near ideal surgery as it is possible to obtain in these cases. Freshly-boiled distilled or filtered water, cooled to 102° to 110° F. should be used in irrigating.

The author drew the following deductions: (1) Drainage is a life-saving process when properly used. (2) To use it is not an admission on the part of the surgeon that his work during the operation is imperfect. (3) The use of the tube alone does not produce or leave any condition that favors the development of hernia. (4) The omentum or other structures do not become entangled in the openings in the tube. (5) A small-sized flint-glass tube, with small openings and open end should always be selected for pelvic drainage. (6) The tube does not produce fecal fistula. (7) The tube should be used when in doubt as to the absence or presence of drainage indications. (8) To depend upon microscopic findings as to whether a given case should or should not be drained is seemingly scientific, but is neither necessary nor practicable. (9) Gauze drains should rarely be used and should always be supplemented by a glass drain. (10) There is no danger of infecting the patient through a tube if the attendant is properly instructed.

DR. J. HENRY CARSTENS, of Detroit, followed with a paper entitled

THREE CASES OF HYSTERECTOMY FOLLOWING CELIOTOMY FOR PUS-TUBES.

The author summarized his remarks as follows:

(1) It seems to me in the light of my present experience in cases of bilateral pus-tubes that a more perfect and complete operation can be performed by abdominal section, with less danger of injury to the bladder and intestines, and with smaller mortality and better ultimate results.

(2) That in certain cases a better immediate result is obtained by vaginal hysterectomy and drainage, but these cases frequently require a second operation to remove the ovarian tissue and parts of the tube, which at first in many cases cannot be removed, before a perfect ultimate cure is established.

(3) Where the sympathetic and other nerves are

affected, the cause is not in the uterus, ovaries or tubes alone, but part in each. We are unable to state which organ is at the bottom of the trouble. Sometimes it may be only one, sometimes the other, sometimes two or all three: hence, in such cases I would say —

(4) In many cases with marked nervous symptoms, the best results are obtained only after the complete removal of every particle of the generative organs — that is, uterus, tubes and ovaries, be this accomplished at one, two or three operations, *per vaginam*, or by abdominal section.

DR. R. S. SUTTON, of Pittsburgh, favored abdominal section for pus-tubes. He maintained first and foremost that a uterus deprived of its appendages is of no use; second, that it is an organ, if left, which is liable to tuberculosis, gonorrhea, syphilis, nasty discharges, adhesions, etc. When it is decided to remove the appendages, the uterus also should be taken out.

DR. GILLIAM, of Columbus, O., argued against the removal of the uterus with the appendages except in order to save life, the objection being that shortening of the vagina resulted.

DR. B. M. RICKETTS, of Cincinnati, believes total extirpation will be relegated to oblivion. The dangers are cystocele, hernia, increased danger by prolonging the operation, and shortening of the vagina.

DR. HENRY O. MARCY, of Boston, favored retaining the cervix when it is healthy, and pointed out the reasons why it should not be removed. It helped materially in acting as a support to the vault of the vagina.

DR. HOLMES, of Chicago, in discussing Dr. Cordier's paper, said that drainage was a sort of vicarious redemption for poor surgery. Whenever it is impossible to make a wound clean, we must drain, and sometimes we drain when the wound is clean, but we are unable to arrest the hemorrhage. He could conceive of no other indication for drainage, whether in the abdomen, the brain, or any other part of the body, than failure to meet the one great indication of wound treatment — to keep the wound clean.

(To be continued.)

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M. D., SECRETARY.

REGULAR meeting October 12, 1895, the Second Vice-President, DR. A. WORCESTER, in the chair.

DR. JOHN G. BLAKE reported

CASES OF INTEREST FROM THE SUMMER GYNECOLOGICAL SERVICE AT THE BOSTON CITY HOSPITAL.¹

DR. COUNCILMAN said that the two malignant cases reported by Dr. Blake were of unusual interest from their rarity. They were both cases of giant-cell sarcoma of the uterus.

DR. M. H. RICHARDSON said that in all operations connected with the pelvis we must be prepared for phlebitis, even in operations that are apparently entirely aseptic. He has had two cases fatal from pulmonary embolism, one after an operation for appendicitis, another after the removal of a ruptured ovarian cyst.

DR. ENGLEMAN, referring to the death following the Alexander operation, said that he many years ago

¹ See page 585 of the Journal.

lost a patient from sepsis following a slight operation on a lacerated cervix. At that time he looked into the subject and found that a large number of trifling operations, especially on the perineum, had from time to time resulted fatally from sepsis.

DR. CHARLES W. TOWNSEND reported

A CASE OF SPONTANEOUS RUPTURE OF THE UTERUS.²

DR. ENGLEMANN had seen a case of rupture of the fundus of the uterus in a shoulder presentation of a child weighing nearly twelve pounds. The child tamponed the rent and there was no collapse until the child was removed, when extensive hemorrhage into the abdomen took place. The patient died in a few hours.

DR. EDW. REYNOLDS had seen four cases of rupture of the uterus, one only being spontaneous. Three of these recovered under conservative treatment, the fourth died. He believed that the collapse in these cases was due not necessarily to the hemorrhage, but to the shock of the rupture.

DR. G. HAVEN had seen four cases of rupture, including the one reported to-night. In all conservative methods were followed and one recovered. In one case there was severe collapse from the shock, with very little hemorrhage.

DR. COUNCILMAN suggested that the collapse in these instances with all the symptoms of hemorrhage may be due to the sudden dilatation of the portal vessels, for these can contain one-half the blood in the body.

DR. A. D. SINCLAIR reported some thirty years ago a case of rupture almost exactly like the one reported by Dr. Townsend. The patient died twenty-three hours after delivery.

DR. M. H. RICHARDSON, referring to the slight post-mortem indications of peritonitis in the case reported, said that he had had two cases that died with all the clinical evidence of septic peritonitis, and yet the pathologists could find none.

DR. COUNCILMAN said that in patients much reduced by hemorrhage or shock there may be general infection without the local phenomena of inflammation.

DR. M. H. RICHARDSON reported

A CASE OF EXTRA-UTERINE PREGNANCY

and showed a water-color sketch of the specimen.

DR. A. WORCESTER reported

A CASE OF EXTRA-UTERINE PREGNANCY

and showed specimen. The patient, eight weeks advanced in pregnancy, was suddenly seized with violent abdominal pains and went into a collapse. When seen by him she was pulseless, the belly was filled with blood and the right Fallopian tube with its ruptured ovum was easily found. Despite much stimulation and salt solution, the patient died in six hours.

DR. M. H. RICHARDSON referred to the apparent connection between these cases and former abortions or chronic gonorrheal discharges.

DR. ENGLEMANN said we all agree on the propriety of operation in cases of extra-uterine pregnancy, but he had often wondered whether many of the cases in former times diagnosed as hematocele did not get on as well without operation, and whether unfavorable results were not more common now.

DR. A. WORCESTER said many of the cases in former times diagnosed as hematocele did die, and

many more died where the diagnosis of heart disease or apoplexy were made that were in reality sudden deaths from rupture in extra-uterine pregnancy.

DR. M. H. RICHARDSON said he could not insist too strongly on the importance of operation in all cases where the trouble was discovered, as the results of the fulminating cases were so severe while those of a timely operation were so successful.

DR. J. G. BLAKE referred to the fact that this disease because not diagnosed was formerly so rare in Boston, while within the last two years, mainly by members of this Society, a very large number of cases has been reported.

Recent Literature.

Remote Consequences of Injuries of Nerves and their Treatment. An Examination of the Present Condition of Wounds received, 1863-65, with Additional Illustrative Cases. By JOHN K. MITCHELL, M.D., Physician to St. Agnes Hospital, etc. Small 8vo, pp. 245, with twelve illustrations. Philadelphia: Lea Brothers and Co. 1895.

The work before us is an unusual one, if not absolutely unique. It is a study, thirty years after the war, of the cases of gunshot and other injuries of nerves collected by the elder Mitchell during the war, and published in his classical work on "Injuries of the Nerves." In spite of the enormous difficulties in following up the cases after such a long period, the author has given us an elaborate study of fifty-two cases of great interest, and the book as a whole, is a worthy sequel of his father's well-known work. The different chapters treat of contusions of nerves, sections of nerves, ascending neuritis, degeneration and regeneration of severed nerves, and the treatment of nerve injuries. Each collection of cases is preceded by a brief discussion of the more important questions, and a summary of the most interesting symptoms of the individual cases. Cases of such long duration and of such severity are so seldom reported that every case presents individual symptoms of great interest, which cannot, however, be enumerated in a brief review. The work has been admirably done, and it will prove indispensable to every neurologist and surgeon who has ever consulted the elder Mitchell's work.

Leçons sur les Maladies Nerveuses. Salpêtrière, 1893-94. By E. BRISSAUD. 8vo, pp. iii, 644; with 240 illustrations. Paris: G. Masson. 1895.

It was a bold task for any man called to fill temporarily the vacancy left by Charcot's death, deliberately to challenge comparison with the great clinical teacher by publishing an independent series of lectures on nervous diseases at the Salpêtrière. The medical world might well inquire "who should lift that wand of magic power, and the lost clue regain?" Having done his best to pay a modest and respectful homage to the memory of his predecessor, Brissaud yielded to the request of his hearers to publish thirty of his lectures. For this we must thank both him and them. The volume before us may well be placed by the side of that long series which has made the Salpêtrière famous, and it will of itself add new renown to its old walls. It maintains the standard of the best French clinical lectures, clear, brilliant, and fascinating in style. The

² See page 589 of the Journal.

book opens with a brief but admirable tribute to the dead master, and the first two lectures are by a most appropriate choice devoted to Charcot's disease, amyotrophic lateral sclerosis. This is followed by two lectures on Friedrich's ataxia, and hereditary cerebellar ataxia, in which the clinical distinctions of the two affections are clearly pointed out. Sixteen of the thirty lectures are devoted to various forms of spinal disease, and four to the varieties of ophthalmoplegia. Paralysis agitans, exophthalmic goitre, myxedema, cerebellar disease, aphasia, sensory disturbances, and certain forms of spasms are treated of in the remaining lectures. In each of these lectures the reader will find a clear discussion of the latest views upon the subject under consideration. We commend the work not only to students but to all interested in neurology.

A Treatise on Nervous and Mental Diseases. For Students and Practitioners of Medicine. By LANDON CARTER GRAY, A.M., M.D., Professor of Nervous and Mental Diseases in the New York Polyclinic, etc. Second Edition, Revised and Enlarged; with 172 illustrations and 3 colored plates; 8vo, pp. xi, 733. Philadelphia: Lea Brothers & Co. 1895.

The praise which we gave to the first edition of this work has been justified by the demand, within a little over two years, for a second edition. Although considerable new matter has been added, the size of the work, by an omission of the bibliographies, has not been very greatly increased; it is less than fifty pages greater. In the first part of the book the chapter on anatomy has been much enlarged and practically rewritten, to embody some of the recent studies by Golgi's methods. We miss, however, a complete demonstration of the various sets of neurons, and the employment of some of the modern diagrams, like those of Van Gehuchten, which, although schematic, are of much help to the beginner. To the first part is also added a brief chapter on massage. In the second part no new chapters have been added, although there has been much careful revision and many changes. The section on palmus, or convulsive tic, has been rewritten and much enlarged, embodying much of the author's later experience with these cases, and the pathology of paralysis agitans, very slightly treated in the first edition, is now fully discussed. Many lesser changes have also been made, especially in the sections on treatment, to which have been added various detailed directions for various methods of cure. We may note that the thyroid treatment of myxedema, concerning which the author was so guarded as to say nothing in the last edition, has now won an assured place. The section on insanity has received numerous additions. The pathology of general paralysis has been more fully discussed in the light of later researches, and entirely new chapters have been added on dementia, dementia paranoides, confusional insanity and delirium. More than two years of practical use of the first edition warrant us in commending the present edition even more highly than we did the first.

Modern Medicine and Homeopathy. Two addresses by JOHN B. ROBERTS, A.M., M.D. Philadelphia: The Edwards and Docker Company. 1895.

This little book contains two lectures delivered before the Philadelphia County Medical Society, 1892-1895. The first considers "The Similarity between Us (sic) and Homeopaths." The second treats of "The

Present Attitude of Physicians and Modern Medicine towards Homeopaths."

The first lecture is devoted to minimizing the differences which separate homeopathy from regular medicine, and urges greater liberality towards educated men who call themselves homeopaths. Dr. Roberts asserts that "to-day there is little belief in, or practice of, homeopathy as advocated by Hahnemann." Old-fashioned homeopathy is sufficiently vulnerable, but who believes in it.

The second lecture on "The Present Attitude towards Homeopathy" hints at a day perhaps not far distant when all scientific physicians will be willing to drop titles indicating exclusive methods of treatment. "Medicine is a science and an art, and is not electropathy, homeopathy or allopathy." "It is equally clear that physicians who claim to study and practice the science and art of medicine" are not homeopaths, allopaths, or electropaths. Unfortunately the general public do not realize this; and the majority of medical men are allopaths, simply because they are not homeopaths. The error has been perpetrated by homeopathic literature giving the name allopath to those physicians who are unwilling to be homeopaths, and who refuse to be affiliated with any sect of medicine."

These addresses are carefully written by one well in touch with the times, and will repay perusal.

Mentally-Deficient Children: Their Treatment and Training. By G. E. SHUTTLEWORTH, B.A., M.D., etc. London: H. K. Lewis. 1895.

This small manual is in spite of its size a most compact and satisfactory work upon all practical points relative to children who are variously classed as mentally deficient, feeble-minded, imbecile or idiotic. All the essentials are given concisely and interestingly, and not at all after the manner of the average "compendium." More than half of the book is devoted to treatment of these defections in their various aspects, and the chapters on their educational, moral and physical training, as well as recreation, are full of sound advice, and make very instructive reading.

The purpose of the book, which is to help the general physician in his diagnosis, prognosis and recommendations, is sure to be amply fulfilled, for he will find here given in a few words just the aid he requires in advising with regard to those unfamiliar cases which are out of the beaten track of practice.

Skiascopy, and its Practical Application to the Study of Refraction. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine; Surgeon to Wills Eye Hospital, etc. Octavo, pp. 112. With twenty-six illustrations. Philadelphia: The Edwards & Docker Co. 1895.

This little book was written to bring about the more general adoption of skiascopy, or retinoscopy as it is more commonly known in New England; and after reading Dr. Jackson's book, one really does not see why retinoscopy is not as good a name as the one adopted. The description of the phenomena upon which the test depends is by far the best which has yet appeared. The tests as advised by that author are certainly more elaborate than would be generally employed in the hurry of ordinary clinical work, but the accuracy with which the refraction can be determined by this method alone is well shown. It is cer-

tain that skiascopy as here recommended will give us more accurate information about the refraction of an eye than any other single method of measurement can possibly do.

The illustrations are very good and show very well what the student should look for under the different refractive conditions. This method of examination is certainly growing in favor and the appearance of the book is opportune.

Outline of Materia Medica and Pharmacology. A Text-Book for Students. By H. M. BRACKEN, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine, University of Minnesota. 8vo, 383 pp. Philadelphia: P. Blakiston, Son & Co. 1895.

This work, the outgrowth of the "Outlines of Materia Medica" which was prepared for the use of the medical students at the University of Minnesota, is intended to serve as a text-book in the study of materia medica, to facilitate note-taking in the lecture-room and to aid in the laboratory study of drugs. It treats the subject first in a general introduction, and then under the classification of acids, the metals, non-metallic elements, carbon compounds, the animal and the vegetable kingdoms; making mention of all included in the 1890 revision of the United States Pharmacopœia, and also of the newer and more important non-official preparations which have come into use since then, many of these being synthetic. Each article is described, and the official preparations into which it enters given, also its physiological and toxicological action and its therapeutic uses.

The work will be found to be one very useful for the busy practitioner as well as for the student, for whom it was more specially prepared.

A Guide to the Aseptic Treatment of Wounds. By DR. C. SCHIMMELBUSCH, assistant in the Royal Surgical Clinic of Berlin. Translated from the second revised German edition by FRANK J. THORNBURY, M.D., Lecturer in Bacteriology at the University of Buffalo, N. Y., etc. New York and London: G. P. Putnam's Sons. 1895.

The writer was an experienced operator and also a laboratory investigator. His book is what its title describes—a manual of aseptic technique. Sources of infection are stated. Disinfection, as applied to patient, operator, instruments, dressings, sutures, ligatures, wound drainage, is described at length. Both regular and emergency work are included. An extensive bibliography of the subject is appended. The text is well illustrated by forty-three wood-cuts. The book is an attractive and useful volume and a good exponent of methods now employed in the chief German surgical clinics.

The Science and Art of Obstetrics. By THEOPHILUS PARVIN, A.M., M.D., LL.D. Third edition, carefully revised. Illustrated with 269 wood-cuts and two colored plates. Philadelphia: Lea Brothers & Co. 1895.

This third edition of Dr. Parvin's text book has the great advantage over its predecessors that the arrangement of its subject matter has been altered from the formal or scholastic plan, which distinguishes the older text-books, to the more natural scheme which has begun to obtain of late. The book has already been reviewed by the JOURNAL; and little more need be said of it

than that it has been brought fully up to date, and can be recommended as an excellent text-book. Its most marked feature is in its constant reflection of the high character and unusually deep scholarship of its distinguished author, which the reader cannot help noticing in any portion of the book which he may pick up, though like all works of marked individuality, it is perhaps in spots slightly intolerant of views which are opposed to those of the author.

A Manual of Obstetrics. By A. F. A. KING, A.M., M.D. Sixth edition, with 221 illustrations. Philadelphia: Lea Brothers & Co. 1895.

The sixth edition of this manual differs from its predecessors mainly in the addition of a large number of illustrations, all of which are old friends, having appeared in many other treatises. The volume is so well known that it needs but little description. It furnishes a clear, concise epitome, written upon the lines of the larger text-books but in a somewhat more condensed form, and, as has been said before in these pages, is an admirable work of its kind.

La Méthode Brown-Séquard, Traité d'Histothérapie. La Thérapeutique des Tissus, Compendium des Médications par les Extraits d'Organes Animaux. Par le DR. M. BRA, Accompagné de 72 gravures. Paris: J. Rothschild, Editeur. 1895.

This work is prefaced by several commendatory letters from well-known medical men. Its best title is "Compendium of Medications from Extracts of Animal Organs." The subjects considered are of much interest, but vary widely in importance. The value of cardine is evidently slight; medication by means of an extract made from liver substance has as yet yielded little fruit; and the same may be said of extracts made from the kidney, the spleen and the lungs. On the other hand, thyroid medication is of recognized importance; the chapter on this subject is one of the most valuable in the book and contains likewise one of the most complete expositions of the matter that we have. The author has collected an extraordinary amount of widely scattered material and made it accessible to the profession. He is an enthusiastic disciple of Brown-Séquard, and probably only under the influence of this master could such a work have been conceived. There is probably no book in any language which treats so fully of the preparation and uses of extracts made from animal organs as this of Dr. Bra.

Medical Record Visiting-List and Physicians' Diary for 1896. New York: William Wood & Co.

The thirty closely printed pages which precede the Visiting-List proper have been revised and brought completely up to date, and the tables of equivalents, posological table, tables of formulæ for various purposes, of poisons and their antidotes, together with many other memoranda on subjects of daily interest to physicians, including artificial respiration, signs of death, directions for emergencies, antiseptics, disinfection, etc., are well chosen.

The arrangement for recording visits and memoranda and cash account is excellent and the general appearance is attractive.

As usual, the "Medical Record Visiting-List" is published in two sizes, for thirty and sixty patients per week, and either dated for 1896 or without dates, so that it may be used indefinitely.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 12, 1895.

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PSYCHICAL RESEARCH AND EUSAPIA PALLADINO.

THE critics, noting the degeneracy of the drama, claim that the art of writing opera bouffe is also lost. It is a pity, for the English Society for Psychical Research might afford an excellent subject. That society has published a portentous mass of reports and memoirs, and have spoiled much excellent paper; they have rehabilitated many worthy spooks, and have added much to ghostly literature. They have tried hard to overturn our knowledge of the physiology of the brain by the doctrine of telepathy, and have established that doctrine to their own perfect satisfaction. To be sure, their demonstrations had a cold shower bath early in the history of the society. The doctrine of telepathy was based at first to a considerable extent upon the remarkable performances of the Creery children. Members of the society investigated them with great diligence, employing their best efforts to detect collusion or fraud, and they decided that there was no collusion, but that the performances could be explained only by telepathic influences. Unfortunately for the society, the children confessed later that they had been fooling the worthy gentleman who had been at such pains to investigate them.

Such little trifles, however, did not daunt the society. Though the experiment had failed the principle remained the same. They still preached the doctrine of telepathy, and went on with their search. At last they discovered a wonderful woman, an Italian peasant, named Eusapia Palladino, who possessed a mysterious power whereby without contact she could move objects, and cause them to touch the investigators, although her own hands were securely held. Lombroso in Italy, Richet and Ochorowicz in France, and Mr. Myers and Professor Lodge in England, were among those who investigated her performances, and the latter reported to the English society that they could find no trickery and that the phenomena could be explained only by assuming that she possessed some mysterious or super-

natural force. To the credit of Italy, however, it must be said that three years ago Tamburini¹ failed to find anything remarkable in her proceedings, or anything that did not savor of trickery. And now the members of the English society must again lament their too great credulity and their failure to detect fraud. Mr. Hodgson, the secretary of the American branch of the society, has investigated Eusapia and has demonstrated conclusively that her mysterious powers are due to trickery, and that the trick was the old one of making her visitors believe that she was touching them with both hands when she was really touching them only with one.

The whole affair is certainly pitiable, and it tends to discredit true scientific investigation in the minds of the multitude. It all arises from the almost universal notion, that if a man is distinguished in one line his opinion is of equal value in other subjects. We should recall the melancholy conversion of Professor Crookes to spiritualism, or Zöllner's deception by the slate-writer Slade. The truth is that because a man is an eminent chemist, or a distinguished anthropologist, or a well-known essayist, it is no reason why he should be skilled in legerdemain, yet such men have repeatedly given expert opinions with the utmost gravity. To detect the trickeries of Katy King, or Slade, or Eusapia Palladino, we must appeal to the experts in legerdemain like Maskelyne or Kellar or Hermann, whose opinions can and should outweigh a regiment of the members of the Society for Psychical Research.

TREATMENT OF MORPHINOMANIA.

THE sudden method of withdrawal in healthy patients who are taking an amount of morphine exceeding eight to ten grains per day is favored by Giles de la Tourette.¹ The patient, he contends, should, if possible, be in a hydrotherapeutic establishment, and under an experienced physician.

Treatment should be begun by regulating the digestive system. After complete isolation of the patient has been secured, he is at first allowed his complete supply of morphine, which is administered hypodermically morning, noon and night. Then the suppression process begins. If the patient has been taking a daily quantity equal to fifteen grains, half that quantity is at once taken away. In some cases, two-thirds of the quantity is withdrawn the first day. The second and third day the allowance is diminished by two grains, and by the fifth day the morphine is suppressed altogether.

The first twelve hours of the demorphinization, there will be no symptom to give disquietude, and the patient will feel relatively well; but at the end of twenty-five hours troublesome accidents will supervene, which, if occurring in the family, will compel a resort to the hypodermic injections, not necessary, however, if the

¹ Clinical lecture on Morphinomania in Bulletin de Thérapeutique, September 15, 1896.

¹ Rivista Sperimentale di Freniatria, xviii, 411.

patient be in an establishment where he can be confined.

Syncope is the most serious of the untoward sequelæ of withdrawal, and it is sometimes mortal. If the patient, however, be free from all cardiac complication, the syncope will be of little importance.

To combat the syncope, it will be necessary to give a subcutaneous injection of from one to two grains of morphine. Iced champagne is one of the best remedies to allay vomiting.

Diarrhea is a frequent accident, but the physician should be careful that he does not too speedily suppress it, for the patient gets rid of his poison by the intestine (Sollier). But there are cases where the diarrhea is so intense as to constitute a real morphine-cholera, and must be checked by suitable astringents — capsicum and opium.

The maniacal excitement, the vociferations, the delirium may be combated by sedative baths and douches; and particular attention from the first should be given to the diet, that the wretched physical state of these patients may be amended as speedily as possible.

With regard to the slow method of withdrawal, the results are less satisfactory, for the treatment demands two or three months; whereas, under the other method, the use of the morphine is discontinued at the end of about a week. According to our author, slow demorphinization fails in eight out of ten cases. But the weak and irresolute prefer this manner of withdrawal. Charcot, who had considerable success with the "slow method," used to treat his patients according to the following rule:

(1) Make a condition that the patient shall sacrifice one-third of his daily dose of morphine at the onset.

(2) Substitute thebaic extract (extract of opium) for the morphine. Thus, for two centigrammes and a half of morphine, give one centigramme and a half to two centigrammes of extract of opium, taking care not to exceed the latter dose; with this bromide of potassium may be associated for the pains in the legs and the general excitation; daily quantities of three, four and five grammes of bromide being sometimes indicated. Conjoin douches and hydrotherapy. As far as possible aim to effect the sudden suppression of the last four or five centigrammes of morphine.

After arriving at the end of the demorphinization, drop as speedily as possible the opium and bromides, which are no longer needed. It is then a matter of only ten or twelve days to arrive at the complete end of the treatment.

The treatment pursued by Gilles de la Tourette is a modification of the rapid method of Erlenmeyer, described in a former number of this JOURNAL. Erlenmeyer claims to have accomplished the weaning process in most of his subjects in from a week to ten days. This method, like the abrupt-withdrawal plan of treatment, is open to the reproach of being cruel, but it does not seem possible to bring about the complete emancipation of the morphine-taker by any means which does not entail more or less suffering.

THE WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE.

A NEW Laboratory of Clinical Medicine was opened on December 4th, in connection with the Hospital of the Medical School of the University of Pennsylvania. This laboratory is the gift of Prof. William Pepper, in memory of his father. The original gift was \$50,000, of which sum the half has been used for the building and the half set aside for an endowment. Dr. Pepper, in an interesting letter describing the influences and motives which turned his thoughts to the gift which he made, estimates that an endowment fund of at least \$200,000 will ultimately be required to pay the necessary salaries, to provide annual stipends to a certain number of the associates, to supply the costly apparatus required, to issue the numerous publications resulting from the researches therein conducted, to purchase the necessary journals and works of reference, to meet the current expenses; and the letter continues: "While I shall reckon it a privilege to supply as much of this sum as my continued professional labors may render possible, I hope it is not unseemly to indicate two directions in which contributions might be made with great effect to promote the work to be here conducted. A fellowship in clinical medicine may be established by a gift of \$10,000, subject to the statutes of the university, the income of which would defray the living expenses of the incumbent and would also provide a fair sum to maintain his place in the laboratory. A gift of \$5,000 would yield income sufficient to meet either one or the other of these objects as might be indicated by the donor. To any one interested in the study of any special disease or group of diseases, such as tuberculosis or heart disease or infectious fevers — all of which destroy so many thousands of precious lives annually — the advantages of establishing a special research fund seem obvious. I earnestly trust that such endowments will gradually accumulate around this laboratory."

Sections Sixth and Seventh of the deed of gift read as follows:

"Sixth.— That the director and assistant director of said laboratory shall at all times be appointed annually by the board of managers of the University Hospital upon the nomination of the professor of the theory and practice of medicine and of the professor of clinical medicine.

"Seventh. That the purpose of said laboratory shall be to promote the interests of the patients in said University Hospital by the prosecution of minute clinical studies and original researches, and to advance the interests of science by the publication of the results of such work. It is accordingly stipulated that at no time shall any teaching be given therein to undergraduate students, or to any students except to our own graduates or the graduates of other approved medical schools, whose curriculum is at least of equal length and grade with that of the medical department of the University of Pennsylvania. Provisions will also be made for advanced workers."

Dr. John S. Billings, now Professor of Hygiene in the Medical School of the University, made an address which we have before us, at the request of Dr. Pepper, formally presenting the laboratory to the University Hospital. In the course of his address he refers to the gift as "unique in this, that it is made for the

specific purpose of promoting and stimulating original research and improvement in methods of diagnosing and treating the diseases of human beings and of giving advanced and special practical instruction in the new methods to post-graduates. While a few hospitals have rooms set apart for chemical, microscopical and bacteriological investigations, no hospital, so far as I know, has ever before received a specific gift for the construction and maintenance of a separate building to be devoted entirely to such purposes and to post-graduate teaching of clinical laboratory methods." It seems to us hardly necessary to claim quite so much for Dr. Pepper's foundation, though technically the statement may be correct. The generous nature and wise purpose which his gift and plans disclose are sufficiently evident without a statement which does less than justice to laboratories already attached to other hospitals and medical schools. Whether such a laboratory is styled a Laboratory of Clinical Medicine or of Bacteriology and Pathology is really a matter of nomenclature and of small moment. The subjects investigated and the ultimate objects sought will be much the same. The study of the bacillus of tuberculosis necessarily leads to a study of the action of preventive and curative agents.

The other closing paragraphs of Dr. Billings's address may well be brought to the notice of those rich men who desire to do something for their fellowmen and establish and leave behind them some enduring memorial to others or to themselves. In just and true words he says of Dr. Pepper's provisions:

"Broad and far has been his outlook in thus providing for the future a heritage of power, which mildew, flame and frost cannot harm. It is not a statue, or carving, or memorial arch that he has given, things that will blacken and moulder and crumble as the centuries roll by, until the mills of the gods shall have ground them to dust. It is a perpetual well-spring of force, a storage battery which will fill itself and give out warmth and light and motion so long as this institution of learning shall exist on the earth. He says, and says it with authority, find me the means of making the lives of men longer and more efficient, of putting aside the plague which has destroyed our fathers and brothers and threatens to consume our children; his demand is not for the fruit which is known and harvested, but for that of regions yet unknown and unexplored, for which he provides the seed, for charts of dangerous bays and coast-lines still unsounded and not yet triangulated."

Here is, indeed, a vineyard in which the harvest should be great, but in which the laborers are, and will be, far too few.

A BILL TO ESTABLISH A BOARD OF EXPERT MEDICAL WITNESSES.

SEVERAL prominent medical men have assisted in the drafting of a bill to be introduced in the New York Legislature at its approaching session, which provides for the creation of a non-partisan board with which

shall be lodged the right to give expert medical testimony in the courts of the State. The members of this board are to be appointed by the Governor, subject to the approval of the Senate. The province of the board will be to act in the capacity of instructors and advisors of the courts. It will be large enough to provide amply for all criminal trials, and the quorum named in the bill will be sufficiently small to allow sections of the board to act with the courts in various localities. The board, which it is proposed shall be composed of the most expert alienists, will have power to examine with reference to the sanity of any accused person, and to call for any evidence throwing light upon the case. When any section of the board disagrees upon the questions involved, the whole board may be called together for a decision. No physician who is not a member of the board will be allowed to testify, except as to absolute facts, but physicians who are not members may appear before the board and give evidence.

MEDICAL NOTES.

THE ST. LOUIS ACADEMY OF MEDICAL AND SURGICAL SCIENCES. — On November 6th, 1895, the St. Louis Academy of Medical and Surgical Sciences was organized. The constitution of the society subscribes to the code of ethics of the American Medical Association. The membership is limited to fifty.

TEA CIGARETTES. — According to *Cassell's Saturday Journal*, the dangerous habit of smoking green-tea cigarettes has fastened upon the women of England, who now smoke their five o'clock tea, instead of drinking it. The effect upon their nervous systems is said to be extremely bad.

ZOOLATRY. — This word has been invented in England to express the mental delirium under which certain anti-vivisectionists labor, and according to the *British Medical Journal* exactly expresses the state of mind of the anti-vivisection fanatic, who makes the feelings of animals the object of a tender regard which he is far from showing for those of his fellow-men.

THE SALE OF ANTITOXINS. — It is reported that the French government has found it necessary to place an embargo upon the sale of serums and other such products, which cannot be distributed until they shall have received official sanction, granted only after examination of the product by a committee of the Academy of Medicine.

FOREIGN MEDICAL MEN IN PARIS. — According to some statistics recently published by M. Bertillon, there are about 521 foreign medical men practising in Paris. This number represents more than one-sixth of the total number of practitioners in the French capital, which has been estimated at 2,922. It has been ascertained that there are 180,000 aliens residing in Paris, consequently the proportion of foreign medical men to the alien population is nearly three per thousand. On the other hand, the ratio of French practi-

tioners to the French population is only about one per thousand.

PHYSICIANS MUST TESTIFY.—It was recently decided by Judge Smith at the United States Circuit Court in session at Battle Creek, Mich., that a physician's relations to his patients are not sacred, and that he can be compelled to testify in regard to the ailments with which his patient is afflicted. The case in question was the suit of a life-insurance company to annul a policy of \$20,000 which had been issued to a citizen of Detroit on the ground that the applicant had misrepresented his physical condition. A physician who had previously treated him at first refused to testify but was afterward compelled to do so by the decision of the Court.

A JOURNAL OF EXPERIMENTAL MEDICINE.—In January, 1896, will appear the first number of the *Journal of Experimental Medicine*, a periodical devoted to original investigations in physiology pathology, bacteriology, pharmacology, physiological chemistry, hygiene and practical medicine. A wide correspondence has convinced the promoters of the new enterprise that enough original work of merit and importance is now produced to warrant the establishment in this country of a journal devoted to the publication of original memoirs. No periodical of this character is published in the United States, and the medical investigators of this country have published much of their best work in the scientific journals of Europe. Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University is to be the editor of the new journal, and with him will co-operate a board of twelve associate editors as follows: Three for physiology, three for pathology, three for pharmacology, and three for medicine. In addition a considerable number of investigators and teachers have consented to assist as collaborators. The *Journal of Experimental Medicine* will appear for the present, quarterly. The annual volume will contain from six to seven hundred pages, with many plates and diagrams.

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, December 11, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 131, scarlet fever 20, measles 7, typhoid fever 12.

PROSECUTIONS UNDER THE MEDICAL REGISTRATION LAW.—Last week John Therrein of 40 Isabella Street, Boston, was fined one hundred dollars by Judge Brown in the Municipal Court for using the title of doctor without registration. He appealed, and was held in \$500 for the Superior Court. The case of T. M. Curtis, who is charged with a similar offence at 31 Common Street, was again continued to January 15th.

NOMINATION OF PROFESSOR RICHARDS AS TRUSTEE OF THE MASSACHUSETTS HOSPITAL FOR DIPSO-MANIACS.—Professor Robert H. Richards of the Mas-

sachusetts Institute of Technology has been nominated by Governor Greenhalge for trustee of the Massachusetts Hospital for Dipsomaniacs, in place of Herman M. Burr, resigned.

NEW YORK.

THE NEW YORK ACADEMY OF MEDICINE.—At a meeting of the New York Academy of Medicine held December 5th, Dr. James Irwin Hance read a paper entitled, "Study of the Infectiousness of the Dust in Adirondack Cottages." The following nominations were made for Vice-President, Drs. Egbert H. Grandin, Virgil P. Gibney and Robert W. Taylor.

DIPHTHERIA IN A NORTH GERMAN LLOYD STEAMER.—It is reported from Braddock, Pa., that several cases of diphtheria have developed among some of the passengers on the North German Lloyd steamship *Kaiser Wilhelm II*, which arrived at the port of New York on November 29th. The vessel left Bremen on the 19th and Southampton on the 21st, and she had clean bills of health from both these places. At the New York Quarantine, when she arrived, one case of diphtheria was found among the steerage passengers and the patient, a little girl, was sent to the Willard Parker Hospital. The other steerage passengers after careful examination were released.

SMALL-POX ON A NAPLES STEAMER.—A young girl, nineteen years old, was found to be suffering from small-pox on board the Anchor-line steamship *California*, which arrived from Naples on December 1st. Four hundred and thirty of the steerage passengers were re-vaccinated, and 47 of them were sent to Hoffman Island for observation.

ARREST FOR CONDUCTING A PRIVATE INSANE ASYLUM WITHOUT A LICENSE.—John Loudon, the proprietor of a well-known private insane asylum at Amityville, Long Island, has been arrested for conducting the institution without a license, and held in \$250 bail to appear for trial. A commission, consisting of Drs. Macumber, Little and Tracy, was appointed to examine the inmates of the asylum, found that they were all of unsound mind, and by order of Justice Gayner they were transferred to the State Insane Asylum at Flatbush.

DEATH OF DR. HIRAM M. EDDY.—Dr. Hiram M. Eddy, one of the best known physicians in Jersey City, died at St. Mary's Hospital, Brooklyn, on December 2d.

DEATH OF DR. GIDEON L. KNAPP.—Dr. Gideon Lee Knapp, a graduate of the College of Physicians and Surgeons in the year 1878, died in New York on December 7th. He was taken with typhoid fever while on a shooting trip on Long Island about two months ago. The attack was a severe one, but he apparently came successfully through it and was believed to be out of danger until within a week before his death, when pneumonia set in. Dr. Knapp was a man of wealth and a great lover of all out-door sports; being especially noted for his skill as a wing shot. He was very popular, and belonged to a number of the

most prominent clubs in the city. About five years ago he became interested in the turf, and at the time of his death was the proprietor of the Oneck Stable, containing many noted horses. Dr. Knapp was a passenger on the Manhattan Beach train, which was wrecked at Parkville two or three years ago with such serious loss of life, and he did noble service in attending to the injured.

A LOW MORTALITY RATE.—The mortality during the week ending December 7th, reached the exceedingly low figure of 641, of this total, 103 deaths, or about one-sixth of the entire number were caused by pneumonia. There were 22 deaths from diphtheria. In Brooklyn 150 cases of diphtheria were reported, with 31 deaths.

Miscellany.

BANQUET AND PRESENTATION IN HONOR OF JOHN S. BILLINGS, M.D., LL.D.

A DINNER was given at the Hotel Bellevue, Philadelphia, November 30th, in honor of John S. Billings, by the American subscribers to the Billings Testimonial. Dr. S. Weir Mitchell, as chairman of the Committee, presided, and having made the presentation speech, placed in Dr. Billings's hands a silver box containing \$10,000, and having engraved upon it, "To John S. Billings, from 259 physicians of the United States and Great Britain in grateful recognition of his services to medical scholars." On the side of the box there is, in Latin, a statement to the effect that he who has made a catalogue of a great library has created a memory of the wisdom and learning of the past.

In conclusion Dr. Mitchell said: "In offering this box to my old friend, and the gentleman you desire to honor to-night, I would say that while the silver box contains this practical recognition of his services it also contains something more, as my imagination figures it. You all remember that phrase of Dr. Johnson's 'Wealth beyond the dreams of avarice.' There is, as I think of it, within this box, for an imaginative man, that wealth which represents the good feeling, the friendly opinions, the thankfulness, of the scholarship of two continents. Also I may say that this wealth represents a noble avarice, of that kind which my friend has shown all his life—a desire to be loved and respected by those in our profession whom men most rightly honor."

Prof. J. M. Da Costa spoke in behalf of the committee, and referred to the invaluable services which Dr. Billings has rendered to the entire medical world in the creation of the "Index Catalogue of the Surgeon-General's Library," and of the unselfish spirit in which the work had been begun and carried to its completion, and of the wide recognition and appreciation of his work in the centres of medical learning all over the world.

Dr. Billings, in his speech of acceptance, expressed his appreciation of the co-operation of Dr. Chadwick, of Boston, and Dr. Fletcher, his assistant in the work of compiling the catalogue.

Dr. Chadwick, of Boston, assured the company that he shared the feelings of Rufus Choate who, in addressing a similar audience in the same city many

years ago, said: "It gives me great satisfaction to honor by my presence here to-night the two most distinguished sons of Pennsylvania—Benjamin Franklin, of Massachusetts, and Robert Morris, of New York." Dr. Chadwick then spoke of the energy, industry, sagacity and discrimination displayed by Dr. Billings in the conduct of the great enterprise which he had just brought to completion, and in conclusion paid a well-deserved tribute to Dr. Robert Fletcher, as the most distinguished collaborator with Dr. Billings in the "Index Catalogue," and the actual editor of the *Index Medicus*.

In responding, Dr. Fletcher spoke of the pleasant relations with Dr. Billings during the twenty years association in their common task, and gave Dr. Billings the entire credit for the conception and execution of the work.

Dr. A. Jacobi spoke of the inestimable value of Dr. Billings's services to his profession and to mankind, and of the propriety of the celebration of the conclusion of Dr. Billings's great work at Washington being held in Philadelphia, the city which is to be the scene of his future labors.

Dr. William Osler announced that a sufficient fund had been raised to have Dr. Billings's portrait painted and presented to the Army Medical Museum at Washington. He also read a letter from Surgeon-General George M. Sternberg, expressing pleasure at the fact that such a handsome sum had been raised for Dr. Billings, and that his portrait was to be painted by an artist of ability, adding, that the portrait, when completed, would be gladly received.

The presentation and dinner were an adequate expression of the gratitude of the medical profession to Dr. Billings for his unselfish and devoted labors for their good. It was quite fitting that the celebration should be held in Philadelphia, where the proposal originated, and where Dr. Billings is to continue his labors as Professor of Hygiene in the University of Pennsylvania.

THE DIAGNOSIS OF SALIVARY CALCULUS.

LINDEMANN,¹ states that salivary calculi cannot be considered of rare occurrence, since he has found reports of 196 cases. He reports a case in which the diagnosis was so complicated by the peculiarity of accompanying symptoms as to be at first obscure. A married woman, aged fifty, consulted him for a tumor beneath the tongue which she feared was malignant. The fear of being told she had a malignant tumor had prevented her for a long time from seeking medical advice. The tongue, especially on the left side, was markedly swollen and edematous; the left sublingual glands were also swollen and of a dark-red color on the surface, this coloration being apparently due to a network of swollen and tortuous veins. The tumor felt hard and cartilaginous to the examining finger. The submental lymphatic glands were considerably swollen, the surrounding connective tissue was infiltrated, and the skin was markedly reddened. There was no elevation of temperature, but the patient complained of frequent headache and sleeplessness, together with thirst, and loss of appetite. She stated that the swelling under the tongue had appeared six to eight months before and had gradually increased in

¹ Deutsche med. Woch.

size, that it was painful, and interfered with the movements of the tongue. Household remedies had not relieved her, and she thought she had a malignant trouble, and consulted her physician because she thought the tumor was going to break out on the outside of her neck. The appearance and feel of the tumor suggested malignant disease, though an exact diagnosis could not be arrived at. Puncture with a hypodermic needle in the region of the left sublingual caruncle established the diagnosis of salivary calculus, which was removed through an incision in the floor of the mouth. The stone was club-shaped, and measured three centimetres in length and about one centimetre in thickness, weighed three and five-tenths grains and was of ivory-like hardness. Chemical analysis showed a close resemblance to bone or tooth substance.

The diagnosis of salivary calculus is described as easy in most text-books, although cases are reported where they have been erroneously diagnosed as dermoid, lipoma, ranula, or malignant tumor.

The etiology of these tumors is somewhat doubtful. The etiological possibilities suggested by Moreau² are these:

- (1) The foreign bodies introduced by accident.
- (2) Bits of tartar introduced from the mouth.
- (3) Inflammatory processes.

The latter seems to Lindemann the more probable theory, and he suggests that the action of the bacteria of the mouth (*leptothrix buccalis*, etc.), as suggested by Klebs, may have something to do with these processes. According to Tillmans's view the so-called salivary calculi bear the same relation to the salivary glands that the tartar does to the teeth. "Many individuals are known to secrete saliva which is very rich in calcareous matter. Such individuals deposit, therefore, more tartar on the teeth, and a portion is more likely to be deposited within the salivary ducts."

Correspondence.

SHOULD DOCTORS WEAR BEARDS?

BERLIN, COOS COUNTY, N. H., December 6, 1895.

MR. EDITOR:—In these days of microbes, bacilli, and crawling, creeping and flying things that find a resting-place for development of diseases in the human system, coming from the air we breathe, liable to assault the weak and strong from the dust of the electric or steam cars, the carpets, curtains, furniture or walls of hotels and house rooms, or from any place where they may have lain for years and been dislodged to mingle with the air; when boards of health are by law required to quarantine families, ships and houses, where contagious diseases are known; when the panic which the incursion of diphtheria, scarlatina, etc., in a community makes every mother's heart quail, *Should doctors wear beards?*

I am speaking from twenty-two years' experience in the practice of the profession. I wear a beard, and grant you that probably, like many of my professional brothers, it is a comfort to stroke it and look wise while making a doubtful diagnosis. It is a comfort in the cold, bleak days of winter, when the breath from the grand but icy Presidential Range of the White Mountains sweeps through our valley at an eighty-mile-per-hour rate, with the thermometer from zero to 40° below zero, to have a beard. I cultivated mine sedulously after graduation, so that I might lose the title of "the young doctor."

² Thiele, Diagnose und Behandlung der Speichelsteine, Inaugural Dissertation, Jena, 1893, S. 6.

I have spoken of some of the comforts, and may be advantages, of wearing a beard. Twenty-five years ago, while a student, I visited a case of diphtheria with my preceptor. It was a child between five and six years old, who would struggle in the hands of the nurse and fight every attempt to make applications to the diseased surfaces. During the struggle the child coughed and threw out onto the doctor's beard some mucus. He wiped it off carefully, made the applications to the throat, and rode home eight miles in the cold. In three days after this he was attacked with diphtheria of severe type, followed by paralysis so severe that for more than a year he was unable to do his work, and the community lost his valuable services. In these days when the doctor takes so many precautions, is it not possible that microbes of contagious diseases may be carried by the beard, and as he bends over some little patient leave the seeds of these destroyers of life?

Again, in scarlatina, especially during the stage of desquamation, may not the branny scales find a lodgement in the beard and be a source of danger in the same way as above? It is argued that there would be danger of an attendant who is with the patient nearly all the time, but the doctor is in the house so short a time he is practically free from acquiring any condition that would be a menace to others. Let us see.

In the "American Text-Book of the Diseases of Children," in the article on Scarlatina by Dr. Hatfield, of Chicago, will be found a case of Dr. Holland's where "the virus of scarlatina survived two generations, being packed away in clothing in a chest for thirty-five years; at the end of which time it communicated the disease to a grandchild for whom some of his grandfather's clothing was made over."

Of another case Dr. Hatfield says: "The disease remained hidden in a fur cloak packed away for more than a year, and was then communicated to an entire logging-camp, isolated for the winter in the wilds of Northern Michigan."

J. Lewis Smith relates the case of a librarian in a Sunday-School who contracted the disease from books returned from an infected tenement house. One month after his recovery the room in which he had been sick, and his clothing, were disinfected by burning sulphur; and yet he succeeded in carrying the disease personally to his sisters after a journey of three hundred miles to an isolated town to which they had been quarantined.

Surgeon Brooks, U. S. A., gives an instance of a child which evidently developed the disease spontaneously; but upon investigation it was found that one of the domestics had nursed a case of scarlet fever in a distant city a year before. Some of the clothing which she had worn at the time was packed away in a trunk and the child was present when they were unpacked and handled some of them.

Palante gives the case of a mother in contact with a patient "but a moment," who returned immediately to her home at a distance of six miles, but whose contact had been long enough to collect and convey the disease to her children.

The handling of furs, woollen garments, bed-clothing, curtains, etc., has repeatedly conveyed the disease. Cold does not affect it; so the fact that the physician rides for miles after visiting a patient with scarlet fever may not be a safeguard.

I note these diseases, and they are not alone the dangerous ones; but if there is so much risk in this class of diseases, should not the profession consider if they themselves might not possibly be an element in the distribution of micro-organisms? We note with what care the surgeon disinfects his hands, arms, instruments, all that comes in contact with the patient in a surgical case; but the beard of the doctor attending diseases and so easily communicable as some are, how many thoroughly disinfect that before visiting the next patient?

Surely we should take every precaution, or *not wear beards.*

Yours truly,

F. A. COLBY, M.D.

METEOROLOGICAL RECORD,

For the week ending November 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S. .24	50.04	44	49	38	85	90	88	N.W.	N.W.	10	8	R.	O.	.14
M. .25	30.30	39	45	33	75	98	86	E.	E.	18	12	O.	O.	.05
T. .26	29.83	56	67	44	94	95	94	E.	S.W.	5	36	O.	R.	.46
W. .27	30.42	44	48	3	54	91	72	N.W.	N.W.	15	9	F.	O.	.68
T. .28	30.60	41	50	32	64	81	58	W.	S.W.	7	8	C.	O.	—
F. .29	30.22	43	51	35	81	86	84	W.	S.W.	6	6	O.	C.	—
S. .30	30.14	38	44	32	84	84	28	N.	N.	9	16	O.	C.	—

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatning; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 30, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,892,332	683	228	11.11	20.55	1.34	1.20	5.10
Chicago	1,678,967	—	—	—	—	—	—	—
Philadelphia	1,164,060	417	142	11.52	11.76	1.92	1.44	7.44
Brooklyn	1,100,000	357	123	18.76	14.84	.84	1.12	13.16
St. Louis	560,000	—	—	—	—	—	—	—
Boston	491,405	201	60	11.27	14.70	.49	.98	8.82
Baltimore	495,315	180	61	7.68	6.72	1.92	—	3.84
Cincinnati	336,000	164	26	13.66	15.68	1.96	.98	12.74
Cleveland	314,537	102	32	8.37	21.39	1.86	3.72	.93
Washington	275,300	107	22	—	—	—	—	—
Pittsburg	236,617	—	—	—	—	—	—	—
Milwaukee	205,000	—	—	—	—	—	—	—
Nashville	87,754	31	6	16.10	12.88	3.22	6.44	—
Charleston	64,165	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Worcester	98,687	31	9	16.15	16.15	3.23	—	12.92
Fall River	88,020	29	12	24.15	6.90	17.25	3.45	3.45
Lowell	84,459	29	6	6.90	6.90	—	—	6.90
Cambridge	81,549	30	5	23.33	—	—	3.33	20.00
Lynn	62,355	21	4	4.76	14.28	4.76	—	—
New Bedford	55,254	20	5	15.00	15.00	5.00	5.00	5.00
Springfield	54,654	13	1	7.69	15.38	—	7.69	—
Lawrence	52,153	15	7	20.00	—	—	6.66	6.66
Holyoke	40,144	—	—	—	—	—	—	—
Salem	34,437	11	2	9.09	9.09	—	—	9.09
Brookton	33,157	—	—	—	—	—	—	—
Haverhill	30,185	4	—	25.00	—	—	—	—
Malden	29,006	9	1	22.22	—	11.11	11.11	—
Chelsea	31,226	10	2	—	20.00	—	—	—
Fitchburg	26,394	—	—	—	—	—	—	—
Newton	27,122	7	1	—	—	—	—	—
Gloucester	21,663	—	—	—	—	—	—	—
Taunton	27,093	12	4	33.33	—	—	—	—
Waltham	20,877	10	4	—	10.00	—	—	—
Quincy	20,712	5	0	—	20.00	—	—	—
Fittsfield	20,447	3	1	33.33	—	—	33.33	—
Everett	18,578	6	1	16.66	—	—	—	16.66
Northampton	16,738	2	1	—	—	—	—	—
Newburyport	14,354	4	2	50.00	50.00	50.00	—	—
Amenbury	10,320	—	—	—	—	—	—	—

Deaths reported 2,514; under five years of age 785; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 334, acute lung diseases 357, consumption 317, diphtheria and croup 187, typhoid fever 44, diarrheal diseases 43, measles 24, scarlet fever 11, whooping-cough 9, malarial fever 6, cerebro-spinal meningitis 5, erysipelas 4.

From measles New York 14, Brooklyn 4, Providence 3, Baltimore 2, Philadelphia 1. From scarlet fever Brooklyn, Boston and Nashville 2 each, New York, Philadelphia, Baltimore, Cincinnati and Cleveland 1 each. From whooping-cough New York 4, Brooklyn 2, Philadelphia, Cincinnati and Providence 1 each. From malarial fever New York, Brooklyn and Washington 2 each. From cerebro-spinal meningitis New York, Baltimore, Providence, Lawrence and Haverhill 1 each. From erysipelas Brooklyn 3, Baltimore 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending November 23d, the death-rate was 19.0. Deaths reported 3,863; acute diseases of the respiratory organs (London) 527, measles 208, diphtheria 111, diarrhea 69, fever 55, whooping-cough 54, scarlet fever 50, small-pox (West Ham) 1.

The death-rates ranged from 32.3 in Blackburn to 12.6 in Brighton; Birmingham 19.8, Bolton 17.9, Bradford 17.3, Croydon 13.2, Gateshead 17.4, Hull 17.8, Leeds 17.7, Leicester 16.1, Liverpool 27.2, London 17.7, Manchester 23.0, Newcastle-on-Tyne 20.1, Nottingham 16.1, Sheffield 21.9, Sunderland 15.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 30, 1895, TO DECEMBER 6, 1895.

CAPTAIN WILLIAM H. ARTHUR, assistant surgeon, is relieved from duty at Fort Columbus, New York, and ordered to Fort Myer, Virginia, for duty.

The leave of absence granted FIRST-LIEUT. JOHN S. KULP, assistant surgeon, is hereby extended one month.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 7, 1895.

GEORGE C. HUBBARD, assistant surgeon, detached from instruction at the Naval Laboratory, New York, and ordered to the "Vermont."

E. R. STITT, passed assistant surgeon, detached from the "New York" and ordered to the C. S. S. "Bache."

G. H. BARBER, passed assistant surgeon, detached from the "Bache" and ordered to the "New York."

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet at 19 Boylston Place on Wednesday, December 18th, at 8 P. M.

Papers: Dr. John Lovett Morse, "Report of Two Cases of Scurvy."

Dr. Henry Jackson, "Cases of Eclampsia of Doubtful Etiology."

JOHN L. AMES, M.D., Secretary.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, December 16th, at 8 o'clock.

Dr. F. H. Davenport will report "Some Observations on Malignant Disease of the Uterus." The paper will be discussed by Drs. Wm. H. Baker, M. H. Richardson, J. W. Elliot and G. Haven.

Dr. M. H. Richardson and Dr. G. L. Walton will present a paper entitled "Further Observations on the Treatment of Spasmodic Torticollis."

JAMES G. MUMFORD, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, December 19th, at 8 P. M., by Dr. J. H. McCOLLUM. Subject: "The Relation of Bacteriology to Preventive Medicine." The profession are invited.

BOOKS AND PAMPHLETS RECEIVED.

Sanitary Engineering. By Wm. Paul Gerhard, C.E. Reprint. 1895.

Proceedings of the Orleans Parish Medical Society for 1894, Vol. II.

Removal of Ingrowing Toe-Nail; a Simplified Operation by Means of a New Instrument. By A. H. Meisenbach, M.D., St. Louis, Mo. Reprint. 1895.

Medico-Chirurgical Transactions published by the Royal Medical and Chirurgical Society of London. Volume the seventy-eighth. (Second series, volume the sixtieth.) London: Published by the Royal Medical and Chirurgical Society, Longmans, Green & Co. 1895.

Spectacles and Eyeglasses, their Forms, Mounting and Proper Adjustment. By R. J. Phillips, M.D., Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmic Surgeon to the Presbyterian Hospital in Philadelphia, etc. Second edition, revised, with 49 illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

Original Articles.

THE IMPORTANCE OF FREQUENT OBSERVATIONS OF TEMPERATURE IN THE DIAGNOSIS OF CHRONIC TUBERCULOSIS.¹

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

MRS. —, thirty-nine years of age, the mother of one child sixteen years of age, was admitted for treatment in July, 1892. Her mental trouble was mild melancholia, chronic in type, with a slight degree of dementia. There was no hereditary history. She was naturally bright and cheerful, and physically strong. No definite cause of the attack could be assigned, except exhaustion from overpressure in her daily life. It was probably some years in developing, but she did not break down until two and a half years ago, when she went abroad for treatment. For a time she was under the care of Charcot, but becoming violently insane, was sent to a private asylum under the direction of Professor Magnan.

Here she passed through a period of excitement, then became quiet and depressed, and finally had a period of comparative lucidity. She left the asylum for a while, but grew worse, and was obliged to return, since which time she has continued depressed.

About the first of June, 1892, when arrangements were being made for her to go to America, she developed what Professor Magnan called an attack of "enteritis," characterized by diarrhea and rise of temperature. In July she seemed strong enough to undertake the contemplated journey, and arrived toward the end of the month.

On admission she was very weak and feeble. Her features were pinched and haggard; she was much reduced in flesh; and she moved with great difficulty. Her temperature was normal, and her pulse 96. Physical examination revealed a small abdominal tumor, probably ovarian; otherwise it was negative. Her bowels were very loose during the voyage, though the number of daily operations rarely exceeded two, that at night being involuntary. Mentally she was very languid and listless, talking with difficulty, as if articulation were painful to her. Though her mind seemed dulled, she answered questions rationally, in as few words as possible. There were no apparent delusions, but loss of mental vigor and quick responsiveness, and an undue degree of depression and diminished power of perception of her condition and surroundings.

During the two weeks following her admission, the physical condition fluctuated considerably from day to day. Some days it would be better, with only one operation and a normal temperature. Then there would be two or more operations, the temperature rising two or three degrees. The evacuations were loose and watery, and rather greenish in color, with small, light-colored particles resembling milk-curd, mixed in. The urine was normal.

The combination of continued diarrhea, with a fluctuating temperature, tending to rise several degrees, led to the calling in of Dr. R. H. Fitz, of Boston, who carefully considered the possibility of dysentery. He thought there were no indications of ulceration, and was also of the opinion that the abdominal tumor probably had no influence on the bowel trouble.

During the next three weeks somewhat the same conditions prevailed, the temperature averaging one to two degrees above the normal, and sometimes reaching three and a half degrees. The dejections were usually watery, occasionally formed. Dr. Fitz visited her again, and advised some slight changes in treatment.

The following two weeks the bowels continued much the same, but the temperature showed even greater variations, several times rising to 102°. The greatest rise invariably occurred at night. It was noticed at this time, that she had no consciousness of the elevation of temperature. She might be duller than usual and inclined to sleep more, but she took her food well, and refused to be sponged, or have cold compresses applied to her head. This obliviousness was undoubtedly, in part, due to the condition of mental dulness which had settled upon her, making her less alive to physical sensations; yet, on the other hand, she grew intellectually brighter as time went on, was emotionally sensitive, and in her perceptions of people and her environment, unusually quick and keen.

In order to get further light on the nature of the abdominal tumor, Dr. A. T. Cabot, of Boston, was requested to see the patient in consultation. He thought the tumor inflammatory or malignant, and advised a bimanual examination under ether for the purpose of making a more exact diagnosis.

A few days later the suggestion of Dr. Cabot was carried out, the patient being given chloroform, and examined in conjunction with Dr. Wm. T. Bull of New York. The report they made was as follows:

"We found a mass about the size of a lemon, or slightly larger, lying on the left of the uterus, and on a plane posterior to it, so that it seemed as if this mass lay behind the left broad ligament. It was slightly irregular in shape, and not entirely even in consistency — that is, some parts were firmer than others. With a finger in the rectum one of the little prominences disappeared with a sense of giving way, which suggested the rupture of a small cyst on the surface of the mass. This mass was adherent, could not be moved considerably up or down, and gave the impression of being an enlargement of the ovary of that side, which was very adherent to the parts about and which on parts of its surface had little cysts projecting. No secondary nodules could be felt anywhere through the pelvis. The diagnosis was either an enlarged and cystic ovary, which was held firmly in place by inflammatory adhesions, or an ovary of the same character, but containing portions of a malignant nature, which had led to adhesions of surrounding parts. The first condition is naturally the most common, but there was doubt in this case, whether it might not be the latter, because of the affection of the bowels which she had had for some time, and also because of the serious loss of flesh and strength which had accompanied it, and which seemed to be out of proportion to any other condition which could be made out anywhere."

In connection with the examination the probable benefit to arise from an operation was considered. It was decided this would be very small, to say the least, both on account of the patient's physical and mental condition. She hardly seemed strong enough physically to undergo an operation, and the quiescent mental state might be changed into one of active disease.

During the next six weeks there was no real gain in the patient's condition. The bowels were at times better, at one time the dejections being formed and normal in appearance. Again, there would be several discharges of a loose and watery character, in the

¹ Read before the Boston Society for Medical Improvement, October 21, 1895.

twenty-four hours. The temperature showed a marked tendency toward periodicity, remaining about the same for a few days then gradually rising at night, being normal in the morning, until it reached its maximum, which at this particular time was 104° . The period of rise until the highest point was reached, might be three days; the fall was more rapid, sometimes following immediately, which might have been partly explained by the administration of phenacetin. The attacks, or periods of rise would usually be ushered in by a slight chill, or accession of the prevailing malaise. In the hot stage, the patient's cheeks would be flushed, the skin dry, the eyes congested, and a typical picture of a fever attack was presented, but if she were asked how she felt, she would only say a little uncomfortable, or her head ached, or she wanted to be quiet. There was, of course, a sweating stage, but not very profuse perspiration. The subsidence of the rise was naturally followed by a temporary increase of weakness.

Dr. Fitz was again requested to see the patient, the persistent elevation of temperature, without a satisfactory explanation, occasioning some uneasiness. He thought the temperature very curious, suggesting the probable existence of pus in some way connected with the intestines. He also thought the possibility of malaria was to be considered in connection with the periodical rises of temperature, and advised the administration of quinine in increasing doses, until the limit of tolerance was reached. His physical examination was recorded at the time as follows:

"Dulness at the bottom of right chest below inferior angle of scapula, and extending up to the right nipple. Breathing and voice sounds less strong on the right side. No râles behind, in front a little dry crackling, probably edema. Liver dulness not distinguishable. Lower border not below usual level. Tenderness lower side hip twelfth rib on the right side. No local tenderness or induration. Tenderness behind on right side in tenth and eleventh intercostal spaces. Heart and lungs normal. Spleen slightly enlarged. No tenderness. Abscess of the liver to be watched for."

For the following two months the patient was given quinine in large doses, but notwithstanding the fluctuations in the temperature continued. Many days the range would be from 99° in the morning to 100° at night, but a number of times it reached 102° , and on one occasion 104° . Before this last rise it had been normal for several days, then a slight elevation was noted and it rose gradually. Once when it was 102° and the patient's face was flushed, she said she was very comfortable, and evidently had no idea that she was hotter than usual. When it reached 104° she said she felt very sick, but had no pain. She seemed dazed and stupid and wanted to sleep. Her bowels were acting fairly well, the dejections sometimes being formed, and not many a day. Her mind was rather more active, so that she read many books of a light character and talked in a pleasant, bright way.

Dr. Fitz saw her again at this time and thought that as the temperature continued to rise in spite of the long course of treatment with quinine, the fever was probably not of malarial origin. He suspected from the persistent elevation of temperature that a chronic tubercular condition existed outside the lungs, probably in the Fallopian tubes, and he thought the tumors were the diseased tubes. He also thought that the distention of the bowels (which had become at that

time more marked and attended with some discomfort) might possibly be the beginning of tubercular peritonitis or a part of the intestinal disturbance.

Six months after admission, or the last of January, 1893, the patient had been having some comparatively comfortable weeks. The temperature had not risen above 101° , and rarely had been so high. Dejections averaged not more than one a day and were of fairly good color and consistency. Dr. Fitz at this time found the abdomen softer and only sensitive over the dull, circumscribed and resistant mass in the right hypogastric or iliac region. Mentally the patient was quite bright, and only complained of the difficulty of eating and of slight nausea.

For the few following months the temperature was irregular and occasionally high, but there were weeks when it did not get higher than 100° , this being about as low as it went at night. Stools were more frequent (perhaps three in two days), soft solid in form, brown in color and contained no mucus. There was some difficulty in taking food, occasional attacks of indigestion, pain from gas in the bowels; but otherwise nothing of moment, until the temperature in May reached on one occasion 103.8° , and on another 104.8° . On the first of these extreme elevations, there was a slight chill; but the patient did not notice it much, and took her food as usual. On the second she said she felt "sick all over," but took a fair breakfast and dinner. The next day she was as well as usual.

In June she seemed stronger. She was able to lie on the sofa each day, took a considerable amount of food, and appeared to be gaining in strength and perhaps a little in flesh, having already become somewhat emaciated. She was seen at this time by Dr. Fitz, who found the abdomen moderately distended and tympanitic, but no tenderness or resistance except in the left iliac region where he had found it before, and in the right iliac region, though less sharply defined. He thought the tumor was now about the size of the fist. Asked his opinion in reference to the advisability of an operation, he said he did not then think it desirable, but if the mental and physical improvement continued, she might be examined at a later period under ether, with an operation in view, if everything were favorable.

Two months later Dr. Cabot again examined the patient. He noticed greater pallor of the face than when he had seen her before, also puffiness of the face and club-ended fingers. On examining the abdomen externally, he found low in the left side a little sense of resistance, the bowels being distended and resonant over the anterior portion, but dull in the flank, especially on the left side, the right being resonant. Fluid which he thought to be present shifted from one side to the other when the patient was turned over. He thought the symptoms pointed to tuberculosis more than the year before. He would advise an operation if he were sure there was no ulceration of the bowels.

Dr. Fitz having seen the patient three days before Dr. Cabot's visit, the latter communicated with him to get his opinion as to the advisability of an operation, and wrote the following letter:

"I have just seen Dr. Fitz. He is somewhat inclined to think that the dulness in the flank may be caused by fluid contained in coils of intestine and not in the free abdominal cavity. He does not feel inclined to any operative interference at present, but thinks that if a general ascites developed, it might be wise.

"I have been thinking the matter over, and my feeling about it is this: that if the evidence distinctly points to tuberculosis as the probable diagnosis and the fluid which has accumulated there in the abdomen (if I am right in thinking it free fluid) were not to be absorbed, then an operation to thoroughly drain out that fluid and wipe the abdominal cavity dry would be a wise one.

"Just how it would be best to treat the mass in the left side, I am not sure. It seems to me that if it were a matted tube, with the intestines adherent about it and in a tuberculous condition, it would be best not to meddle with it, but content ourselves with drawing off the fluid, and leave this mass to be re-absorbed if possible."

After considering the subject a little more fully, Dr. Cabot goes on to say:

"I write all this to you because I suppose the duration and severity of the operation would have considerable influence in deciding you whether, in her mental condition, any operative measures were wise. I should think, with Dr. Fitz, that with a certain amount of doubt as to the character of this fluid, and also while it is still doubtful whether it may not be of itself re-absorbed, that it would be wise to wait and watch the course of events."

Dr. Cabot enclosed a copy of a letter from Dr. Wm. T. Bull, with whom he had corresponded in regard to the case. Dr. Bull thought the extreme exacerbations of temperature pointed to suppuration in the exudation, or tumor. He agreed with Dr. Cabot that the removal of any solid mass from the abdomen would be a very risky procedure. He had known good results to follow simple exploratory incision and evacuation of the fluid in tuberculous peritonitis, where there were no pronounced, or advanced, or external solid masses present.

In the writer's opinion it was not a case where the mental condition would be improved by an operation. The patient had on the whole made a gain in this direction, and though her mind was not strong, she was fairly rational, and not depressed beyond a slight degree, and was quiet and usually composed. An operation might have entirely upset this condition and led to a more positive state of weakness and confusion, or even have developed an attack of acute excitement. Physically she was slowly growing weaker from the inroads of what appeared from the temperature and other symptoms to be a somewhat widespread inflammatory or tuberculous process, and it was a serious question whether she would have the strength to rally from the shock and exhaustion of even a simple operation.

During the following three months the patient lost ground. Her strength failed a little; emaciation, which had been temporarily checked, had progressed. Food was less well assimilated, and taken in smaller amount. The bowels, however, though habitually loose, were in better condition; the dejections were sometimes formed, and not of bad color. The most striking symptom was still the temperature, which showed the same tendency to variations of several degrees between morning and evening, at irregular intervals of a few days, rising five or six degrees above the normal.

Dr. Fitz, who saw the patient at this time, regarded her condition as worse than at his last visit, several months earlier. The distention of the abdomen had increased, but it was still soft on palpation. In the left lumbar region extending downward from the floating ribs he found a movable mass the size of the fist,

which he had not noticed at his last examination. He thought this was probably a tubercular mass which had been developed recently.

The history of the patient from this time to the day of her death, fourteen months later, was practically a repetition of that detailed above, the course of events being steadily downward. Mentally her mind became a little weakened, and she had times of crying and hysterical fright, when she thought she was losing her breath and would die. Generally, however, she expected to get well, and nothing in her condition or surroundings seemed to impress her with the seriousness of her illness. She took everything much like a child who is too undeveloped to fully appreciate the meaning of things.

Physically the emaciation became extreme, until she was wasted to a skeleton. The abdomen became considerably distended with gas in the intestines and there was an increase of fluid in the abdomen, with some apparent growth of the tumors. There was no great tenderness of abdomen on pressure, and the weight of the bed-clothes was not complained of. The number of dejections varied from one to several daily. During the last weeks they were of a yellowish color, and resembled in consistency the partially-cooked yolk of an egg. The temperature showed the same marked fluctuations, steadily and persistently, until within three weeks of the end, when it became subnormal.

The report of the autopsy, made by Dr. W. T. Councilman, was as follows:

The body small, slightly built, emaciated. Abdomen retracted. In the lower portion of the abdomen on left side just above pelvis, a tumor-like mass apparently filling up pelvis can be made out. Abdominal walls exceedingly thin. Subcutaneous fat all over body greatly atrophied. In the peritoneal cavity about one litre of slightly cloudy serum. The peritoneum thickened, and about the liver and spleen there are numerous adhesions. The pelvic cavity is entirely shut off from the general peritoneal cavity by adhesions connecting together an irregular, tumor-like mass. Two loops of small intestine are intimately adherent to this.

The diaphragm in usual position.

In both lungs well marked edema in the lower posterior portions.

Heart of ordinary size; valves normal.

Liver of ordinary size, firmly adherent to its surroundings and to the spleen. A considerable mass of adhesions in the portal of liver and around the portal vein which was thickened and dilated. On sections of liver, lobules visible, its tissue rather firmer than normal. The spleen enlarged to three times its normal size; everywhere so adherent that it could not be separately removed. Capsule thickened; on section rather firm. The splenic vein greatly dilated. The pancreas firm. Adrenal glands normal.

Kidneys rather small, pale, anemic; capsule slightly thickened. The mucous membrane of large intestine thickened and edematous; same condition less marked in small. Mucous membrane of stomach pale and anemic. The entire pelvis is filled up with a tumor-like mass, all parts of it firmly adherent. On the surface of this mass there are several small cysts with clear contents. The pelvic viscera were removed *in situ*. The uterus and tubes firmly united to the rectum, forming a roof over a cavity between the uterus and the rectum. This cavity is lined with a foul necrotic mass. No trace of ovaries could be found. There is an opening from the rectum directly into this cavity. The tubes are greatly enlarged. Their distal extremities form part of the wall of the cavity in the interior of the tubes. The walls are thickened, and contain a whitish, opaque mass.

The uterus is of normal size, the walls atrophic and

anemic. Bladder normal. Mesenteric and post-mesenteric glands enlarged and soft.

Microscopic examination of the tissue comprising the wall of abscess in pelvis shows it to be principally made up of tubercles and tuberculous tissue. The tubes are almost entirely composed of tuberculous tissue, and miliary tubercles. Miliary tubercles also found in mesenteric and post-mesenteric glands and in liver.

Anatomical Diagnosis.—Tuberculosis of ovaries and tubes, with formation of tuberculous pelvic abscess with perforation into rectum. Tuberculosis of mesenteric glands and liver. Chronic peritonitis with adhesions. Chronic passive congestion and ascites, probably due to compression of vessels by peritoneal adhesions. Anemia, marasmus.

SUMMARY.

I have been led to report this case for the purpose of calling attention to the importance of making careful observations of temperature as an aid to diagnosis in obscure forms of disease with an absence of marked physical symptoms. While the temperature alone can rarely be regarded as strictly pathognomonic, I believe it to be more characteristic than is generally supposed. Especially in combined or chronic diseases I believe this to be the case, but usually observations have not been made for a sufficiently long period to establish a differentiated and definite type.

If we take the case under consideration, we get a good illustration of what I mean. Physical examination revealed only a small, abdominal tumor. There was no history of any disease, except that of "enteritis" as diagnosed by Magnan of Paris. The patient herself, from her enfeebled mental condition, was unable to give a satisfactory or helpful account of such subjective symptoms as might be expected to be present. Under these circumstances any clue was naturally followed which would tend to elucidate matters.

The presence of a tumor, probably ovarian, called attention to the abdomen, and led to the examination under chloroform, which determined the site of the tumor and its probable size and connections, but not its character. This could, of course, have been ascertained by an operation, which was not deemed advisable. It was probably malignant, tuberculous, or innocent, with formation of pus, but which could not be positively decided.

The most striking datum, from the start, was the persistent continuance of an elevation of the temperature, not day after day reaching regularly a certain maximum height, but while usually at night considerably above normal, tending at short and irregular intervals to rise much higher.

Malaria, as a possibility, was suggested by this periodical rise, and the onset of the attacks, which began with a slight chill, passing into a hot, then a sweating stage also very slight, and out of all proportion to the height of the temperature. A prolonged course of quinine treatment produced no modification in the character of the attacks, or the elevation of temperature, and the existence of malaria was therefore of necessity excluded.

Abscess of the liver was also considered as a possible cause of the symptoms, but there was no enlargement of the liver; no fluctuating tumors of its surface; no jaundice; no pain referable to the liver; no gastric disturbance at the beginning of the illness. The temperature in abscess of the liver may be high and intermittent, but the periods would be nearer together and more definite, and the febrile disturbance more

decided, and directly debilitating. In the case under discussion, even very considerable rises in temperature would have passed unnoticed, had the thermometer not been regularly used.

Cancer was also eliminated as the explanation of the symptoms by the absence of pain, jaundice, hemorrhage, the character of the temperature, and negative physical evidence. It was only in the beginning, at the time when the bimanual examination was made under chloroform, that its existence was considered possible.

Chronic tuberculosis, by exclusion, was then the only diagnosis which could be adopted to satisfactorily account for the symptoms, and as has been seen, the autopsy proved its correctness.

The temperature was recorded for a period of nearly two years and three months, being taken in the mouth and always by a physician. The total number of observations amounted to 1,582; 409 times there was a rise to between 100° and 102°; 87 times there was a rise to between 102° and 105°; 32 of these times 102° was the point reached; twice 105° and several times 104.4° was reached. The pulse usually followed in increase of frequency the elevations of temperature.

The greater of the rises in the temperature followed no rule as to regularity explainable by outward manifestations. Sometimes there would be only an interval of three days; then again of a week; sometimes of two weeks, occasionally of three, but rarely so long an interval elapsed. When there was no excessive rise for some time, the daily fluctuation would be greater.

The maximum elevation would be reached by the second or third day, each day rising a little. Or there might be a fall the second, with a very material rise on the third; usually, however, the rise was a continuous one in the way described. The greatest rise, with very few exceptions, occurred at night. The next morning would mark a fall even where the febrile process continued, in which case the evening temperature would be higher than the night before. The subsidence was, like the rise, usually continuous with a marked decrease each night.

The slight degree of noticeable constitutional disturbance resulting from even the greatest elevations of temperature was several times alluded to in the report. This was partly due no doubt to the mental apathy of the patient, which made her less consciously impressionable to physical processes, but must also be regarded as characteristic of tuberculosis. In this disease, the fatuity of the patient under the most hopeless conditions is a phenomenon we are familiar with. It is hardly possible to believe that there is any other disease where such a high temperature could continue for so long a period, as the underlying conditions would be serious enough to lead to a fatal termination much earlier.

It would be interesting if a temperature curve could be plotted which might be regarded as characteristic, if not pathognomonic, of chronic tuberculosis. This can only be done by careful observations in a considerable number of cases. In the case under discussion the following points are brought out, which are, I believe, of significance from a diagnostic point of view, and of especial value in obscure cases, and, as far as they go, throw light on the temperature curve:

- (1) An average considerably above normal.
- (2) An almost invariable rise at night.

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(3) Periodicity of a maximum elevation of several degrees, occurring at irregular intervals of a few days.

(4) Gradual ascent to the maximum for two or three days, with a decline sometimes gradual, sometimes sudden; the ascent at night, the decline in the morning.

(5) Protracted continuance of a high temperature for months or years.

(6) Less constitutional reaction from the periodical rises of several degrees, than would be expected.

IMMUNITY AND CURE.¹

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IN the few years that we have known ourselves to be surrounded on all sides by many forms of microbes, some of which cause definite and specific diseases, there have arisen from time to time more or less successful efforts to explain, not only the action of these microbes, but also the immunity that some species and individuals evidently possess against this action. The success of the so-called antitoxic serum in diphtheria in the last two years has directed public thought in this direction more strongly than ever, and created a widespread interest in this question of immunity and cure. Empirically the various antitoxic serums have been found to confer a relative immunity if administered before infection, and to promote recovery if administered not too long after infection. Most of the theories that have been propounded to explain these empirical facts have been based on foundations not deeply enough laid or on a too narrow survey of the whole field. It is my purpose to-day to attempt a general survey of the whole field, and see whether, by the labors of many workers in diverse fields, enough facts have been accumulated to permit of the construction of a theory of immunity which shall explain all these facts; if too few facts have been determined, at least such a survey will show the direction that new investigations must take in order to give us the needed data.

Before the subject of immunity can be taken up, it is essential to know something of infection; for it is obvious that before we can direct intelligent efforts against an enemy, we must know the character of that enemy. Armor is no protection against a poison, nor is antitoxic serum of any avail against a bullet. To the science of bacteriology we must turn in the first place for the information we seek—a science that in its thirty years of existence has made wonderful and rapid growth. A brief review of the facts it has established which are germane to our present purpose will be in order. Chemistry early comes to the aid of bacteriology, and later becomes so intimately associated with it that a separation of the two is hardly possible. The following are the facts that these two sciences have established beyond a doubt:

(1) Many diseases, both local and general, in man and the higher animals, are due to the presence in the body of microbes.

(2) In some instances, as in pneumonia, typhoid fever, cholera, tetanus, etc., the same microbe causes always, so far as is yet known, the same disease, with clinical symptoms the same, except for varying degrees of severity.

(3) In other instances, the same microbe may cause widely different clinical pictures; as, for example, the tubercle bacillus may cause the glandular enlargements formerly known as "strumous," or pulmonary phthisis, or caries of the spine, or lupus, or general miliary tuberculosis, etc. (8); or the streptococcus pyogenes aureus may cause simple abscess, puerperal fever, carbuncle, erysipelas, or septicemia and pyemia (1, p. 241).

(4) These microbes cause disease only if they are within the body. They are harmless so long as they remain outside of the healthy, unbroken integuments of the body, whether of the outer surface or of the digestive or respiratory tracts.

(5) A certain number of microbes is necessary to produce disease, the number in any one case varying according to the different species of microbe, and to different individuals of the same species; also to the different species and individuals of the animal infected (1, pp. 11, 12).

(6) Once within the body of the host, or in culture media in the laboratory, the microbes, under favorable conditions, increase rapidly in numbers, requiring food for this growth and giving rise to chemical substances which are thought to be poisonous to themselves as well as to the host. After a time the microbes die in large numbers both in the cultures and in the tissues (3).

(7) These chemical substances, called variously ptomaines, leucomaines, toxins, or tox-albumins, contain bodies which vary in chemical complexity from alkalis and such substances as leucin, tyrosin and other bodies which have been extracted from the animal tissues (1, pp. 90, 254), and whose constitution is definitely known, to proteid bodies which have been described, some as globulins (30), some as nucleo-albumins (1, p. 113), some as albumoses, etc. (1, pp. 90, 113, 177, etc.; 29), and some as peptones (1, 5). Nearly all are poisonous to the human organism.

(8) Different cultures of the same species of microbe may differ widely in virulence (1, pp. 36-40), some being almost innocuous, some rapidly fatal when injected in equal amount into animals of equal size, weight and susceptibility so far as can be determined (2, p. 74).

(9) Culture media, whether artificial or natural, temperature, chemical substances, and other conditions may modify the virulence of these microbes, to increase or lessen it (1, pp. 36-40, 241, etc.; 2, p. 21).

(10) Injections into the animal body of sufficient amounts of cultures in which the microbes have been killed produce the symptoms of the disease that would be caused by the injections of the living microbes (1, p. 40).

(11) Similar injections of sufficient amounts of filtered, and therefore germ-free, cultures produce similar results (1, p. 40).

(12) Similar injections of sufficient amounts of the tox-albumins isolated from the cultures of some microbes also produce similar results (1, pp. 112, 113, etc.; 33).

From these facts it is fair to draw the following conclusions as to the possible ways in which the microbe may work harm to its host: it may act, first, mechanically, by increasing in numbers so rapidly as to plug the capillaries of the body or some of its more vital organs (the earlier inoculation experiments with anthrax seemed to support this view); second, physiologically, by withdrawing from the host nutrient ma-

¹ Read before the Middlesex South District Medical Society, October 9, 1895.

terials necessary for its own growth and nutrition (13, p. 22), a view which receives little acceptance now; and third, chemically, by means of poisons, mostly if not exclusively proteid, which are (a) the metabolic products of the microbes, (b) substances derived from the dead bodies of the microbes, (c) substances produced by the action of the microbes on the tissues with which they come in contact, or (d) any combination of any or all of these.

Of these three modes of action, the mechanical is not in itself alone sufficient; it occurs only in cases where the number of microbes is so great that all the resistive forces of the host are at once overcome, and plays but a very subordinate part; the physiological is theoretical rather than established by observation, and is not supported by experimental evidence; the chemical is the chief, and is the only one that need be seriously considered. As will be seen later, the substances derived from the dead bodies of the microbes probably play the most important rôle (3), the other substances found in the cultures only serving to add a few details to the clinical picture the main lines of which are drawn by this cell-substance.

We have just seen what are the characters of the enemy against which the host must protect itself. Let us now examine the latter's armamentarium to find what means it has for resisting the enemy in whatever character it appears. The host acts against the invader and for its own protection, as the microbe acts against the organism, mechanically, physiologically and chemically. These three modes of action are variously combined with one another and rarely occur alone.

First, with regard to the mechanical action: The microbe, as we have seen, is powerless unless it can gain entrance into the tissues of the host. So long as the skin, the mucous membranes, and the linings of all cavities connecting with the outer air are intact, the microbe cannot gain entrance (2). Mechanical abrasions of these surfaces, or chemical alterations in their cells, especially of the mucous membranes, may allow the entrance of the microbe or its poisons (2). We may fairly assume the existence of chemical alterations in these cells, though we do not know what they are nor how they originate; for vital processes are largely chemical processes of a very highly complex character, and we know from pathology that marked chemical as well as structural changes take place in the cells in advanced stages of disease. If the microbe makes an entrance into the body through the skin, a proliferation of connective-tissue cells, of leucocytes which the blood circulation has brought to the spot, and, according to some authors, of the so-called slumber-cells takes place, whereby a wall of cells is built around the invading microbe—round-cell infiltration—to prevent its further advance (2). If this process does not take place rapidly enough, or if the microbe is virulent enough to overcome this barrier, and also at once when the microbe enters through the mucous membranes, it finds itself in the lymph spaces, whence it is carried through the lymph vessels to the lymph glands (2).

Anatomical structure, including blood-supply, lymph-supply and the presence or absence of much connective tissue, in connection with physiological activity, is a very important factor in the mechanical obstruction to the spread of the microbe and its poisons. In the lymph glands and spleen the lymphatic vessels are

open-mouthed, and distribute the lymph and its contents throughout the gland, thus scattering whatever microbes it may contain throughout a tissue whose office it is *par excellence* to manufacture leucocytes which we shall see later have special protective functions against microbes and their products. The same proliferation of cells and walling-in process that occurs in the skin is attempted here as well. Also the blood-vessels open freely into these organs, bringing germicides to aid the cells.

If the microbes finally pass this barrier, they reach the general blood circulation and are distributed to the various organs throughout the body. The organs having terminal arteries and a relatively small amount of connective-tissue cells are much more liable to contain microbes after death from infection than are those in which there is a free collateral circulation and abundance of connective tissue (2). The walls of the serous cavities and of the blood-vessels, including the capillaries, besides acting like the unbroken skin, have, like the leucocytes of the blood and lymph, the power of enveloping and destroying microbes by the process known as phagocytosis (2, 11, 12).

With regard to the physiological action: The rapid increase in the number of white corpuscles (leucocytosis), and of the connective tissue cells is due to the physiological process of cell-division. Glandular enlargement is the result of such an increase in the number of the gland cells. This process is promoted by substances—nucleins and nucleo-albumins—which are derived from destroyed cells, whether these be of microbic or animal origin (4). The destruction of leucocytes especially gives rise to this substance, for they are richer in it than any other cells in the body (17, 18). The ingestion of microbes by the leucocytes or phagocytes is a physiological as well as a mechanical activity of the organism.

With regard to the chemical elements of the armamentarium, not a great deal that is exact is known, though in recent years much work has been done in this field and a good beginning has been made. The following is a brief summary of what has been done:

(1) The blood and blood-serum contain in solution substances which are germicidal (6, 7, 24, 25).

(2) These substances are thought variously to be globulin (1, p. 33), alexines (an albuminous body) (7, 9), alkali-serum-albumin (1, pp. 25, 26), nucleo-albumin, and nuclein (3; 6; 1, p. 29).

(3) The origin of these bodies in the blood-serum is chiefly from certain cells, especially the leucocytes of the blood and lymph (6, 17, 24). Hankin thinks that "defensive proteids," as he calls them, or "alexines" as Buchner calls them, are derived from the eosinophile granules of the eosinophile leucocytes which he therefore proposes to call "alexocytes" (24). Vaughan and Kossel have shown that the nucleins are derived from the nuclei of destroyed cells, whatever their nature, whether leucocytic, glandular or bacterial, but especially the former (17, 4). The exhaustive studies of Lilienfeld into the chemistry of the leucocytes are confirmatory of these observations (18, 19).

(4) The nucleins from different sources have different actions and effects, but all are strongly bactericidal (3). So far as their physiological action has been studied, they are found, among other things, to stimulate the new formation of leucocytes (16, 17, 4). Chemically they are proteids; they unite very readily

with albuminous bodies, especially with albumoses and peptones, to form nucleo-albumin; they are easily separated into nucleic acid and albumin, and nucleic acid readily unites with albumin again to form nuclein (17, 18, 4).

(5) During the process of cell-division of the leucocytes, nucleic acid is set free; during the physiological rest of these cells it is in combination with the albumins of the cell. Nucleic acid is also a germicide (17).

(6) The alexines, globulins, and serum-albumins have not been studied with sufficient accuracy and detail to enable us to know much of their chemical or physiological action or of their origin.

(7) The different organs and parts of the body have different chemical constitution, as their products and the glandular extracts give evidence; and they have also different resistive and destructive powers with regard to microbes, due partly to anatomical and histological structure, also probably to chemical differences. Hence occur what are known as "places of less resistance" (2).

Thus by destruction of leucocytes a germicide "more powerful than corrosive sublimate" (3) is set free to circulate in the blood, and to stimulate leucocytosis. It is evident from these observations how extremely important the leucocytes are for the protection of the animal against the microbe.

Marmorek (2) says with truth that "every [infectious] disease is the expression of a ratio (Verhältniss) between an infecting parasite and an infected host," and the recovery or death of the latter depends on the relative strength of the two factors. Having just seen what these two factors are, let us next examine some of the conditions which affect the strength of the one or the other.

On the part of the microbe these conditions are, first, numbers; second, differences in virulence; and third, the presence of other pathogenic or non-pathogenic microbes.

(1) As has been said before, it requires a certain number of microbes to cause infection,—except under the rare condition of very great virulence on the part of the germ and very great susceptibility on the part of the host, a single microbe cannot do it (1, pp. 102, 12, etc.). The numbers required depend partly on their virulence. Of a very virulent culture a smaller number of microbes would produce the disease than would be necessary if a milder culture were used.

(2) Different cultures of the same microbe may vary widely in virulence whether tested by inoculation of the germs themselves or of their products. The virulence can be artificially modified by means of heat or cold, chemical substances, culture media, etc. In general it may be said that conditions favorable for the rapid growth and development of the microbe increases its virulence, unfavorable conditions diminish it. Differences of this kind probably account largely for differences in severity of different epidemics.

(3) The influence of mixed infections has but recently been studied, but there is positive evidence to show that a microbe which by itself alone would be quickly destroyed by the host, is given an opportunity to develop by the presence of another kind of microbe. Thus streptococcus spores will not develop in the human body; but if staphylococcus pyogenes aureus be injected at the same time the streptococcus will develop and cause the prevailing disease (1, p. 7). On

the other hand, the presence of some bacteria prevent the poisoning of the host by another kind. Thus bacillus pyocyaneus protects the host against bacillus X, the yellow fever bacillus (1, p. 62).

On the part of the host some of the conditions affecting its resisting powers are the following: 1. Race; swine are not susceptible to glanders, horses are (1, p. 5). 2. Species; Algerian sheep are not susceptible to anthrax, while common sheep are (1, p. 5). 3. Age; children are much more susceptible to scarlet fever, whooping-cough, etc., than adults (1, p. 4). 4. Fatigue; the rat, immune to anthrax, on being made to work all day, succumbs to infection (1, p. 9). 5. Starvation (1, p. 9). 6. Loss of blood (1, p. 9). 7. Infection with other microbes not necessarily pathogenic (1, pp. 7, 62, etc.). 8. Confinement in a vitiated atmosphere (1, p. 8). 9. Extreme cold (1, p. 9). 10. The exhibition of some drugs, as curare, chloral, alcohol (1, p. 10). 11. Place of infection; a dog injected with pneumococci had pneumonia only when they were injected into the lung tissue (1, pp. 217, 218). 12. Previous infection with the same microbe. 13. In general, conditions which affect the body metabolism. 14. Individual peculiarities whose source is unknown; of two white mice born of the same mother, of the same litter, fed on the same food, kept in the same cage, reared under the same conditions so far as could be determined, inoculated at the same time with equal amounts of the same filtered streptococcus culture, one fell ill and died in a few hours, the other had a longer illness with final recovery (2, p. 74).

When it is remembered that the animal body is made up of chemical compounds of almost infinite variety and complexity, that these compounds differ in the different races (the blood of the white rat is more alkaline than that of most other animals), in different species, in different individuals of the same species, and at different ages and under different general conditions of health in the same individual (auto-intoxication, 20); when these things are remembered, it is not surprising that exposure to infection by microbes, which vary, as has been shown, not only in themselves but in their products, should result differently in different individuals, some succumbing entirely, others recovering, others still, though equally or more exposed, entirely unharmed.

Up to this point we have reviewed only the means possessed by every animal for self-protection against the microbe. They are natural means, not subject directly to the volition of the animal, and confer a natural immunity.

But man with his greater intelligence has sought to protect himself by art as well as by nature: observing that some species and individuals were unaffected by exposure to what would mean serious illness or death to himself, he has tried to produce in himself the conditions which he has thought gave them their immunity. It is only because his efforts have been directed at once to finding these conditions of immunity and the means of cure, instead of first determining the nature of the infection against which he wishes to be immune and the processes by which it acts, that greater understanding of the problem has not been reached before now. It was a wonderfully keen observation and a very shrewd conclusion, rather than a knowledge of the cause of small-pox, that led Jenner in 1768 to the practice of vaccination. As late as 1891 our knowledge of infection and the mode in which the an-

imal opposes it had not been advanced far enough to prevent Koch's tuberculin from making a miserable failure as a cure for tuberculosis.

The earliest attempt to secure artificial immunity, based on a knowledge of the process of infection, was made by Lister in 1867, when he advocated the use of germicides in surgical operations (28). It was a shot aimed directly at the life of the microbe, the cause of infection, under the supposition that the dead microbe can do no harm, a supposition that will be seen later, however, to be erroneous. Since that time substances and methods have been sought for which should kill the microbe, either before or after its entrance into the tissues, without at the same time injuring the animal. The whole modern system of asepsis and antisepsis with all its paraphernalia of disinfecting agents and sterilizing apparatus has arisen as the natural development of this idea of killing the microbe; and it has reached an advancement well-nigh perfection in some directions.

The other advances that have been made have had their starting-point in observations of conditions that seem to determine immunity or cure, rather than in a knowledge of the processes themselves by which these results are brought about. Thus, almost from time immemorial it has been known that one attack of some of the infectious diseases confers immunity for a longer or shorter time from a subsequent attack. With this end in view experiments on animals were made with considerable success (1, p. 36).

At first it was thought necessary to inoculate with the living microbe, and cultures of attenuated virulence were made for the purpose. As soon as it was known that the microbe produced its effects by its chemical products and that these were to be found in the cultures after the bacteria had been killed or filtered out, sterilized cultures were used instead of the living microbe for inoculation. These cultures contain the so-called toxins or tox-albumins. Experiments with small doses of these toxins, progressively increased until very large ones were administered, continued to give success in conferring immunity upon previously susceptible animals. Still the conditions which determined immunity, not the causes and processes which produced it, were being studied; which rendered it possible to draw the fallacious inference that if the toxin conferred immunity before infection by the microbe it should confer immunity after infection. Hence the dismal failure of tuberculin. Success by this method was obtained only when a short time (a few hours) elapsed between injection of the toxin and inoculation with the microbe. It is manifestly absurd to expect a cure from the injection of more poison into a body already overcharged with the same poison (4).

The next advance, made hardly more than five years ago (1, p. 46), was based on an inference as to processes rather than upon knowledge of them. It was inferred that if animals could be made immune to bacterial poisons it must be because the blood-serum contained substances in solution that neutralized or destroyed these poisons. And the injection of such serum, called antitoxic for obvious reasons, was found not only to confer a temporary immunity before infection, but to promote recovery after infection. Hence arose the so-called antitoxic serum therapy of to-day. The investigations of many bacteriologists are directed to the elaboration of such protective serums for the different infectious diseases.

Let us examine more closely how these immunizing or antitoxic serums as they are called are prepared, and, as far as possible what they really are and how they produce their effects. To begin with, a pure culture of the microbe is obtained and allowed to grow and develop in a suitable culture medium. At the end of a stated time, varying from a few days to a few weeks, or even months, this culture is sterilized by heat or by filtering, the latter being preferable as it is less likely to alter the highly-complex chemical substances of the culture. The filtrate contains the toxin or tox-albumin, whose strength is usually then determined by its lethal effects on small animals. This having been determined, a dose that is sure not to be fatal is injected into the animal to be immunized. There follows some general or local reaction if the dose has been fairly large for that animal. After this reaction has subsided (in a few hours or days, as the case may be), a larger dose is injected. This process is continued until the animal can take with impunity many times the dose that originally would have been rapidly fatal. It is the serum from the blood of this animal that is the antitoxic serum for that particular microbe (26). That such a serum acts specifically has been shown experimentally many times (32). It is found that the serum of an animal that has never been immunized, yet has a marked natural immunity (as of the dog to anthrax), does not confer special immunity upon a susceptible animal. If, however, a naturally immune animal is treated with successively increasing doses of toxin, its serum is rendered protective to a susceptible animal. Furthermore, a serum which gives protection against the disease against which the animal has been immunized, does not necessarily give protection against any other infection.

What is the toxin and how does it act? Most investigators agree that it is a proteid. Vaughan makes the general statement that it is a fact that the germ-substance, either in solution or in the cell-wall of the microbe is essential to produce marked immunizing effects (3), a statement which receives full confirmation for one infectious disease in Goodale's recently published account of the preparation of diphtheria antitoxin (26). He says expressly that, though the bacilli themselves are virulent, toxin is not present in the culture until there is deposited a sediment which, on microscopic examination, is seen to consist of the disintegrated bodies of dead diphtheria bacilli; that is, until the germ-substance has become dissolved in the culture medium. (See also 29). Accidental infection, vaccination as practised by Jenner, inoculation with pure cultures, inoculation with cultures sterilized by heat or by antiseptics and injection of filtered cultures, all introduce into the tissues the cell-substance of the germs, either within the cell-wall or in solution. (The dead microbe is thus seen to be not so harmless as at first supposed.) Vaughan believes this germ-substance to be a nuclein, — a belief that is supported rather than opposed by the fact that of the bacterial toxins thus far studied nearly every one is found to be an albumin, often of the nature of a peptone or albumose; these being the forms of albuminous bodies that unite most readily with nuclein to form nucleo-albumin, the chief constituent of the nucleus. The toxin then is probably a nuclein of bacterial origin.

How does it act? We do not know. Like many other substances, in small amounts it stimulates certain physiological processes such as cell-division; in

large doses it paralyzes these and also produces directly or indirectly, general effects on the circulation, respiration, digestion and general metabolic processes. Perhaps the nucleinic acid of the toxin is the stimulant, while the albuminous bodies united with it, especially if they are peptones, may be the poisons. This, however, is pure conjecture.

What is the so-called antitoxin, or immunizing and curative substance, and how does it act? Again, we do not know certainly. The phenomena of leucocytosis, with the accompanying formation of nucleinic acid which seizes upon albuminous bodies to form nuclein, and the formation of nuclein through the destruction of leucocytes and other cells point strongly to the nucleins of cellular origin (in contra-distinction to those of bacterial origin) as the antitoxic and curative substance. Whether the two effects of protection and cure are accomplished by the one substance is not known; Vaughan believes they are (3).

How do these body nucleins act in these capacities? It is known that they are strongly bactericidal, thus preventing the increase in numbers of the microbes. Though the latter are killed and thus give rise to toxin, it is probable that the nuclein and nucleinic acid of the body unite with this toxin as it is formed and render it inert. Or it may be that the two nucleins of different origin unite with each other to form isomeric compounds and thus assimilate each other, the stronger assimilating the weaker (3). Perhaps the body nucleins lay hold of the albuminous element in the microbial nucleins, making a more harmless compound. The *specific* action of the serum perhaps depends upon the failure of the body to eliminate the bacterial poison until after the lapse of considerable time (as it fails to eliminate lead, for instance), and this remnant of the poison gives the character to the body nuclein, or perhaps, during its presence in the body the bacterial nuclein so alters the metabolic processes of the cells that the latter produce a nuclein of a special character, and only gradually (or not at all) return to their original metabolism. (A possibly analogous alteration in cellular metabolism occurs in diabetes mellitus.) Let it not be forgotten that these explanations of the action of the so-called antitoxin are conjectural. Bouchard says that the serums only aid the *vis medicatrix naturæ*, and have no real antitoxic action in the sense of neutralizing the toxin as an acid does an alkali (21).

From all these considerations it seems probable that the acquired tolerance of the animal for bacterial toxins is dependent rather upon the capacity of the body cells, especially those of the blood-forming organs, to respond to the stimulus of the toxin by the formation of germicide and antitoxin, that is, nuclein, than upon the continued presence in the blood of these germicides and antitoxins. In the serum of recently immunized animals, however, these substances are probably still to be found, for the cells do not at once lose their specially induced activity. This capacity of the cells to respond as above stated is the property of all cells to some degree. It is temporarily increased by the action of nuclein, more permanently so by that of toxin. It is usually gradually lost under the absence of the stimulation which calls it forth.

The culture media from which the toxins are obtained contain other substances as well, some of which were mentioned earlier in the paper. Besides these there are others which are not well known; thus, Cen-

tanni has isolated a substance which he describes by negatives — it is not albuminoid, not a nuclein, not an enzyme, not a ptomaine — which is found in the products of all bacteria, pathogenic and non-pathogenic alike, and which causes merely a rise of temperature (23); Klebs is said to have found in tuberculin three substances, of which one is a cardiac depressant, another causes fever and malaise, while the third is a germicide towards tubercle bacilli (27). These must affect to some degree the animal into which they are injected. The antitoxic serum must also contain other substances than the antitoxin, and it is doubtless to some of these that are due the unpleasant effects, such as erythematata and joint pains, which sometimes follow their use.

Can the phenomena of infection and immunity now be explained? An explanation of what occurs in vaccination will apply to any natural or acquired infection that is caused by the introduction of living germs, the only difference being that here the time and place of infection are definitely known.

A culture of small-pox microbes, attenuated in virulence by cultivation in the calf, is introduced into the tissues of the body. If for any reason the culture was sterile, or if it contained too few germs, or if it were not properly introduced, or if the individual had, for some of the reasons mentioned earlier in the paper, a natural immunity, little or no reaction occurs; the germs are killed *in loco* and their poisons are destroyed, or absorbed and eliminated — the vaccination "did not take." But if a sufficient number of living germs is properly introduced into a susceptible host, they increase in numbers, stimulate the cells in their immediate vicinity to cell-division, and a round-cell infiltration occurs about them. By this their whole mass may become entirely encapsulated and they destroyed, with a gradual absorption of them and their products accompanied by little or no general symptoms. Or, though numbers of the germs die, others continue to live and multiply, their poisons kill the neighboring tissue cells, they overcome the initial barrier and are taken by the lymph channels to the lymph glands. Here the germs themselves are stopped, but their toxins find their way to the general circulation and constitutional symptoms arise, with general leucocytic reaction. The germs do not often get beyond the nearest group or groups of lymph glands, where the same process is carried on, with enlargement of lymph glands, that occurred in the subcutaneous tissues in the first place. By the general distribution of the vaccine poisons the blood-forming organs are stimulated to the formation of leucocytes (and thereby of free nucleinic acid) and of nucleins. The latter, not only from the general circulation but also locally in the infected lymph glands, aid the phagocytes in the destruction of the germs, and probably also diminish or destroy the virulence of the toxin. For a longer or shorter time the body cells continue capable of the formation of this nuclein, so that within this time a re-infection is more strongly opposed than in the beginning. If the microbes pass the nearer groups of lymph glands, or if their toxin is more than ordinarily virulent, or the host more than ordinarily susceptible, the germs reach the general circulation and are distributed to the various organs throughout the body. According to the different resistive powers of these organs (dependent on factors which are mostly unknown) a stronger or weaker reaction takes place. In those organs which are of highly resisting power the germs are probably at

once destroyed; in the places of less resistance the process is more prolonged, the germs have time to establish themselves temporarily before being finally destroyed. Hence probably results the eruption of the eruptive fevers. The reason the germs are not oftener found in these foci of resistance is that they are soon killed even here, and fail to react to the ordinary staining reagents. Erythemata may perhaps be due to the local effects of the toxin, or to other substances than the toxin, on the capillary circulation.

The same sort of process takes place in other infectious diseases, whether very small amounts of very virulent germs or larger amounts of less virulent germs are introduced. When sterilized or filtered cultures, however, are injected, the toxins are at once taken into the general circulation, and the same general reaction occurs as in vaccination when the germs or their toxins have broken through the initial barrier of round-cell infiltration. There is this difference, however; the toxin is in one dose and does not tend to increase in amount. Increase is accomplished by subsequent injections only.

The injection of serum of recently immunized animals into a healthy animal introduces body nucleins which are germicidal, perhaps directly antitoxic, and perhaps also some toxin. They stimulate the normal physiological activity of the protective cells and thus, besides supplying extra germicide and perhaps antitoxin, grant a short-lived immunity from the attack of any ordinary number of microbes.

How is recovery promoted in those already infected? By the natural processes already indicated, if the infection be mild enough. If the incubation period of a mild culture be shorter than that of a more virulent one, the body cells may be stimulated to produce enough germicide and antitoxin to enable the animal to cope successfully with the stronger culture, provided the inoculation with the weaker be made early enough. Otherwise the animal will fall under a double burden of intoxication. In the same way injections of toxins, if given early enough, may be efficient. This explains the success of Koch's tuberculin in selected cases, its worse than failure in advanced cases.

The antitoxic serums act, as before stated, by stimulating the body cells to the formation of protective cells (leucocytes) and nucleins, and by adding more germicide and antitoxin to that already present. If given late in the disease it is of less effect, because the body cells have either been already stimulated to their utmost by the toxins of the infection, or are so paralyzed by them that they cannot respond to the serum stimulation, and the only help the serum can give is to add a little germicide and antitoxin. If the body cells are not paralyzed or stimulated to their utmost, the serum may shorten the attack, though administered late.

It is evident that in the phenomena of infection and immunity we have to deal chiefly with chemical and physiological factors, the study of which has been begun but is very far from being complete, or even adequate to giving a sure explanation of these phenomena. It is of physiological chemistry then that we must ask whether the essential microbic poisons be in truth nucleins, as seems probable, and what their specific actions are; whether the serum of immunized animals contains nucleins which act specifically to destroy or render harmless the microbic poison, and how they originate and act; and finally what are the

other substances in cultures and serums and what their effects on the animal organism. When these questions are answered, and it is not too much to ask that they should be, we shall be in a position to command a *knowledge* of immunity instead of a *theory*, or at least a theory based upon knowledge instead of assumptions of such bodies of unknown structure as alexines, antitoxins, lysines, soz-albumins, defensive proteids, and the like.

To summarize briefly:

(1) Infection is due to the introduction and spread throughout the body of bacterial poisons, proteid in nature, probably nucleo-albumins and nucleins, derived from the germ-substance of the bacteria.

(2) Resistance to infection is *natural*, by means of physiological and chemical processes (leucocytosis, phagocytosis, and the formation of germicidal and antitoxic nucleins), and *artificial*, by means of antiseptics, induced tolerance for the poisons, and increased capacity to destroy the poisons and germs.

(3) Induced tolerance is secured by the administration of increasing doses of the poison, beginning with a non-toxic dose, and is due perhaps to altered cellular metabolism.

(4) Increased capacity to destroy germs and poison is secured by the administration of the serum of animals in whom induced tolerance has been established, and is due probably to the germicidal and antitoxic nucleins in the serum, which also stimulate the formation of such nucleins in the body, by the activity of the cells.

(5) The immunity conferred by these methods is more or less temporary, and is never absolute (22).

One word as to therapeutics. The next advance in the production of immunity and the promotion of recovery from the infectious diseases will be the use of the nucleins from the so-called antitoxic serums, freed from the other undetermined substances of the serum, and of a dose whose strength is known exactly by its weight, not merely approximately by its results on animals.

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Clinical Department.

A LARGE UTERINE FIBROID COMPLICATED BY STONE IN THE BLADDER; ABDOMINAL HYSTERECTOMY AND LITHOLAPAXY; RECOVERY.¹

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BLADDER symptoms of one kind or another are not infrequent complications of uterine fibroids. Indeed, the exhausting and distressing symptoms due to bladder pressure are strong indications for removing the fibroid. Yet the bladder is often unaffected, even when the weight and pressure of the uterine tumor seem extreme. In some instances the patient is not annoyed by even so trivial a symptom as frequent micturition, though the tumor is a large one. In others a mass no larger than an orange may affect so seriously the bladder that health and comfort are vitally impaired.

The explanation of these paradoxical conditions lies in the situation of the bladder with reference to the tumor. Large masses well above the pubes often leave room sufficient between the symphysis and the cervix to allow a tolerable distention. On the other hand, small tumors may press directly upon the bladder, to which they are often adherent. Urinary symptoms are due at times to variations in the shape and the size of the bladder. The closely adherent bladder wall is stretched and dislocated with the enlargement of the tumor, until at times the deviation from the normal is remarkable. In one instance in dissecting the peritoneum from the posterior wall of a large multiple fibroid I made an opening in the bladder two inches long; and yet I was at work on a surface of the tumor

situated at least nine inches from the urethra. The adherent bladder had been gradually dragged into this extraordinary position by the enlargement of the tumor. The wound in the bladder was closed by a continuous silk suture, which ultimately found its way into the interior and caused the formation of a large stone. In another case I found the bladder attached to the left of the tumor and extending fully half-way to the sacrum. Though these excessive variations in shape and in size do not necessarily cause pain, frequent micturition, or even discomfort, they may be the source of a great variety of bladder symptoms. Great care should therefore be taken always to recognize a possible dislocation of the bladder in connection with uterine fibroids, for in separating the tumor from its attachments in such cases, the bladder or the ureter is almost sure to be injured.

Symptoms referable to the urinary apparatus, varying in severity and extent, may be directly dependent upon uterine fibroids, or simply coincident with them. Stone in the bladder is undoubtedly of extreme rarity in connection with uterine tumors. Dr. Homans, whose experience in the diagnosis and treatment of large fibroids is probably second to that of no surgeon in this country, informs me that he has never met with this complication, except as a post-operative symptom, when a calculus forms upon a suture. I have neither seen nor read of such cases, though I have twice crushed a stone that had formed about a suture.

Though a calculus may exist in the bladder coincident with a fibroid of the uterus, that a stone may thus form independently of the tumor is certainly improbable. For in many instances the effect of the tumor is to produce an inflammation of the bladder favorable for the formation of stone. On the other hand, if the stone results from cystitis alone, it is extraordinary that calculi are so unusual in women, for cystitis is a common event in the history of fibroids. The truth is, probably, that the urine itself in rare instances favors the formation of stone and provides a nucleus upon which a cystitis adds rapidly a phosphate deposit.

Mrs. H. W., aged fifty-six, a patient of Dr. Spafford of Cavendish, Vt., entered St. Margaret's on September 14, 1895. She had been married twenty-eight years, and though well and strong had never become pregnant. Six years ago she first noticed an enlargement of the abdomen which was accompanied by malaise, dyspnea, and edema of the feet and legs. Flowing was not unusual nor excessive. The tumor was at first thought to be ovarian, but at the end of a year its fibroid nature was evident. During the next two years she submitted to various kinds of treatment. For four weeks electricity was intelligently, though unsuccessfully, applied. No better results followed two years' experience with Indian doctors. The first symptoms of stone appeared two years ago, with inflammation of the bladder, painful micturition, and passage of gravel. A year ago she herself discovered that she had a stone. In the meantime the abdominal tumor increased in size and in weight; the pressure upon the stone in the bladder caused agonizing pain; the general health became much impaired. I found the abdomen greatly distended by a large fibroid of the uterus, which did not differ materially from other tumors of its class. The general condition was extremely unpromising. Examination by vagina and by urethra was impossible without an anesthetic. Her groans and cries disturbed the whole hospital.

¹ Read before the Boston Society for Medical Improvement, October 21, 1895.

September 16, 1895, with the assistance of Dr. Brewster, I removed the whole uterus. The floor of the pelvis was covered by peritoneum dissected from the tumor and united by continuous silk suture. The stone in the bladder was not detected during the intra-abdominal manipulations, nor by manual examination of the bladder after the removal of the tumor. The failure to detect a stone weighing over 600 grains by intra-abdominal examination seems remarkable, and even now inexplicable. I was so sure that none existed that urethral sounding seemed hardly worth while. After closure of the abdominal wound, however, I passed a sound into the bladder and detected at once a large calculus. It seemed best to postpone removal of the stone until convalescence from the hysterectomy should become established.

September 23d, the stone (weighing 670 grains) was successfully crushed and evacuated by means of the Bigelow instruments. Numerous fragments too large to pass through the largest-sized tubes were removed with forceps. Recovery from both operations was rapid and complete. She was discharged well October 14th.

The urinary symptoms usually met with in connection with uterine fibroids are (1) frequent micturition from pressure, (2) cystitis, (3) hydronephrosis or pyonephrosis from pressure upon the ureters. One or all these symptoms may make operation imperative. Considering the etiology of stone in the bladder, one would expect the more frequent occurrence of this complication. In a hasty search through the literature since 1888 I have not been able to find a case similar to the above.

On the other hand, cystic calculus forms with tolerable frequency upon sutures or ligatures used to close bladder wounds made in the course of hysterectomies or other pelvic operations. For a suture or a ligature to be discharged into the bladder after such operations and to become the nucleus of a stone, a wound of the bladder wall, with suture or ligature, is not essential. In one case I found a large stone formed upon a piece of silk that had been used in tying a portion of the pedicle of a fibroid. I was informed by the assistant in this case that the bladder was not even wounded. It is possible that a small portion of the bladder was tied into the pedicle, and that the knot subsequently made its way into the bladder. In a second case, already referred to, I closed a wound some two inches long by means of a continuous suture of silk. A year later I removed successfully a large stone which had formed upon this piece of silk. The symptoms meanwhile had been severe and disabling.

Considering the frequency of stone from this cause, it is a question whether on the whole it would not be better to use catgut or other absorbable material for the closure of bladder wounds. Even this precaution would not prevent the occasional formation of stone upon ligatures and sutures of silk placed in such close proximity to the bladder as to make their way into it.

A FIN-DE-SIÈCLE COMPLIMENT.—The *Journal of the American Medical Association* at the close of its notice of the Medical and Surgical Report of the Boston Children's Hospital, indulges in the following somewhat curiously-worded compliment: "Few hospital reports are of more practical value, and as an exponent of *fin-de-siècle* medicine and surgery its authors will take a high rank."

PULMONARY INFARCTION.

A CASE OCCURRING SIX DAYS AFTER HYSTEROPEXY; THROMBOSIS OF THE LEFT ILIAC VEIN; PNEUMONIA; DEATH; AUTOPSY.

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C. S., an American woman, was forty-two years old and unmarried. She had always enjoyed good health until seven years ago when she had an attack of "nervous prostration," brought on by teaching a kindergarten school. Since that time she was nervous, but was able to control herself by the exercise of an unusually strong will. She was of medium height and was well developed and nourished. She had always menstruated regularly, but had more or less pain just before the menstrual flow. During the few months preceding her operation the pain had been getting severe; but her most distressing symptom was persistent, nagging backache, which never left her and even kept her awake at night occasionally after a hard day's work. The backache was so annoying that she was perfectly willing to accept any form of treatment which offered relief. Besides the backache she had at times pain in the region of the coccyx; when she had both together, life was a torture.

Examination showed retroversion of the uterus in the third degree. The uterus was easily replaced but could not be kept in position by any form of support, owing to the smallness of the vagina; a number of supports were tried without avail. During the course of treatment with supports, which extended over a period of two months, there developed on the right side of the uterus a hard, tender swelling about the size of a pigeon's egg; it disappeared under the application of glycerine tampons, and at the operation no trace of it was found, and no evidence existed either in the tube or ovary which would seem to indicate that these organs had been involved. It was, therefore, without any doubt a cellulitis of the right broad ligament induced by wearing supports which were not tolerated. This circumstance is mentioned in this connection because simple, uncomplicated pelvic cellulitis is rare, and has even been denied by some.

The treatment with supports having failed, the operation of hysteropexy was proposed and accepted. It was done on the 14th of last May at the Baptist Hospital, Dr. C. H. Hare assisting. Two silk sutures were used to fasten the fundus of the uterus to the abdominal wall. Silkworm-gut was used to sew the abdominal incision, and an extra continuous suture of catgut was used to sew the transversalis fascia together. Both ovaries and tubes were perfectly normal. Everything went well until the sixth day when, without any premonitory symptoms, save a slight nausea and malaise during the daytime, the patient in the middle of the night went into a profound and complete collapse which came on with great suddenness. When she recovered consciousness she complained of most excruciating pain in the pit of the stomach. She was bathed in a cold clammy perspiration; the pulse was 160 and very feeble; temperature, 96.4°; respiration, 32; tongue, slightly coated. The abdomen was slightly tympanitic, but not sensitive; vaginal examination showed no fulness in the cul-de-sac; the uterus was in good position. The bowels had moved two days before, and flatus had been passed on the previous day and also during that night. She was menstruating at the time

of the collapse, the catamenia being one week ahead of time.

The following possibilities were presented for consideration. (1) Hemorrhage. (2) Intestinal obstruction: (a) incarceration; (b) volvulus. (3) Colic. (4) Hemorrhagic infarction of the lung.

Hemorrhage could not absolutely be excluded, but was thought improbable from the length of time that had elapsed since the operation; besides this, the physical signs of hemorrhage were not present. Intestinal obstruction from volvulus or incarceration could not be absolutely ruled out supposing that a large coil of intestine were involved. Colic of a severe type sometimes produces great prostration and collapse in a weak person, and it was thought that this was the explanation of the trouble, especially as it was found that she had been given egg-lemonade and milk during the afternoon. Embolic infarction was thought of, but was considered improbable because of the excruciating abdominal pain, which suggested some abdominal lesion; besides this, severe dyspnea, which is a prominent symptom when a large pulmonary vessel is suddenly occluded, was not present in this case.

After consulting with Dr. S. Breck, it was decided in view of the ease and general improvement which took place after an injection of morphine had been given to wait a while. The next day the urine was examined and was found to contain a trace of albumin and casts; the amount was scanty. All question about involvement of the bowel was set aside by a copious stool which was produced by giving salts. The diagnosis of pulmonary infarction was finally made with positiveness forty-eight hours after the collapse, when bright red sputum was expectorated in considerable amounts. Under the influence of forced stimulation with strychnia, alcohol and food, she improved very markedly until two days later or four days after the collapse; then, great edema of the left lower limb appeared during the course of the night. Soon after this, cough, pain in the lower part of the left chest, and rusty expectoration announced a pneumonia. She died a few days later.

The autopsy was performed by Dr. A. H. Wentworth, six hours after death. The kidneys showed evidence of slight cloudy degeneration, especially glomerular (post-operative). The spleen was slightly hyperplastic. Lungs: the left lower lobe was the seat of several embolic infarctions as well as the seat of true croupous pneumonia (secondary to infarction). In the left common iliac vein was a thrombus firmly adherent to the walls of the vessel and partially organized; it occluded the whole lumen and extended downward into the left femoral vein to the middle of the thigh. No thrombi were found in the veins of the left broad ligament. The peritoneum showed not the slightest trace of inflammation. The uterus was firmly held fixed to the abdominal wall by the sutures, and adhesions had already formed (nine days), but they were easily broken up. The omentum was firmly adherent along the whole line of incision internally. The union of the abdominal wound was firm. The catgut used in sewing the transversalis fascia was not in the least affected and was as solid as when first applied; it was medium sized catgut.

The bacteriological examination by Dr. F. B. Mallory showed the presence of pneumococci in the lung and in the emboli; no other germs were found in the emboli. The culture taken from the thrombus of

the iliac vein was not satisfactory owing to mixed infection while it was being taken.

The chief point of interest in this case was the great difficulty in arriving at a correct conclusion as to the cause of the collapse. The excruciating abdominal pain diverted attention from the true condition and suggested that some abdominal lesion was present. Of the three lesions possible, namely, hemorrhage, colic, and intestinal obstruction, the evidence was in favor of colic, and yet by a very small margin. Hemorrhagic infarction was merely thought of at the time, but was dismissed as being entirely improbable. So great was the perplexity that preparations were made for opening the abdomen; and it was only because of the very marked improvement following the injection of morphine, which seemed to favor the colic hypothesis, that it was decided to temporize.

The question arises in view of the disastrous result of this case, Is it to be considered justifiable to subject a woman to abdominal section for the cure of retroversion without adhesions? For my own part I should be strongly disinclined to do it again, but should choose one of the vaginal operations. Dürhrsen's is a good one, and is especially applicable to simple uncomplicated cases. In this operation the fundus of the uterus is fastened to the anterior wall of the vagina by sutures. In the cases complicated with adhesions, Pryor's operation¹ would appear to be feasible. He incises the posterior cul-de-sac, breaks up the adhesions and excites plastic inflammation by an iodoform-gauze packing which he places behind the cervix. This leads to the formation of an exudate which in contracting pulls back the cervix and acts very much as the normal utero-sacral ligaments do in keeping the fundus forward. Following Boileux's method,² Pryor treats affections of the appendages as the occasion demands at the same time, even extirpating them if it is necessary, through the incision in the posterior cul-de-sac.

LIQUOR AMNII ESCAPING FROM AN UNOCCUPIED SUBDIVISION OF FETAL MEMBRANES.

BY CHARLES H. MORROW, M.D., GLOUCESTER, MASS.

I WAS summoned on August 14, 1894, to attend Mrs. H., who had all the usual symptoms of an approaching abortion; the os was not dilated at any examination and no product of conception was known to have escaped, nor did any afterward escape to my knowledge. She believed that she was pregnant about four months, this being her second pregnancy. As the symptoms subsided without a perceptible diminution in the size of the uterus, it was thought that the treatment had prevented an abortion.

About November 1st she informed me that an escaping fluid compelled her to wear pads which only partially absorbed it, her clothing and lower extremities being generally somewhat moist; it was clear that the escaping fluid was the liquor amnii, and I informed her that in spite of the complication she might still bring forth a living child. She could take but little exercise and became anemic and debilitated.

She was taken in labor on November 28th, about six weeks from the time she had first noticed the es-

¹ New York Medical Record, July 20, 1895.

² De la pelvipéritonite chronique et aigue et de son traitement. La Clinique Française. May 25, 1895.

caping fluid, and was delivered of a living female child of average weight, but presumably more than four weeks premature; the quantity of liquor amnii which escaped was excessive.

The secundines indicated a twin pregnancy; a partition wall, which was intact, caused the membranes to form two sacs, the larger of which had contained the fetus just delivered; the smaller sac had a capacity of more than a pint and when delivered had a tear two inches in length which allowed the escape of its contents; there was no evidence that a fetus had escaped from this smaller sac during labor; remembering the symptoms of an abortion when first called, I was about to search for evidence of fetal attachment, when, observing that my patient was losing some blood and the uterus not thoroughly contracted, my attention was employed in the attempt to overcome this obstinately persisting condition. When all danger had passed, I found that the nurse had removed and destroyed the interesting secundines.

SEPTA VAGINÆ: TWO CASES OBSERVED IN PRIVATE PRACTICE.

BY F. BOWDITCH CHAPMAN A.M., M.D., MIDDLETON, MASS.

THE comparative rarity of reports of vaginal septa and the interest of such cases to the obstetrician and gynecologist has led me to report the following cases observed in my private gynecological practice.

CASE I was a married woman of forty-seven years, the mother of two children. The patient came to my office complaining of leucorrhea and a displaced uterus. She said she had worn pessaries of different patterns at various times during the past few years, but stated that they never remained in position for any considerable time and gave no definite relief. They had been introduced by a country practitioner who had never examined her with the speculum. Examination bimanual and with Sim's speculum determined retroversion of the uterus and marked chronic endometritis. The digital examination found an obstacle in an irregular semilunar-shaped septum, almost entirely closing the posterior cul-de-sac, taking origin from the posterior wall about one inch below the cervix. The septum was markedly thickened on the left side, and was continued in two incomplete fibrous ridges toward the anterior column. Examination with speculum was necessarily unsatisfactory, the patient complaining, moreover, of considerable pain and tenderness from pressure of the instrument. The appearance of the septum with good light was somewhat like ordinary scar tissue as we find it in mucous membranes. There was an old laceration of the cervix, but not noticeably associated with the other abnormal condition.

The patient was anesthetized the following day, the septum divided, and examination completed. There was moderate hemorrhage. The retroverted uterus was moderately adherent. The cervix was dilated and the entire endometrium thoroughly curetted and swabbed out with iodine. I did not think the laceration of the cervix sufficient to merit repair. The retroversion was treated by persistent tamponades of glycerized cotton, and the pessary eventually fitted. The case first came under observation June 6, 1894; the pessary was fitted September 28th. The patient was last seen by me in November; she was not then wearing the pessary — said she did not need it, but that it never caused her discomfort.

There was, I think, no neurosis connected with this case, and I am inclined to think the pain complained of in examination was due to erosion caused by the irritating discharge from the cervix. There was no history of traumatism in labor or of instrumental delivery. Her last confinement—in 1880, I think—was followed by a tedious convalescence. Nevertheless, I have been inclined to regard the case as possibly of traumatic origin, especially on account of the thickness of the septum and its divergence to the left.

CASE II was an unmarried girl of seventeen years, first seen by me August 22, 1894. The patient was brought to me by her mother, who said the girl had never menstruated but complained of pelvic pain. The girl was large, but ill-nourished in appearance. Digital examination was interrupted by an almost complete transverse septum of the vagina. The hymen was incomplete. The septum was apparently of uniform thickness, and gave the impression to the examining finger of a rather inelastic complete hymen. It was perforated sufficiently to barely admit the tip of the index finger, and was located about one and one-half inches from the introitus. Examination with speculum was unsatisfactory and painful. The membrane was ruptured with the branched steel dilators, further dilated with the fingers, and the examination completed. Anesthetic was refused, and the dilatation was, of course, painful. Slight hemorrhage followed.

The completed bimanual examination discovered an undeveloped uterus, abnormal in shape, and with markedly elongated cervix. The speculum was reintroduced, the uterus drawn down with the tenaculum, and a probe introduced after a few trials; finally a small sound was passed. The instruments seemed to enter two distinct pockets. I am satisfied it is a bicorn uterus. The genitalia were normal in other respects.

General hygienic directions were given and iron ordered.

The patient passed from my observation shortly after, but was returned by her mother in February, 1895, on account of a small tumor in the right breast. It was removed, and the microscopic examination showed it benign. The girl was reported by her mother as having menstruated normally in December. From her statement she suffers no unusual distress before or during her menstruation.

There is no history of late menstruation in the family. The parents were born in Nova Scotia. The girl has been occasionally under my care for minor indispositions and is now (November, 1895) as well as most girls of her age, and her menstrual functions are normal.

THEN AND NOW. — In the year of our Lord, A. D. 1870. Scene, surgical ward.

Surgeon. — How is Jones doing?

House Surgeon. — Extremely well, sir; the wound is suppurating nicely.

Surgeon. — That's all right.

In the year of our Lord, A. D. 1894. Scene, same surgical ward.

Surgeon. — How is that amputation of the breast?

House Surgeon. — I'm sorry to say, sir, the wound is suppurating.

Surgeon. — What! Suppurating!!! Do you say suppurating? Well, I'll be —

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M. D., SECRETARY.

REGULAR Meeting, Monday, October 21, 1895, DR. CLARENCE J. BLAKE in the chair.

ANATOMICAL SPECIMENS.

DR. E. G. CUTLER. I have here a tape-worm from a child seven years of age. The family history was negative. She had had measles and no other illness. Four years ago she commenced to pass bits of tape-worm. The first piece examined after a cathartic was three feet in length. Since then she has passed single segments and short pieces of the worm almost daily according to the mother. Medical treatment had been tried several times without effect. She entered the Massachusetts General Hospital the middle of September. The history was that she had felt rather dull for the two weeks previously, had vomited several times in the afternoon, and occasionally had headaches. Slept well. I waited a day or two until I saw the segments of the tape-worm, and then having discovered that they were of the form *tenia saginata* she was to receive a dose of pelletterine. We first gave her an enema in the afternoon. She was to have one-third of a bottleful nearly of Tanret's preparation of pelletterine, which is the tannate and supposed to be the best form of the drug, the first thing the next morning. The supper the night before, after the enema, had been a light one, consisting largely of milk and egg. The two drachms of pelletterine were given in half a tumblerful of sweetened water, and the child was to take a tumblerful of lemonade afterward, beginning one-half hour after the dose of pelletterine had been taken, and sipped gradually for two hours. The third hour after taking the pelletterine she was to receive some sulphate of magnesia in a large bulk of water. That unfortunately was not given in the way directed. She received it in a small bulk of water so that it did not act, and some six hours later a dose of calomel and soda was given; and the child when she began to have desire to move the bowels was placed on a chamber which was filled with hot water, and an enema given, and the worm with the head came away. Here is the entire parasite. It has four sucking discs and the pigmented head.

At the same time I want to speak of a case I saw some two years ago in a child four and a half years of age, troubled with the same variety of tape-worm, the *tenia saginata*; the child was treated successfully in the manner described above, and the entire worm with the head was recovered.

The observations which I have made lead me to believe that the worm is not killed, but simply anesthetized by the drug, as out of the body it will remain more or less torpid twenty-four hours after the dose of pelletterine has been given, perhaps longer. After the dose of pelletterine a good smart cathartic, a bulky one, either something which causes a great amount of liquid to be thrown into the intestine or a large dose of castor oil, and accompanied by an enema at the last moment, will sweep the whole thing out. Both the tape-worms in the above cases kept alive twenty-four hours after they came out of the intestine. At the end of that time they died. I suppose if one exercised care the

life of the parasite could be prolonged even more. This form (the *tenia saginata*) is the only one I believe which spontaneously comes away in several joints at a time. It is the only one commonly seen here. When I was a student there were one or two cases at the hospital of the *tenia solium*, the pork tape-worm; but since then, for twenty years, I have never seen anything but this beef tape-worm.

DR. GOSS: I think pelletterine is a pretty satisfactory remedy. I recall three cases within the last year treated with it, in two of which the worm was expelled entire; in the third there was a little doubt owing to the interference of the people. I have usually given it as Dr. Cutler mentioned. I have had more success with pelletterine than with any of the other remedies for tape-worm. All that I have seen in recent years have been the beef tape-worm.

ORAL COMMUNICATIONS.

DR. HENRY JACKSON: I have a couple photographs of a very extensive and in some ways rather unusual syphilide. There was nothing in the patient's previous history of importance.

P. C. entered Boston City Hospital, August 20, 1895. Previous history negative until two years ago. Two years ago he had a universal skin eruption, with red spots. At this time had sore throat. Hair did not fall out. No history of chancre. Hard drinker. The onset of the symptoms for which he entered the hospital is indefinite. The patient gave different dates, but his brother thought he was well some six weeks before entrance.

Physical examination showed a man of poor physical development, rather thin; muscles flabby; countenance dull and apathetic; mental condition much impaired. Heart, lungs, liver and spleen not abnormal. Lymphatic glands enlarged, especially in groin, back of neck, elbow and axillæ. Right knee and left wrist swollen, rather fusiform in shape, somewhat red and tender. About the lips ulceration, extending into the mouth. Over the face, and especially on the forehead, reddish, dull-colored patches with scaly surface. Skin thickened over body and trunk. On the extremities (palms and soles) were dull red patches, all thickened, and most of them covered with crusts about a quarter of an inch high; these spots were about as large as a ten-cent piece. No scratch lesion. On the penis was an old scar, and extensive, moist, irregular, ulcerated surface.

August 22d. Mild delirium. Weaker. Much pain.

August 25th. Delirium has increased. Little intelligence. Lies on his back with mouth open.

Tincture of digitalis and brandy. One-eighth of a grain of corrosive sublimate subcutaneously, and repeated every day for five days. Iodide of potassium in increasing doses, up to twenty grains a day.

August 31st and September 1st. Little diarrhea.

September 4th. Better. Answered questions.

September 7th to 10th. Rapid disappearance of lesions.

September 14th. Subcutaneous injections again, three doses.

October 1st. Mind improved. Reads in bed.

October 10th. Mental condition pretty good.

This case offers several interesting points. In the first place we have a very severe syphilitic lesion in a man who had not received any anti-syphilitic treatment. The photograph showed very sharply the joint lesions, which are not common. The man's general condition

was such that death seemed imminent unless the disease could be quickly controlled, and for this reason the mercury was given subcutaneously. I did not at any time find evidence of any lesion of the brain, cord or heart, to account for the severity of the symptoms. For three weeks the pulse ranged from 110 to 120, and the temperature was 101°, with moderate variations.

After improvement began the mercury was given internally in the form of the red iodide. No uncomfortable symptoms followed the subcutaneous administration of the mercury.

DR. WALTER CHANNING read a paper on

THE IMPORTANCE OF FREQUENT OBSERVATIONS OF TEMPERATURE IN THE DIAGNOSIS OF CHRONIC TUBERCULOSIS.¹

DR. R. H. FITZ desired to acknowledge his indebtedness to Dr. Channing for the opportunity of seeing the unusual and important case reported in such detail.

The value of thermometric observations in certain manifestations of tuberculosis is universally recognized. A suspicion of pulmonary tuberculosis is often aroused before the diagnosis is established by the examination of the lungs and sputum, and the progress of the disease is often more clearly indicated by the temperature-chart than by other records of signs or symptoms.

At some time or other in the progress of tuberculosis, wherever localized in the body, an elevated temperature is to be expected as the result of the bacillary infection. According to the quantity and quality of the bacteria and the frequency with which they or their products are admitted into the circulation, the range of temperature will vary, and irregularities in the course of the fever arise, as the tuberculosis is limited to the brain, lungs, intestines, kidneys or elsewhere in the body. In most cases of chronic tuberculosis a mixed infection plays an important part in determining the irregularities of the temperature. This is nowhere more strikingly seen than in pulmonary tuberculosis, in which the hectic fever is usually so conspicuous as to have become a popular diagnostic sign.

It is to be remembered, however, that the elevated temperature in tuberculosis is always atypical. Febrile temperature is not at all times present, even in pulmonary tuberculosis; it may be absent for weeks in peritoneal tuberculosis, for months in articular tuberculosis, and for years in glandular and in cerebral tuberculosis, although a fresh bacillary invasion from the cheesy foci may rapidly prove fatal. This atypical course of the temperature, even when there is a continued elevation, proves of the greatest importance in the differential diagnosis of acute general tuberculosis and typhoid fever.

In Dr. Channing's case the frequent elevations of temperature gave evidence of a constant source of infection, with acute outbreaks. The latter never gave evidence of any tendency to suppuration, and the periods of pyrexia were unaccompanied by such functional nervous disturbance as might be attributed to hysteria or other mental derangement. The accompanying affection of nutrition, the loss of flesh and strength, always slowly progressive, although with occasional intermissions, were evidence of a probable organic affection. The marked periodicity, at times, of the fever, permitted the possibility of a malarial infection, a possibility soon laid aside by appropriate treatment.

The evidence presented by the prolonged fever, with its acute exacerbations, and by the waste of tissue despite every effort to sustain nutrition, were evidence of a chronic infectious disease, either tuberculosis or malaria, or some obscure affection, such as malignant lymphoma.

The failure to improve under anti-malarial treatment and the absence of glandular or splenic enlargement led, by exclusion, to the diagnosis of a tubercular process, the physical and rational signs favored its localization solely in the Fallopian tubes, and the subsequent course of the disease demonstrated the correctness of the diagnosis.

DR. A. T. CABOT said that he had been much interested in the case which Dr. Channing had presented with such thoroughness. He said that at the time he first saw the patient, with a history of a somewhat prolonged disturbance of the bowels and with a small abdominal tumor, that there was great doubt as to the connection of the tumor with her general condition.

When he examined her without anesthesia, it was not possible to say whether or not there was a collection of pus in the mass; but under chloroform, the examination made with Dr. Bull convinced him that it was not a suppurating tube or pelvic abscess as there was not the matting together about the parts which is usual in those conditions, also, because he felt the rupture of a small cyst on the surface of the tumor during his examination, such a cyst as was described by Dr. Councilman as found in the post-mortem.

The puzzling thing was to associate a tumor of this small size with an illness which had caused the patient to lose flesh so rapidly. It seemed to Dr. Bull and Dr. Cabot that if the tumor were the cause of all this, it must be by being malignant, in which case but little advantage could probably be obtained by operation. If it was not the cause of the extreme illness of the patient, it did not seem that the time at which they saw her was a favorable one for its removal, or that its removal was likely to greatly benefit her.

When he saw her later and made a second examination without ether, he did not make a pelvic examination as the mental condition did not admit of such examination, but by abdominal palpation he thought he discovered ascites and was therefore led to concur with Dr. Fitz and Dr. Channing in the belief that the condition was probably tuberculous. In that view of the case, he thought that an operation might prove of benefit, although with so large a mass which could probably not be thoroughly removed, the amount of relief to be obtained was somewhat doubtful.

DR. F. C. SHATTUCK: It is very seldom that an opportunity is offered for such a prolonged and continuous observation of temperature as in Dr. Channing's case, and the opportunity was fully availed of. The continued fever in this case was certainly an important diagnostic factor, especially in combination with progressive failure and local disease. But we must not forget that the absence of fever, perhaps for long periods, does not enable us to exclude tuberculosis. This has been alluded to by Dr. Fitz. In the inflammation of serous membranes, non-tubercular as well as tubercular, there is no definite relation between the lesions and the temperature. In peritoneal tuberculosis the temperature may be even subnormal continuously for considerable periods. We think of fever as an almost necessary accompaniment of pulmonary tuberculosis at some time or other. I have in mind two

¹ See page 609 of the Journal.

cases of chronic phthisis in which I have good reason to believe that fever has been practically absent for years. In one, with disease of twenty-five years' standing, the wife of the patient, a woman of unusual observation and devotion, assures me that fever is certainly of the rarest occurrence, and I have not found the temperature raised when I have taken it. The other case is of perhaps seven years' standing, a vigorous and an active man, who, within two months of first using the bicycle rode fifty miles in one day without over-fatigue. In the sputum of both cases bacilli are abundant. During the past year I have used injections of tuberculin for diagnostic purposes in some obscure cases, just as it is used in cattle. If there is no reaction from a small dose a larger one is given. If no reaction follows this the presumption is that the disease is not tubercular. Naturally the number of cases to which this test is applicable is not very large, and I dare say that the number of my cases does not exceed half-a-dozen. But the results thus far seem to be satisfactory and encourages me to believe that the test is of real value.

DR. CUTLER: As Dr. Shattuck has said, some cases of limited pulmonary tuberculosis run without fever. Most of the cases, however, have a considerable amount of fever, and the temperature is of very considerable value as a means of prognosis in tuberculous cases. I should say that in a case such as Dr. Channing's it would give probably the best evidence that could be obtained of the existence of the trouble. Presumably the tubercle bacilli could not be discovered in any way in such a case. It certainly would be a very difficult matter to attempt to prove them in the stools. That has been tried many times unsuccessfully. So far as evidence from examination of the blood is concerned it is found that there is not a leucocytosis in cases of tuberculosis except there be a hectic condition, though there is anemia. I should suppose in a case of this kind that corroborative evidence might be obtained from examination of the urine. There must be some kind of elimination by the kidneys of some of the poisons generated, which would be shown by the presence at least of some albumin and casts and perhaps also some toxins. I do not know that this point has been worked out sufficiently to prove of great value. A prolonged observation of the temperature remains of the first importance in the diagnosis of cases of obscure nature such as this. I have used tuberculin in several cases, but not where the diagnosis was uncertain; I have never tried it except in a very few instances, and I did it then with a good deal of hesitancy. Professor Strümpel has written a very interesting paper, the title of which is "Concerning Fever in Pulmonary Tuberculosis and its Prognostic Value." It is published in the *Münchener Medicinische Wochenschrift*, No. 50, December 13, 1892. He divides the cases into sub-febrile, intermittent hectic, and remittent and continuous febrile, speaks of quite a number of cases in which the temperature does not rise at all. Those are cases in which the tubercle is encapsulated and the foci are walled off. Later an ulceration may occur and a slight amount of fever be present.

PATHOLOGICAL SPECIMENS.

DR. RICHARDSON: I have brought a few specimens recently removed which seem worthy of being shown at this Society.

(1) Osteo-sarcoma of the humerus; amputation at

shoulder-joint. The patient, a man of fifty, without apparent cause had been for four years suffering with pain in the region of the right shoulder. Shortly before my first examination, September 2, 1895, he noticed a small swelling over the head of the humerus in front. I found everything about the shoulder normal except for a superficial soft swelling under the anterior fibres of the deltoid. The mass was like a fatty tumor in physical characteristics, except that it was deeply adherent. Repeated examinations convinced me that the disease started from the medulla of the humerus, and that its malignancy would demand amputation at the shoulder-joint. The patient was therefore prepared for the loss of the limb, though he came to me thinking he had only a little neuralgia or rheumatism. Section into the tumor showed at once its malignant nature. The arm was immediately amputated at the shoulder-joint, the exploratory wound having been carefully closed, and the parts about cleansed—a precaution especially imperative in the sarcomata to prevent auto-infection. The shaft to the humerus was so extensively diseased that it broke during the manipulations of the amputation. I had observed before the coincidence of fracture of the humerus and medullary sarcomata. In one instance, for example, a woman broke her arm lifting a stove lid. Upon this fact, with that of non-union, and a large, soft callus (as it was supposed), I based a correct diagnosis of osteo-sarcoma.

In the specimen, as shown also in the sketch by Mr. Kaula, you will see the great extent of the medullary disease and the slight external manifestations of it. The tumor is separated from the line of amputation by a broad margin of healthy tissue. Had the progress been through the head of the bone the joint would have been infected early, and the prognosis therefore would have been much more serious.² In this patient the radical operation was performed in the very beginning, and not, as is too often the case, when the extensive recurrence which always follows an insufficient operation makes the prognosis, even after the most thorough dissection, unfavorable.

The desirability of performing our most extensive and mutilating operations for malignant disease when the lesions is small and local is shown by the next specimen.

(2) Sarcoma of the left kidney; nephrectomy; local and remote metastases; recovery from operation. Three weeks ago I removed the specimen from a woman of fifty-seven, a physician. Ten years ago, after lifting a heavy patient, she noticed a bunch in the left side as large as an orange. She herself recognized this as a dislocated kidney. The tumor increased in size, and became more or less disabling. Eighteen months ago she had a severe hemorrhage from the bladder. The bleeding began in January and lasted until March. Coincidentally there was loss of weight. In the autumn of 1894 this bleeding began again, and has continued at intervals ever since. At one time there was abundant pus in the urine, accompanied by chills and fever. During the past two years pain has been a prominent and distressing feature of the case. She had always been hemorrhagic, and was supposed to be a bleeder. At one time she bled nearly to death after the extraction of a tooth.

Examination, June 19, 1895, showed a thin, cachectic woman, evidently suffering great pain in the region of

² November 15th. The man made an excellent recovery, and was discharged well in three weeks.

the left kidney. There was a tumor in the left renal region occupying the greater part of that side of the abdomen. The tumor was hard, smooth and non-fluctuating. It was deeply adherent, especially at its upper border. Her general condition justified exploration, which was advised. The patient wished to consider the matter, and went home. I learned subsequently that she had been advised by eminent surgeons not to submit to operation. For the gentlemen who had given this opinion I have the highest regard and respect. I should doubtless have been influenced by their advice had I known it in time. I examined her from time to time during the summer, and had the benefit of consultations with Drs. Warren, Fitz, and Wood. I finally decided to explore. The chief technical objection to the operation was the history of hemophilia; the chief objection to its general advisability was the probable nature of the tumor and its possible metastases. Dr. Fitz had discovered secondary nodules in the left subclavian triangle, and the patient was coughing continually.

October 6, 1895, with the assistance of Dr. Brewster, I removed the kidney through a left anterior cut which extended from the ribs to the ileum. The tumor was firmly encapsulated, adherent to the stomach, spleen, pancreas, and descending colon. Enucleation was successfully accomplished, and the mass removed without the loss of a tablespoonful of blood. No secondary hemorrhage followed. The tail of the pancreas was resected in separating the kidney. Recovery from the operation was satisfactory and complete, though a troublesome cough persisted.³

The operation was performed at her urgent request because she "preferred to die on the table rather than suffer any longer."

The specimen shows an extensive degeneration of the left kidney, which, however, seems entirely confined within the limit of its capsule. A large portion of the mass has broken down. Dr. Whitney's diagnosis is sarcoma.

This case and the specimen make one thing conspicuous, that an early operation, when the tumor was no larger than an orange, would in all probability have been permanently successful. Twelve or fifteen nephrectomies for various lesions have convinced me that this operation is one of the most valuable in surgery; that its immediate dangers are slight if the organ has been affected long and extensively enough to throw the function of secretion gradually and successfully upon the other kidney; that in malignant neoplasms the operation should be performed as early as possible; and that in tubercular and other disabling inflammations, total extirpation promises brilliant results.

(3) Malignant adenoma of the uterus; abdominal hysterectomy; recovery. This specimen was removed October 17th from a woman of fifty-five, in whom the chief symptoms had been severe and persistent uterine hemorrhage. Dr. Whitney examined the scrapings immediately, and pronounced them malignant. The left horn of the uterus was adherent to the sigmoid flexure by recent and easily separated adhesions. On first opening the abdominal cavity the pelvic viscera seemed totally involved in infiltrating disease. The whole uterus was quickly and successfully removed.

The disease will be seen to be entirely confined to the uterus. The diagnosis, malignant adenoma, makes the cure a permanent one, and justifies the total extirpation. A long delay would have been followed by hopeless invasion of the contiguous structures. Hence, in this case, too, early radical operation was the best policy.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

TWENTY-FIRST ANNUAL MEETING, DETROIT, SEPTEMBER 3-6, 1895.

(Continued from No. 24, p. 598.)

DR. GEORGE W. CALE, of St. Louis, read a paper entitled

TWO SUCCESSFUL OPERATIONS FOR TRAUMATIC INSANITY.

The author said that insanity due to injuries of the head is of rather infrequent occurrence. In 2,200 cases of insanity treated by Kiernan, 45 were of traumatic origin; while Hays records 61 due to the same cause out of 2,500 cases. Schlager reports 500 cases of insanity due to concussion of the brain. The author then considered the causes and symptoms. The first case was one of traumatic insanity, in which operation was consented to; recovery. The second case was one of acute mania following a trauma. Operation performed the same as in the first case; recovery.

DR. WM. FULLER, of Grand Rapids, Mich., had operated on two cases of insanity, due to traumatism, one in Montreal in 1870. The patient was discharged from an insane asylum as incurable. When the dura mater was opened there escaped some serum. A few days subsequent to the operation the patient was rational, but as soon as the wound closed up the hallucinations returned. He then punctured the brain in two or three different directions, but with no result except to establish drainage. The man died two months later, and a post-mortem examination revealed a tubercular abscess in the fissure of Sylvius containing about two teaspoonfuls of pus. The other case was due to syphilis, and was relieved by the removal of the pressure from that disease.

DR. J. FRANK, of Chicago, reported an interesting case of insanity in which he trephined, removing a large piece of bone. A piece of the brain was also excised for examination and seemed to be healthy. The patient, after being in an insane asylum for five years made a complete recovery and took up the thread of life where she left it. She continued in this way for one year, then relapsed. What was the reason of her recovery? In opening the dura there was a gush of cerebral fluid. Dr. Frank firmly believes that it is not the depression of the skull which produces the bad results, but that at the time of the injury there is a chronic inflammation of the meninges, or a slow inflammatory process, which throws out cerebral fluid. This fluid may be in the ventricles between the dura and the brain or in the tissues of the brain filaments themselves; and the theory of concussion, held by the profession, he believes is erroneous. He had repeatedly made experiments on dogs by rapping them on the head and rendering them insensible, and immediately thereafter effusion was found.

CHRONIC SEMINAL VESICULITIS WITH HEMORRHAGE.

DR. S. P. COLLINS, of Hot Springs, Ark., read a

³ She went home October 28th. After her arrival she began to have nausea and vomiting, which resulted fatally November 12, 1895. She died evidently of an internal metastasis. From the time of the operation she was entirely relieved of the incessant pain from which she had suffered.

paper on this subject, in which he said there has apparently been little known of the pathological conditions of the seminal vesicles until within recent years. The usual cause of this trouble is the extension of gonorrheal inflammation from the prostatic urethra through the ejaculatory duct into the vesicle itself; at least, there is usually a history of a former gonorrhea with a chronic deep urethral trouble remaining. The vesicles are sometimes involved in very acute and severe gonorrheal inflammation, with or without the implication of the cord and epididymis. They may also be involved with a tubercular inflammation, although practically never primarily.

THE USE OF DRY HEAT OF HIGH TEMPERATURE IN THE TREATMENT OF JOINT DISEASES.

This paper was read by DR. WM. E. WIRT, of Cleveland, O. Shortly after reading a description of this treatment in the medical journals, the essayist encountered a case of rheumatoid arthritis in which he resorted to this method. The treatment was followed by great improvement in the motion of the joint and in the comfort felt by the patient. He also reported a case of rheumatism of a year's standing in which there was more or less fixation. He broke up the adhesions, made use of the high application of heat, and raised the temperature to 290°, which was followed by decided improvement in the ease with which the patient could move the joint and the relief of pain.

ULCERS OF THE LEG: ALL CAN BE CURED.

This paper was read by DR. CARTER S. COLE, of New York.

DR. EUGENE FULLER, of New York City, read a paper on

HOW TO DIAGNOSTICATE SEXUAL DERANGEMENTS IN THE MALE.

The author endeavored to impress on the profession the fact that in the majority of instances, sexual derangements in the male are caused by pathological processes in or about the seminal vesicles, and further, that they accomplish their results by interfering with the mechanism of ejaculation. He calls attention also to the fact that this side of the question has almost wholly been neglected by preceding writers on sexual disorders, who have devoted themselves largely to psychological causes in this connection, the result being that the great majority of the profession associate sexual disturbances with some radical mental defect. Sexual derangements in the male should be diagnostically arranged in four classes: (1) those dependent on seminal vesiculitis; (2) those dependent on neurosis; (3) those dependent upon primary mental disease or degeneration; those dependent on general malnutrition and debility. The order of this classification corresponds to the frequency with which these different forms of diseases are encountered in practice. In explanation of the first class of causes the writer states that it is needless to go into detail since he has recently reviewed that subject very fully in his book just published.

Where seminal vesiculitis exists, there is generally a previous history of urethral or bladder inflammation, sexual abuse and the like, all of which are agents tending to produce localized inflammation in the seminal vesicles.

The second class of causes either inhibit or excite the sexual centre by means of reflex nervous action.

The third class of causes includes the different forms of paranoia, in which the sexual sense exists in a perverted form.

The fourth class of cases is a small one. It includes individuals, generally young or middle-aged, who make complaint that they are capable of little sexual exertion and that feelings of prostration and exhaustion result whenever coitus is attempted.

DR. WM. T. BELFIELD, of Chicago, described and presented

AN INSTRUMENT FOR SECURING ASEPSIS IN BLADDER AND PROSTATE OPERATIONS.

DR. THOMAS H. MANLEY, of New York City, read a paper on

THE ELEMENT OF VASCULAR COMPRESSION IN FRACTURE TREATMENT.

DR. H. O. PANTZER, of Indianapolis, Ind., read a paper entitled

THE SIGNIFICANCE OF FISSURE FRACTURES OF THE ARTICULAR ENDS OF THE LONG BONES.

DR. E. W. ANDREWS, of Chicago, contributed a paper entitled

IMBRICATION OR LAP JOINT METHOD — A PLASTIC OPERATION FOR HERNIA.

The principle of imbrication or overlapping the several aponeurotic layers of the abdominal wall may enter into other abdominal operations to advantage, as he had repeatedly shown. The present paper referred only to its use in inguinal hernia. Here the reader makes use of it to supplement and reinforce existing methods without losing sight of their good qualities. While based upon the best modern, open method, and while confessedly an outgrowth of experience with the Macewen, Bassini, Halsted, and similar operations, yet the carrying out of the imbrication idea so far changes the technique as to make it as different from them all as they are from each other, and perhaps entitle it to the term "A New Operation." It was impossible, said the author, to describe this operation without going into details concerning those which had preceded it, which he did.

The interlocking or overlapping principle of uniting the musculo-aponeurotic layers of the abdomen is in reality an outgrowth of the author's clinical experience rather than of theory. He adopted it at first as an expedient in cases where the Bassini operation seemed difficult and needed supplementing; but of late the value of the principle had seemed to him more and more evident, and he had used it in all his cases. The author concluded as follows: (1) Any successful method of radical cure must be a true plastic operation upon the musculo-aponeurotic layers of the abdominal wall. Cicatricial tissue and peritoneal exudates are of no permanent value. (2) A large strong flap, of any needed size to fill the internal ring. (3) Triplicate layers of aponeuroses. (4) Interlocking of layers giving broad surfaces of union. (5) Shortening of anterior as well as posterior wall of canal, making them mutually supporting, and relieving tension on deep sutures. (6) Cord amply protected.

FURTHER OBSERVATIONS ON THE RADICAL CURE OF RUPTURE BY THE INTRAPELVIC METHOD, WITH ILLUSTRATIVE CASES.

This paper was read by DR. CHAS. A. L. REED, of Cincinnati.

In what essential particulars does this intrapelvic method differ from the several methods of radical operation now in vogue? It differs in the first instance, in the fact that it is intra-pelvic, while the others — Bassini's, Halsted's, McBurney's, Macewen's — are extra-pelvic.

The essential point of difference between Dr. Reed's operation and that of Bassini, consists in (1) leaving undisturbed the extremely tense fascia, composing the anterior wall of the ring; (2) in leaving the cord in the position which nature designed for it, and entirely protected by the normal fascia; (3) in closing the internal ring on the inside of the pelvis, and in protecting it by a strong peritoneal pad; (4) in avoiding the menace to virility arising from transplantation of the cord, its possible constriction by an artificial ring of tense fascia, and its necessary investment by an inflammatory exudate; (5) in increasing the resistance of the parts by fortifying the fascia comprising the anterior wall of the ring, and by increasing and making permanent the obliquity of the cord within its normal canal.

SYPHILIS AND ITS TREATMENT.

This paper was contributed by DR. C. T. DRENNEN, of Hot Springs, Ark.

DR. HENRY O. MARCY, of Boston, followed with a paper on

SURGICAL TREATMENT OF HEMORRHOIDS.

This paper was in the nature of a reply to the strictures cast upon the Whitehead operation by Dr. Edmund Andrews, of Chicago, in a paper read before the last meeting of the Illinois State Medical Society. Dr. Marcy believes that if, in the statistics given by Dr. Andrews, the names of the operators were mentioned, most of the disastrous results would be found to have followed the work of incompetent men. His results have been excellent in those cases in which he has done the Whitehead operation, slightly modified by himself.

DR. JOHN RIDLON, of Chicago, read a paper on

CLUB-FOOT,

which he defined as a distortion of the foot in its relation to the leg. The simple and compound varieties of club-foot were dealt with.

VAGINAL CASTRATION.

This paper was read by DR. E. E. TULL, of New York. The author claimed for this method a lower mortality, a shorter convalescence, and a wider adaptability, as it may be practised in cases too weak for abdominal section.

DR. F. G. GRONER, of Grand Rapids, Mich., read a paper on

A NEW PHASE OF CELIOTOMY.

He related a suit for malpractice which had just been terminated at Grand Rapids. The suit was commenced against a doctor some time ago, and was for fifty thousand dollars. The defendant died, but the court held that the cause of action survived, and that the suit could be brought against the estate. The jury returned a verdict for ten thousand dollars. The author claimed that he knew there was no malpractice, because he was interested in the case and knew just what was done in the operation. He found fault with the laws which permitted a suit against the doctor to survive his death and be a menace to the widow and

children. The speaker thought that the next Legislature should remedy the law. He had the draft of a bill prepared, which he thought would remedy the present law, and which he read.

RESULTS OF FIVE YEARS' EXPERIENCE WITH INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS.

This paper was contributed by DR. J. FRANK, of Chicago. Since his last publication, November, 1889, he had had the opportunity of performing this operation seventeen times, with only one failure, and without any deaths. All of the seventeen cases operated upon were for retroversion, prolapsus, and retroversion with prolapsus of the uterus.

DR. THEODORE A. MCGRAW, of Detroit, delivered the Address on Surgery. He selected for his subject

THE PRESENT STATE OF OUR KNOWLEDGE OF CANCERS AND TUMORS.

He said that if we compare the ideas that prevailed relative to these diseases thirty years ago with those the profession hold to-day, we would find a change which marks rather by a clearer view of the nature of the problem than any actual gain in its solution. Before Virchow the subject of tumors and cancers was wrapped in the greatest confusion. Tumors were divided and classified in that era according to their clinical histories. They were divided into the innocent, which were looked upon as purely local, and the malignant, which were regarded as due to dyscrasie, the seat of which is in the blood. Under the influence of the new cellular pathology the faith in so-called dyscrasie was abandoned and supplanted by a new doctrine, which taught that tumors and cancers resulted ever and always from aberrations in cellular nutrition, development and growth. It may be said that during this time the energies of the profession, as far as tumors are concerned, have been confined almost solely to this channel. The most successful attempt to account for the origin of tumors and cancers was that of Cohnheim.

The arguments offered in defence of the parasitic theory of cancer are (1) the microscopic evidences; (2) the frequent occurrence of auto-inoculation, and the evidently infectious course of the disease in the organism; (3) the endemic occurrence of cancer in certain localities, and in rare instances in the same houses; (4) an occasional success in inoculating the disease in animals. The arguments against it are the many instances of hereditary tendency; the general failure of experiments of inoculation; and the fact that metastases occur, not through the transfer from one point to another of parasitic germs, as is usual in parasitic diseases, but by the transmigration of cells bearing the same characters as the cells of the original tumor, and the subsequent proliferation of the migrating cells; the fact that not only cancers but tumors of all kinds have a more or less tendency to produce metastases; the tendency exhibited by embryonic remains and hyaline tumors to develop into malignant disease.

Dr. McGraw closed by saying that physicians should be better instructed in the means of diagnosis and in the necessity of early operative treatment. And last, but not least, the laity could be induced to assist, not only by liberal contributions of means, but by that intelligent co-operation which would lessen our difficulty

in collecting evidence and making post-mortems and keeping the sufferers out of the hands of the quacks.

DR. C. B. BURR, of Flint, Mich., read a paper on

THE PARANOIAC A MENACE TO SOCIETY.

He made brief and pointed reference to the numerous recent murders of prominent persons by so-called "cranks." What to do with these persons is one of the problems confronting our modern civilization, and is one demanding an answer from students of the subject. We have room enough in our asylums. The trouble is, harmless lunatics are kept in confinement while dangerous paranoiacs are allowed their liberty. These murders disturb the public but a day, and do not scare us into further provision for a safeguard. The public do not sincerely seek advice from professional sources in the matter. No one who has been threatened by a paranoiac would be willing to have his commitment settled by a jury without medical testimony as to the danger involved in granting freedom to such an individual. The paranoiac is a menace to society, and should be sequestered. But doubtless the public will continue to view with indifference or approval now and then, the execution of a criminally insane person as sane enough to hang, and vainly hope for a deterrent effect of this example upon other deluded minds.

DR. HUGH T. PATRICK, of Chicago, called attention to the fact that the fixed illusions began as early in life as five or eight years, and then, in such cases measures of restraint should be instituted. These illusions are not always discovered, even by the family physician.

(To be continued.)

Recent Literature.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In Twenty Volumes. Volume IV, Diseases of the Vascular System and Thyroid Gland. New York: William Wood & Co. 1895.

The contents of this, the fourth volume of the "Twentieth Century Practice," comprise a long article on Diseases of the Heart and Pericardium by Dr. James T. Whittaker, of Cincinnati; an article on Diseases of the Blood Vessels by Dr. Arthur Ernest Sanborn, of London; an article on Diseases of the Lymphatic Vessels by Dr. Bertrand Dawson, of London; and lastly, an article on Diseases of the Thyroid Gland, including Myxedema, Cretinism, Exophthalmic Goitre, Goitre, etc., by Dr. George R. Murray, Newcastle-on-Tyne. Of the writers, one is an American, and three are Englishmen. They are all well qualified to discuss with profit to the reader the subjects for which they have been selected.

Dr. Whittaker's article on Diseases of the Heart and Pericardium occupies 450 odd pages, or more than half of the volume, which with the index offers 841 pages. The ground is covered very fully, from an historical note of three pages at the beginning to a section of 72 pages at the end on Neuroses of the Heart, which closes with Angina Pectoris. In the pages on Paracentesis of the Pericardium we do not find any allusion to Rotch's investigations as to the

point of predilection. Perhaps one would be less apt to notice an omission were this and the other topics of the general subject less fully treated.

Under the head of the treatment of Hypertrophy and Dilatation of the Heart, Oertel is casually referred to, and a diagram showing the elevation of the line of hepatic dulness and the retraction of the line of cardiac dulness under exercise, is credited to Schott. Something more might have been given of the details of the Nauheim System and of Oertel's Exercise Method. These receive two or three pages from Dr. Sanborn's pen in the section of his article on Aortic Atheroma. However, in a volume presenting different articles on kindred subjects, it is wise to avoid repetition, and some compression is very justifiable in so extensive a subject as that undertaken by Dr. Whittaker. Such comments are not intended to detract from the general merit of an article.

Dr. Murray was an excellent choice for the article on Diseases of the Thyroid Gland. His early association with the internal exhibition of the thyroid gland in myxedema, makes the subject one of especial personal interest to him, and he succeeds in making it clear and interesting to the reader, at least as far as present knowledge will permit of clearness. It was only as long ago as April, 1891, that Dr. Murray first tested the action by subcutaneous injection of a glycerine extract of a sheep's thyroid gland in a case of myxedema, and the profession is to-day giving thyroid extract in myxedema with the same ease and confidence in its specific effect, as it gives quinine in malaria. We are glad to note that, under the head of Diagnosis, Dr. Murray calls attention to the importance of early diagnosis in myxedema and to the fact that "slight evidences of the disease may be readily overlooked and the symptoms on the part of the nervous system, which may occur during the early stages, may be attributed to some other cause." These sentences might advantageously have been made even more emphatic. Dr. Murray has apparently had no personal experience with the extract of thyroid gland in exophthalmic goitre, and only quoted two instances of its use, one in a case by Owen and one by Mikulicz.

It is not improbable that in the next five years—or when a supplement to the "Twentieth Century of Practice" is required—even greater additions than in the last five years will have been made to our knowledge of the physiology and pathology of the so-called ductless glands, and to our success in treating these diseases.

The volumes of this encyclopedia succeed each other so far with remarkable promptness, though we suspect this is in a measure accomplished at the expense of a more rational grouping of subjects. The press-work is very good.

The Cell: Outlines of General Anatomy and Physiology. By DR. OSCAR HERTWIG, Berlin. Translated by M. CAMPBELL, and edited by HENRY JOHNSTONE CAMPBELL, M.D., pp. 368. London: Swan, Sonnenschein & Co. New York: Macmillan & Co. 1895.

The book before us is a translation into English of the first part of Hertwig's complete work, "The Cell and the Tissues," a fact, which the translator designates by entitling his volume merely "The Cell," of which it alone treats. The book in its original form has been before the public for two years; its transla-

tion, however, will no doubt introduce it to a larger number of readers than it could otherwise have.

Hertwig, in his preface, describes the object of his work in the following words: "What I have striven to do to the best of my ability is, to fix the scientific standpoint occupied at present by the doctrines of cell and tissue formation. Further, I have tried to delineate the historical course of the development of the more important theories. With regard to disputed points I have frequently compared various opinions."

These objects are well carried out in the discussion of the cell, which, as already stated, alone concerns the present volume. The nine chapters of which the book is composed treat of the following subjects. The first is introductory in character, and discusses at some length the history of the cell theory. The second treats of the chemico-physical and morphological properties of the cell, with details regarding the properties of protoplasm and nucleus. Chapters three to seven, inclusive, are taken up with the vital phenomena of the cell, including in order the phenomena of movement, of stimulation, of metabolism and formative activity, of reproduction by division, and of the phenomena and methods of fertilization. Chapter eight concerns itself with metabolic changes occurring between protoplasm, nucleus and cell products; and chapter nine, the last, with the cell as the elementary germ of an organism, and theories of heredity.

When all is excellent, it is difficult to select anything for special comment. The constant appeal to the historical development of the matter under discussion, with a summary of diverse opinions relating to any disputed point is most helpful to the student of mature mind as well as to him of less knowledge and experience. In short, the book from beginning to end commends itself to any one desirous of having a fair and comparatively full statement of our present knowledge on the subject treated. The final chapter on heredity is an excellent review of the various theories which have prevailed up to the present time. Weismann has his share of credit and criticism, the author finally remarking, "I cannot see that this theory of Weismann's is of any great use, since it leads to so many difficulties which appear to be entirely superfluous." A good bibliography follows each chapter, which, as the editor states, has in certain instances been embellished by references of special value to the English student. An omission for which we can find no explanation is the name of Prof. C. S. Minot.

The book is admirably printed and carefully proof-read. The cuts are well reproduced. The binding is unnecessarily weak, and ill-adapted for text-book use.

We shall await with interest the second part (on *The Tissues*) of the complete work.

Handatlas der Anatomie der Menschen. In 750 theils farbigen Abbildungen mit Text. VON WERNER SPALTEHOLZ a. o. Professor an der Universität Leipzig. Erste Abtheilung: Figs. 1-227. Leipzig: Verlag von S. Hirzel. 1895.

The substance of the above, translated for those who do not read German, is that we have here the first part of an atlas of human anatomy with a text, by Professor Spalteholz, to contain 750 illustrations, some of which are colored. The part before us treats of the bones and of a part of the joints, with 227 illustrations. We are glad to begin by saying that the work is a most creditable one. The author states that

the text was put in against his original intention, and does not in the least claim for it to be that of a text-book. So far as we have read it, we have found nothing to criticize. Our attention has been given almost solely to the illustrations, which are the purpose of the work. They are mostly made by a combination of photography and etching, if we are not in error, and are certainly very beautiful. They are accurate and artistic. The author, moreover, shows himself a thorough anatomist. There are two parts more to appear, the next one being promised for spring.

Elementary Technique in Histology and Bacteriology. by ERNEST B. HOAG and H. KAHN. Chicago: E. H. Colegrove & Co. 1895.

This is a small book designed as a laboratory guide for beginners in histology and bacteriology. The histological part is fairly good, and contains hints on methods which even the specialist will appreciate. The bacteriological part is distinctly inferior, showing evidence of hasty preparation, and an imperfect acquaintance with the more modern methods of bacteriology. Some of the methods given are antiquated or unusual, while some important improvements in technique, such as Mallory's rapid method of preparing blood-serum for diphtheria cultures, now so generally used in this country, receive no mention.

There is great need of a satisfactory book on this subject, but that book has not yet been published.

Materia Medica and Therapeutics. A practical Treatise with Especial Reference to the Clinical Application of Drugs. By JOHN V. SHOEMAKER, A.M., M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia; Physician to the Medico-Chirurgical Hospital, Philadelphia, etc. Third edition, thoroughly revised. Royal octavo, pp. ix, 1108. Philadelphia: The F. A. Davis Co.

The third edition of this work, which has been adapted to the U. S. Pharmacopœia of 1890, now appears in one large volume; it includes the newer preparations such as tannigen and formalin, as well as a short account of the use of animal extracts. This edition is an improvement on the previous one; but among the many works on these important subjects there are others which will be found better suited to the needs of students and practitioners.

Surgical Nursing. By BERTHA M. VOSWINKEL, Graduate of Episcopal Hospital, Philadelphia; Nurse in Charge of Children's Hospital, Columbus, O. With 111 illustrations. Philadelphia: P. Blakiston, Son & Co. 1895.

This little manual is an excellent practical treatise on the subject to which it is devoted, and aims, as its preface says, to furnish just such knowledge of surgical principles as will enable the nurse to pursue her work intelligently, particularly in the matters of asepsis and antisepsis, in which the intelligent co operation of the nurse with the surgeon is of so great importance. Special chapters are also devoted to gynecological nursing, hemorrhages, splints and braces, dressings, bandages, and nursing in special cases.

Such a book ought to be useful to nurses as collateral reading in connection with the lectures on surgical nursing given in the training-schools.

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THE PHYSICAL EFFECTS OF PAIN.

PAULO MANTEGAZZA has made some researches on the physiology of pain, which though not altogether new, are yet of great importance, and to which Charles Richet has called attention in *L'Homme et l'Intelligence*.

If you excite, by pinching the skin, by electrifying the nerve trunks, the sensibility of a hare, a dog, or a guinea-pig, so as to cause the animal to feel pain, certain phenomena will be invariably witnessed.

(1) The temperature falls. In the hare this diminution varies from 0.68 to 2.48; an average of 1.27. This fall begins at once, but does not attain its maximum till ten to twenty minutes after the pain has ceased. The fall in temperature may last an hour and a half and even longer. Mantegazza attributes this diminution of temperature to contraction of the blood-vessels of the periphery. Heidenhain has verified the same fact, and has shown that the excitation of a sensory nerve lowers the temperature by an average of 0.2 per minute.

The pain acts on the movements of the heart. When intense, it may slow the heart's action to the point of producing syncope. In general, pain diminishes the frequency of the cardiac pulsations. In frogs by faradizing strongly a sensory nerve, the heart's rhythm is slowed. This slowing is also observed when the encephalon is removed. In the hare, the rat, the hen, painful excitations have the same effect, and one can measure with very great precision the intensity of the pain by the diminution in the frequency of the heart's beats. In animals rendered insensible by anesthetics, the excitation of sensory nerves no longer reacts on the heart. Section of the spinal cord abolishes completely the influence exercised on the heart by the excitation of the peripheral sensory nerves; hence it would seem that the excitation goes to the encephalon by the cord rather than by the great sympathetic. In man, although there is sometimes diminution, sometimes augmentation in the frequency of the movements

of the heart, there is always, under the influence of great pain, a modification of the cardiac rhythm and a change in the form of the pulse appreciable to the sphygmograph, and due, probably, to augmentation of blood pressure in the arteries.

(3) The pain augments the frequency of the respiratory movements. Sometimes, however, a violent pain suppresses and arrests these movements. Often the rhythm becomes irregular, the movements being now rapid, now slow, and the inspirations successively short and deep. There is a diminution in the quantity of carbonic acid exhaled, which seems due less to a change of rhythm than to a real slowing of the interstitial combustions.

(4) Pain diminishes the appetite, retards gastric digestion, and disturbs it to the point of provoking vomitings and diarrhea. It acts on the general nutrition disastrously, and in the end causes extreme debility in the animal. When very intense, it arrests the secretions; when moderate, diminishes them.

Charles Richet, in accepting, as proved, the above facts, asks if these phenomena are due to the pain itself, or if they may be due to the fact that the pain, instead of being the cause of the slowing of the heart, is but an effect of the same agency which produces this, namely, the excitation of the spinal cord and vagus nerve.

An appeal to experimentation, namely, observation of the effects on animals deprived of the cerebrum (that is, of the pain centres), of excitation of the sciatic nerve, seems to have settled the question by making the last hypothesis certain. The heart is still slowed, the respiration accelerated, etc., though perception of pain is suppressed. It would appear then that the contraction of the peripheral vessels (excitation of the vaso-constrictors), and the slowing of the heart (excitation of the pneumogastric) are to be regarded as reflex acts due to medullary excitation, and not to painful excitation of the cerebrum.

On the other hand, the same effects may be produced by reflexes starting in the cerebrum, for a *moral* pain, without any excitation of spinal sensory nerves, produces slowing of the heart (even to syncope sometimes) and at the same time a contraction of the peripheral cutaneous vessels as manifested by the pallor of the integuments and the lowering of the temperature of the skin. This result is likewise brought about by excitation of the bulb and cord.

The effects produced by anesthetics are peculiar in that quantities sufficient to suppress pain also suppress, or greatly diminish reflex action by their simultaneous influence on the cord and encephalon.

As for the cause of pain, Richet lays down the following law, which is in accordance with the views of most physiologists who have studied the subject. "Pain is an intense and prolonged vibration of the conscious nerve centres; it is the resultant (when not arising from encephalic central causes) of a strong peripheral excitation, and consequently of a change of state in the cortical conscious centres." Pain is teleologically the warning that a noxa exists, and prompts to

actions of self-preservation. The chief end and aim, says Richet, of the natural forces represented by living beings is the greatest sum of life possible. From this point of view, pain has an important rôle. "Hunger, thirst, fatigue, disgust, are only forms of pain, and pain is the more intense the more intelligent the animal; in a word, there is between intelligence and pain so strict a relation that the most intelligent animals are those which are capable of suffering the most."

In general agreement with the above conclusions are the special investigations of Mr. Marshall as recorded in a former number of the *Journal of Nervous and Mental Disease*. Neurologists, he says, substantially, are wasting valuable labor in the search for "pain paths" and for "pain localization" in the cortex of the brain; the paths in the spinal cord and the supposed nerve terminals which have attracted the attention of investigators are only the media of some form of sensibility, which under the conditions of examination manifests itself by pain. For surely, if pain and pleasure are qualities of all elements of consciousness (as seems in accordance with good evidence) we are not to look for any special organs or centres for pain and pleasure, but we must account for these states by a certain intensity of stimulus, as Spencer and Bain have taught.¹

TRAUMATISM AS A CAUSE OF TUBERCULAR MENINGITIS.

IMMEDIATELY after Koch's discovering of the tubercle bacillus, this bacillus was believed to be the sole cause of tuberculosis. Nothing more was heard for a time of the time-honored dictum of the causation of tuberculosis by traumatism, and yet an understanding of this subject, which since Schüller's instructive experiments is possible for every physician, is important, not only for the surgeons and consulting physicians, but also for those who practise internal medicine or give expert medical testimony. From Schüller's investigations we learn that in animals who have been infected with tuberculosis, an injury to a joint will determine a tubercular affection of the joint in question.

Before the discovery of the tubercle bacillus, traumatism was believed to play the most important part in the etiology of tuberculosis. Now, after Koch's discovery and Schüller's experiments, we are able to assign to both trauma and the tubercle bacillus their true etiological value. Guder has laboriously collected the literature of the subject of the relation between trauma and tuberculosis. König says: "Tuberculosis of the bones and joints occurs most frequently in patients who already have tuberculosis elsewhere." Traumatic tuberculosis is therefore really metastatic, the metastasis to the particular point attacked is determined by the traumatism. In the rare cases in which the bones and joints are attacked primarily, the bacillus must be held to have invaded the system through the respiratory or digestive tract, which tracts themselves

do not necessarily show any evidence of tubercular disease (Krause). Kaufmann, in his handbook, says: "There is found in the cases of the development of tuberculosis of the bones and joints in direct sequence upon an injury, a continuous connection between the injury and the fully developed disease, demonstrable through the failure of anatomical or functional recovery, and the slow gradual development of severe symptoms."

The occurrence of primary tuberculosis of the lungs in persons previously healthy, as a result of traumatism of the thorax, has been almost established as a result of the clinical observations of Mendelsohn.

The fact that as a result of injury to soft parts, bones or joints without solution of continuity other pathogenic bacteria than the tubercle bacillus may become localized at the injured point is well known. We need only to recall the development of abscess in the soft parts, osteo-myelitis, and in the lungs pneumonia from contusions.

But not merely do the minute forms of life known as pathogenic bacteria become the cause of localized inflammatory process in the bones and joints after traumatism, but the *locus minoris resistentiæ* produced by the injury may be sought out by chemical agents circulating in the blood, (uric acid and its salts). It is frequently possible to prophecy correctly in patients of gouty diathesis who have suffered a sprain or other injury of a joint or fracture of a bone, that the gout will attack them at the injured point.

With regard to the relation of meningeal tuberculosis to injuries of the skull but little is to be found in literature.

Most text-books of children's diseases deny any connection between meningeal tuberculosis and trauma. Hensch writes: "The assumption of a traumatic origin, such as a fall on the head, to which parents are prone, is under these conditions, as a rule, deceptive, and has for its foundation generally a mere chance association."

Huguenin says, on the contrary, that trauma often stands in undeniably evident causal relation to meningeal tuberculosis; and Niemeyer-Seitz affirms that in persons in whom latent foci of tuberculosis are present, it is very probable that external injuries, falls on the head, etc., may become the determining cause of tubercular meningitis.

In an interesting article by Schilling¹ to which we are indebted for most of the citations given above, six cases are cited (Hilbert 1, Mendelsohn 2, Demone 3, Salis 1,) in which there was an evident relation between falls and blows upon the head and the development of tubercular meningitis. Schilling then gives a careful and interesting clinical account of a case in which a fall on the head from a height of four metres was followed, after eleven days had elapsed and complete recovery from the immediate effects of the blow had ensued, by a fatal attack of tubercular meningitis. Death took place in twelve weeks, and at the autopsy meningeal tuberculosis was

¹ *Journal Nervous and Mental Disease*, February, 1894, p. 71; Spencer's *Principles of Psychology*, vol. i, p. 288.

² *Münchener med. Woch.*, November, 1895.

found, together with tubercular peri-bronchial glands, some of them cheesy in the centre. Schilling thinks that bacilli previously encapsulated in these glands were set free by the shock of the fall into the blood or lymphatic channels, and localized at the point of the injury to the head.

According to Koch and Baumgarten ten to twelve days are required for the development of a tubercular focus, which evidently just corresponds with the elapsed time in the case reported. Schilling justly remarks that in those cases in which the onset of the symptoms takes place one or two days after the trauma, the tuberculosis must have antedated the injury.

A DOUBTER ON SERO-THERAPY IN DIPHTHERIA.

AN editorial appears in the *Journal of the American Medical Association* for December 14th, endorsing Mr. Lennox Browne's attitude of opposition to the employment of antitoxin in the treatment of diphtheria. The same gentleman's arguments against the use of the serum for immunization are also quoted, and receive the stamp of editorial approval, although they have a purely theoretical basis. The argument against the use of antitoxin as a curative agent consists in the statement that under its use the mortality from diphtheria in a certain London hospital has failed to diminish.

We are surprised to learn of the acquiescence of our esteemed contemporary in so pessimistic a view of the value of the antitoxin, especially when the experience on which this view is based is so extremely limited, and is directly at variance with that of nearly every institution in which antitoxin has had a fair trial throughout the civilized world.

The experience with sero-therapy in the Contagious Department of the Boston City Hospital, where patients have had all the advantages of most careful hospital treatment, both before and after the adoption of the antitoxin treatment, has shown that since the beginning of the treatment there has been a surprising increase in the comfort of the patients, and an equally remarkable decrease in the mortality.

An acquaintance with the danger and difficulty of too enthusiastic local treatment in this disease renders it difficult for us to attribute any very high value to the advice given by the editor in his closing sentence, "to adopt more stringent precautionary measures, more active local methods, and wait!"

MEDICAL NOTES.

THE SIXTH INTERNATIONAL CONGRESS OF OTOL-
OGY will be held in London, in 1899.

THE INTERNATIONAL CONGRESS OF APPLIED CHEM-
ISTRY is to meet in Paris next year. There will be medical, pharmaceutical and hygienic sections, and an exhibition will be held in the Palais de l'Industrie.

PROFESSOR RIEDEL, of Jena, has been elected to the Chair of Surgery at Göttingen in succession to Prof. König.

THE PRESBYTERIAN HOSPITAL, NEW YORK, IN DEBT. — It is reported that the expenses of the Presbyterian Hospital during the past year exceeded its receipts by \$97,625.71, and the usual appeal for donations is in order.

WHY NOT RENOVATE THE BATHS OF CARACALLA? — In his address at the opening of the University of Rome, Professor Celli made the astonishing statement that the capital of Italy did not possess a single public bathing establishment.

NEPHRECTOMY FOR INJURY. — At a recent meeting of the Medical Society of London, says the *Medical Press and Circular*, Mr. Swinford Edwards reported a case in which he had performed "Nephrectomy for Injury." The patient, a man, aged fifty-five, had fallen out of a third-story window on to some railings, which had inflicted a formidable wound in the lumbar region smashing a couple of ribs and severely lacerating the kidney, which was bleeding profusely. He could not have been very hopeful at the time of operation, but he proceeded to clean the wound, and arrested the hemorrhage by ligaturing and removing the damaged kidney. There was a little suppuration, with some temperature; but the patient ultimately made a splendid recovery, and was present to tell the tale.

THE BIBLE AS A CARRIER OF INFECTION. — An amusing incident is reported in the *Lancet* as occurring recently in a Sussex Police Court. The Rector of Graffham and East Lavington, the Rev. Rowley Lascelles, was concerned as a witness in a trespass case which was heard recently before the Petworth magistrates, Major Sir Walter G. Barttelot, Bart., being in the chair. Mr. Lascelles asked to be sworn in the Scotch fashion, whereupon the following colloquy ensued:

The Chairman. — I should like to know, Mr. Lascelles, why you, being a clergyman of the Church of England, object to kiss the Book?

The Rev. R. Lascelles. — I have a strong objection to kissing the Book in these days of infectious diseases. I should be happy to kiss it if I may turn it inside out.

This was done, and Mr. Lascelles having been sworn in the usual fashion the chairman went out of his way to remark in an undertone: "He is afraid of catching an infectious disease from the Bible." A later witness when he was sworn, piously remarked: "Although I am only a layman, I am not afraid of catching infectious diseases from the word of God." The *Lancet* suggests that if certain combinations of words and letters are a safeguard against contagion, we would better drop isolation and return to the use of phylacteries. The pious gentlemen who thought the parson showed a want of faith, would probably have been themselves unwilling to kiss a French novel in an equally filthy condition, but the idea of contagion being carried by a Bible! How preposterous!

NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During week ending at noon, December 18, 1895, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 144, scarlet fever 20, measles 11, typhoid fever 15.

TYPHOID FEVER IN CONNECTICUT.—The report of the Connecticut Board of Health for October shows an unusual prevalence of typhoid fever in the State. Out of 168 towns in the State, the disease is recorded in 50, the total number of cases reported being 189.

NEW YORK.

SOCIETY OF MEDICAL JURISPRUDENCE.—At the annual meeting of the Society of Medical Jurisprudence held December 9th, the following officers were elected: President, Edward M. Brush; Vice-President, S. B. Livingston; Treasurer, D. McLean Shaw; Secretaries, John C. West, W. H. Bates and R. Safford Newton. Wm. D. Purrington, Esq., read a paper on the law of libel as affecting the medical profession.

ANOTHER CENTENARIAN.—Mrs. Maria Halsey, who was born and passed most of her life in New York City, died at her home in Hanover, N. J., on December 8th, at the age of 102, and it is said that she retained her faculties to the last in a remarkable degree. It is very rare for a native of New York to attain such an advanced age.

DIPHTHERIA PREVALENT.—Diphtheria is now unusually prevalent both in New York and Brooklyn. During the week ending December 14th in New York there were reported 36 deaths, against 22 in the week previous. In Brooklyn the disease has acquired somewhat serious proportions. In the week ending December 14th there were reported 160 new cases and 46 deaths, an increase of 15 in the mortality from it. The propriety of closing the public schools has been discussed by the Health Department, but, while a careful supervision of the schools is maintained, this step has not as yet been regarded as necessary.

MORTALITY.—In New York the general mortality of the city shows some increase, due, no doubt, to a considerable degree, to the cold weather that prevailed last week. During the week the number of deaths reported was 706, an increase of 65 over the week ending December 7th. Still, even this mortality shows a remarkably good state of the public health, as the number of deaths is about one hundred below the average for this season; the average for the corresponding weeks of the past five years being 805. The number of deaths from pneumonia increased from 103 in the previous week to 111, and there was about the same increase in the mortality from phthisis. The mortality from measles was also comparatively large, 15; but, on the other hand, there was only six deaths each from scarlet fever and typhoid fever, and one from cerebro-spinal meningitis.

Miscellany.

THE HAIR TURNING FROM WHITE TO BLACK AFTER EXPOSURE TO SEVERE COLD.

"On the 5th of January, 1895, we had a tremendous fire in Louisville," writes Dr. George W. Griffiths, in the *Journal of Cutaneous and Genito-Urinary Diseases*, for September, 1895; "the night was very cold, and the streets were covered with snow and ice. The gentleman I shall present as the subject of these remarks is an engineer in the Louisville Fire Department, aged sixty-five years, who was on duty from eleven o'clock on the night of the 5th of January until two o'clock of the following day, except when he was taken away overcome by sheer exhaustion, and sent by my friend, Dr. Marshall, in a carriage to his home, where he remained two or three hours, and again returned to duty. Two or three sections of hose were leaking near his engine, and the spray was blown by a strong north wind until he was covered from head to foot with ice, which became so thick that it had to be cut or broken off from his clothing. This man was constantly at his engine, exposed to the north wind, which was carrying the spray of water from the broken hose. The top of his head was the warmest part of the body; his eyebrows and whiskers became wet, and were frozen stiff. He had a red skull-cap over his head, and his helmet on top of that; his head was not exposed at all, nor any hair, except the eyebrows and whiskers.

"I saw him the next day, when he had a very feeble pulse, and was much exhausted and worn out. He has not been in robust health for some time. The next afternoon after the exposure to the severe cold, as I have indicated, his hair turned black; and the wonder becomes greater when we consider that his hair was perfectly white before. He has been gray for eight years, and for the past three years perfectly white; before that he was blonde. Now his hair is black. I have known this gentleman for over forty years. The hair is oily, and does not seem to be dead at all. His head has been very carefully scrubbed several times, as I was inclined at first to think the change in color was caused by cinders or other foreign matter; but such did not prove to be the case."

LIONS AND LAVENDER WATER.¹

A WIDELY-SPREAD statement has been brought under our notice to the effect that though music has no charm for the lion and tiger, it has been discovered by a naturalist who has been conducting experiments in the Zoological Gardens that these animals are powerfully affected by the smell of lavender water; under its influence they become as docile as lambs. We have communicated with Mr. A. D. Bartlett, the superintendent of the Zoological Society's Gardens, on the subject generally, who writes us: "I am frequently amused by the funny notions and sometimes silly ideas of persons who talk and write about animals. The strange fads and mistakes they circulate are very curious; one of the fads is music, another perfumes. Now most animals have ears and nostrils, and use them, and doubtless are pleased or displeased with

¹ British Medical Journal.

certain sounds or perfumes; for instance, all the cat family appear pleased with various perfumes, such as valerian, musk, lavender, and many others; it does not appear to me that there is anything very extraordinary in this. With reference to music, I live in fear that some one should state that our animals were charmed by the sound of the Jew's-harp, or, worse still, the bagpipes, and that some kind friend might provide the keepers with a stock of these musical instruments to play in their leisure hours."

THE SUN-GLASS AS A SURGICAL INSTRUMENT.

In an article under this title in the *Yale Medical Journal* for December, Dr. George R. Shepherd advocates the burning-glass as an ideal method for the removal of small nevi, moles and warts. Local anesthesia is established by cocainization, the surrounding parts are protected by moist blotting paper, and the solar rays concentrated upon the growth. Dr. Shepherd claims that this method is superior to the electric needle or fine cautery point, as no scar is produced. In describing the application of the method, however, he says that "if the growth dips into or through the corium, care must be taken not to injure the subcutaneous tissues, if a scar is to be avoided." It would seem that if this precaution is necessary, the superiority of the sun's rays to the other methods of cauterization is a matter of doubt, for the electric needle or fine Paquelin point will not cause scarring in the rare cases in which it is not necessary to penetrate into the subcutaneous tissues.

The difficulty of applying the sun's rays as a cautery must certainly be great in general practice. It is not always convenient to wait for fair weather before operating, nor easy to secure a suitable operating-room.

A FAMILY TENDENCY TO TWINS.

DR. DONALD MCPHAIL, of Glasgow, writes to the *Lancet* as follows:

"I attended a woman in her confinement when twin girls were born. It was her fifth confinement, but she had not had twins before, though she said 'twins were very rife in her family.' Her insistence upon the 'rifeness' of twins aroused my interest in the matter, and she kindly arranged for me an interview with an old aunt, who gave me the notes I send and said she thought she could get notes of other cases in the family and fuller notes of the cases she mentioned to me. My patient died from phthisis not long afterwards and her husband married again and left the district, so that the history remains as I first noted it down, probably incomplete. I could get no genealogical facts on the husband's side, though he had won honorable mention by the fact that his first wife's only two children were a pair of twins. His third wife had but one child to my knowledge, but of her subsequent history I know nothing. The facts of the case are that my patient's husband's first wife had twins, her maternal grandmother had twins twice, her grandmother's brother's wife had twins, her grandmother's mother had twins, her grandmother's uncle's wife had twins, her grandmother's father was a twin, and his

sister had twins twice and triplets once. Arranged according to generations the history seems to be as follows:

"First generation. A woman had twins, etc.

"Second generation. One of her daughters had twins twice and triplets once, and one of her twin sons married a woman whose brother's wife had twins, and who herself presented him with a pair.

"Third generation. One of his daughters had twins twice, and his son's wife had twins once.

"Fourth generation. Blank.

"Fifth generation. A granddaughter of the woman noted in the third generation married a widower whose first wife had had twins and she herself bore him twins."

PREHISTORIC TREPHINING IN RUSSIA.

An article by General von Krahmer, in the *Globus*, Bd. LXVII., No. 11, describing an amulet obtained in 1883 from a neolithic burial in Russia, is commented upon by Dr. D. G. Brinton, in *Science*. It was of bone, and on examination proved to have been taken from a human skull. Ten years later the archeologist Bieljachewski, in exploring a deposit on the banks of the Dnieper, exhumed a human skull from which just such a fragment must have been removed. Careful inspection showed that the trepanation had been performed after death, the spot selected being the right frontal bone. The instrument must have had a sharp cutting edge, but a lack of skill is manifested in the use of it. The skull belonged to a comparatively young person, probably a woman. From objects collected in its immediate vicinity, it may be assigned to the twelfth century.

Such examples are extremely rare in Russia. Among the crania at the anthropological museum in Moscow there is but one which shows ancient trepanation; but it is catalogued as from the Caucasus. However, the evidence brought forward by General von Krahmer, showing that this operation was occasionally practised in order to obtain amulets from the parietes of the skull, is valuable as illustrating a primitive superstition which prevailed in several widely separated tribes.

Correspondence.

SACCHARUM ALBUM AS AN OXYTOCIC.

Boston, December 16, 1895.

MR. EDITOR:—The *North American Practitioner* notes the fact that sugar is a valuable aid in hurrying up the action of the lazy uterus in lingering cases. Formerly I gave ergot, but it has grave faults. I have more recently used ginger, quinine and other agents; but it has never occurred to me to employ sugar for this purpose. Rossi, however, has given it in ounce doses, and reports excellent results. According to him the ebolic action begins in twenty to forty minutes. The contractions are free from tetanic tendencies and hold regularly and continuously on till the case ends, though in some instances it is necessary to repeat the dose.

Certainly it would be a great boon if wider experience should demonstrate this to be a reliable agent for these tedious cases. I hope physicians will give it a trial and report, since its administration can do no harm, which unfortunately cannot be said of ergot. Rossi gave an ounce in a cupful of water. Yours truly, E. CHENERY, M.D.

METEOROLOGICAL RECORD,

For the week ending December 7th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
					8.00 A. M.	8.00 P. M.								
S...1	30.31	32	43	22	67	81	74	N.W.	S.	6	9	F.	O.	.00
M...2	29.61	32	40	13	73	88	84	S.	S.W.	21	12	O.	O.	.16
T...3	29.84	32	38	27	82	76	79	N.W.	N.W.	20	12	C.	C.	.00
W...4	30.08	23	30	16	59	70	64	N.W.	N.	9	10	C.	C.	.00
T...5	29.87	25	28	22	81	88	86	N.	N.W.	20	15	N.	N.	.42
F...6	30.01	26	30	23	63	61	62	N.W.	N.	18	10	O.	C.	.13
S...7	30.04	22	43	20	62	74	68	S.	S.W.	6	12	O.	O.	.00

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 7, 1895.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	641	253	30.95	21.90	.90	1.05	4.50	
Chicago	1,678,967	424	158	19.92	11.28	2.64	3.36	9.12	
Philadelphia	1,164,000	414	145	13.20	11.28	1.44	1.92	9.60	
Brooklyn	1,100,000	400	150	14.75	14.25	.20	.10	1.00	
St. Louis	560,000	—	—	—	—	—	—	—	
Boston	494,205	185	45	13.50	12.42	.54	1.08	10.80	
Baltimore	496,315	187	70	12.72	13.78	.53	1.06	9.54	
Cincinnati	336,000	110	27	10.00	7.27	.90	5.45	3.63	
Cleveland	314,537	85	24	12.87	12.87	1.17	1.17	9.36	
Washington	275,500	86	28	12.76	12.76	2.32	2.32	4.64	
Pittsburg	238,617	88	30	14.82	14.82	2.28	9.12	3.42	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,764	30	7	6.06	18.18	—	3.03	3.03	
Charleston	65,165	19	9	—	15.78	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	28	10	7.14	14.28	3.57	—	3.57	
Fall River	88,020	36	17	16.68	8.34	8.34	—	—	
Lowell	84,359	33	15	18.18	18.18	6.06	3.03	9.09	
Cambridge	81,319	22	7	22.75	—	—	—	22.75	
Lynn	62,305	13	4	13.94	6.97	—	—	6.97	
New Bedford	55,204	15	9	13.33	13.33	—	—	13.33	
Springfield	51,594	25	6	16.00	4.00	4.00	—	8.00	
Lawrence	52,153	9	1	11.11	11.11	11.11	—	—	
Holyoke	40,140	—	—	—	—	—	—	—	
Salem	34,437	10	2	10.00	10.00	10.00	—	—	
Brookton	33,157	6	1	—	33.33	—	—	—	
Haverhill	30,185	9	1	11.11	11.11	—	—	—	
Malden	29,706	13	1	20.91	20.91	—	6.97	13.94	
Chelsea	31,295	9	1	11.11	—	—	—	11.11	
Fitchburg	26,394	1	1	—	—	—	—	—	
Newton	25,322	—	3	14.28	14.28	—	—	14.28	
Gloucester	25,663	—	—	—	—	—	—	—	
Taunton	27,093	9	2	—	—	—	—	—	
Waltham	26,877	4	1	—	25.00	—	—	—	
Quincy	26,712	3	1	—	33.33	—	—	—	
Pittsfield	20,447	6	1	16.66	—	—	—	16.66	
Everett	18,578	4	2	25.00	—	—	—	—	
Northampton	16,738	5	1	—	20.00	—	—	—	
Newburyport	14,564	6	1	16.66	16.66	—	—	16.66	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,940; under five years of age 1,039; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 431, acute lung diseases 442, consumption 343, diphtheria and croup 243, typhoid fever 64, diarrheal diseases 45, measles 34, whooping-cough 20, scarlet fever 13, cerebro-spinal meningitis 7, malarial fever 5, erysipelas 2.

From measles New York 15, Brooklyn 8, Chicago 4, Baltimore 3, Philadelphia 1. From whooping-cough New York 10, Brooklyn 7, Chicago, Philadelphia and Boston 1 each. From scarlet fever New York, Chicago and Fall River 3 each, Providence, Lynn, Springfield and Haverhill 1 each. From cerebro-spinal meningitis Chicago 3, Philadelphia, Cleveland, Washington and Providence 1 each. From malarial fever Washington 4, Cleveland 1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 7, 1895, TO DECEMBER 13, 1895.

CAPTAIN WILLIAM P. KENDALL, assistant surgeon, upon the expiration of his present leave of absence, is ordered to Fort Sam Houston, Texas, for duty.

FIRST-LIEUT. JOHN S. KULP, assistant surgeon, will, upon the expiration of his present leave of absence be relieved from duty at Fort Spokane, Washington, and ordered to Fort Walla Walla, Washington, for duty.

The leave of absence granted CAPTAIN WILLIAM B. BANISTER, assistant surgeon, is extended one month.

The leave of absence granted FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon, is extended two months.

CAPTAIN CHARLES E. WOODRUFF, assistant surgeon, now on leave of absence is ordered to proceed from Washington, D. C., to Fort Snelling, Minn., and report for temporary duty without delay.

MAJOR RICHARD S. VICKERY, surgeon, is retired from active service this date, December 7, 1895.

CAPTAIN FREEMAN V. WALKER, assistant surgeon, is, by direction of the president, wholly retired from the service this date, December 4, 1895.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 14, 1895.

G. T. SMITH, passed assistant surgeon, detached from the "Ranger" and ordered to the "Adams."

M. K. JOHNSON, assistant surgeon, ordered to the Naval Laboratory and Department of Instruction, New York.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING NOVEMBER 30, 1895.

FESSENDEN, C. S. D., surgeon. Placed on waiting orders. November 22, 1895.

MEAD, F. W., surgeon. Granted leave of absence for thirty days. November 21, 1895.

MCINTOSH, W. P., passed assistant surgeon. To proceed from Boston, Mass., to Portland, Me., for temporary duty. November 25, 1895.

PETTUS, W. J., passed assistant surgeon. Relieved from duty at Buffalo, N. Y., and directed to proceed to Cape Charles Quarantine and assume command of station. November 16, 1895.

MAGRUDER, G. M., passed assistant surgeon. Granted leave of absence for thirty days. November 20, 1895.

PERRY, T. B., passed assistant surgeon. Relieved from command Cape Charles Quarantine and directed to proceed to Buffalo, N. Y., and assume command of service. November 16, 1895.

STIMPSON, W. G., passed assistant surgeon. Granted leave of absence for thirty days. November 20, 1895.

COFER, L. E., assistant surgeon. Placed on waiting orders from December 1, 1895. November 21, 1895.

NYDEGGER, J. A., assistant surgeon. When relieved from temporary duty at Mobile, Ala., to rejoin his station at Savannah, Ga. November 27, 1895.

STEWART, W. J. S., assistant surgeon. Granted leave of absence for fourteen days. November 29, 1895.

SPRAGUE, E. K., assistant surgeon. Relieved from temporary duty at Key West Quarantine and directed to rejoin his station at Mobile, Ala. November 27, 1895.

PROCHAZKA, EMIL, assistant surgeon. To proceed from Detroit, Mich., to Buffalo, N. Y., for temporary duty. November 16, 1895.

GREEN, J. B., assistant surgeon. Granted leave of absence for thirty days. November 20, 1895.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, December 26th, at 8 P. M., by DR. J. H. MCCOLLOM. Subject: "The Relation of Bacteriology to Preventive Medicine." The profession are invited.

BOOKS AND PAMPHLETS RECEIVED.

The Medical Record Visiting-List and Physicians' Diary for 1896. New revised edition with calendar, tables of doses, etc. New York: William Wood & Co. 1895.

Original Articles.

MULTIPLE NEURITIS THE ESSENTIAL ELEMENT IN LANDRY'S PARALYSIS.¹

AN ILLUSTRATIVE CASE.

BY GEORGE L. WALTON, M.D.,

Physician to Neurological Department, Massachusetts General Hospital; Clinical Instructor in Neurology, Harvard Medical School.

It seems probable that in the light of modern research the mysterious disease long known as Landry's paralysis will cease to exist as a distinct entity, though this term or its synonym, "acute ascending paralysis," may perhaps justly be retained as representing a group of cases, of extremely acute onset, and of characteristic distribution, of toxic origin, the essential lesion involving the nerves of the legs, trunk and arms, as well as the vagus and phrenic, implicating probably, at the onset at least, the spinal cord, and to a moderate extent the brain.

Classification of Landry's paralysis under spinal disease dates from a period when the spinal cord was the accredited seat of all paralysis, other than cerebral, and especially of all forms of paraplegia. The propriety of this classification is not established.

Multiple neuritis has steadily encroached upon the domain of the spinal cord in recent years, and in 1889 James Ross, in a series of masterly articles, demonstrated the practical clinical identity of Landry's paralysis with a well-recognized form of toxic neuritis, a doctrine which, though not accepted in its entirety, has on the whole gained ground, though few if any writers consider that multiple neuritis alone covers the entire pathology of the disorder. In the earlier description of Landry's paralysis we find complete relaxed paralysis of the legs, trunk and arms, of extremely rapid onset, with loss of reflexes (at a date when this symptom was studied), but with no disturbance of electrical reaction. There is little or no disturbance of sensibility, little or no disturbance of the sphincters, and no marked wasting. The prognosis is grave, the disease generally proving rapidly fatal through affection of the respiration.

This is certainly a clinical history, which, if taken literally, seems hard to reconcile with peripheral, though no harder than with central disease. Analysis of published cases show, however, that this history is incomplete, and later descriptions of the disease show considerable amplification. For example, out of 93 cases collected by Ross, we find that in 11 only is sensation definitely reported as unaffected, anesthesia with or without pain appearing in 22, paresthesia with or without pain in 25, tenderness alone in 3, hyperesthesia in 2, "fidgets" in 1, no mention of sensation in 15.

The proportion of cases in which sensation is unimpaired is, therefore, no greater than is reconcilable with peripheral disease, and the sensory disturbances in the larger proportion are quite characteristic of neuritis.

With regard to the electrical reactions, in 32 only of the cases quoted by Ross were the reactions tried, and in 12 of these the reaction of degeneration, complete or partial, was found. A careful analysis by this author of the cases remaining shows that in most in-

stances the faradic current alone was used, "retained faradic irritability being quite compatible with that inversion of normal formula of galvanic reaction which constitutes the reaction of degeneration in its partial form." It will be noted in our case that faradic contractility was normal in certain muscles (for example, right deltoid), in which the galvanic test showed inversion of normal formulæ (An Cl greater than Ka Cl).

In many of the cases the fatal onset occurs too early for reaction of degeneration to become established, a fact emphasized by that of Berubardt, in which the early reactions were normal, but degeneration reaction appeared late in the progress of the disease.

It seems, therefore, that the two elements most difficult to reconcile with peripheral neuritis, that is, lack of sensory disturbances and tenderness, and of electrical impairment, are by no means essential elements of the disease, no more cases offering these peculiarities than are compatible with neuritis, in which it is known that sensory disorders may sometimes fail, and electrical reactions be found normal, at least at certain stages.

Now let us see how many of these cases conform to the classical type in respect to *both* loss of sensation and the electrical reaction. Out of the 11 cases without loss of sensation, in five no mention was made of the electrical reactions, in one faradic contractility was lost, in one galvanic reaction was altered, in one both affected, in three only the electrical reaction was mentioned as normal. In the 15 in which no mention of sensation was made, electricity was not used in 13, the reactions were found normal in one, and lost in one.

This leaves us four cases only out of 93 in which sensation was unaffected *and* electrical reactions were not impaired — a small number on which to base a classification. I have analyzed with reference to these points the 29 cases to which I had access out of the 48 published since the summary of Ross, with the following result: sensation unaffected, five only; anesthesia, with or without pain, nine; paresthesia, eight; tenderness alone, one; pain alone, five; no statement regarding sensation, one.

Of the five cases without affection of sensation, in one there was no loss of electrical reaction (this expression probably meaning faradism), in the other four no note was taken of the reactions, adding therefore only one record to the list of cases following the generally accepted description of the disease, the electrical record even in that one case being incomplete and unsatisfactory.

With regard to the question of muscular wasting, it seems on looking over the recorded cases that wasting of muscles is apt to occur in the convalescent cases, not in the early fatal. But a glance at the period of fatality in those cases easily explains this anomaly — certainly neither muscular wasting nor degeneration reaction could be expected to appear in three days, the duration of one case in which their absence was noted, and even periods of six and nine days, as found in two others, are by no means enough to establish these points.

With regard to the question of fatality, analysis of 121 cases (including the 93 of Ross, and the 28 of the 29, of which I was able to find the termination, out of those reported since Ross's article) shows 77 fatal cases against 44 protracted recoveries, that is, 36

¹Read at a meeting of the Boston Medico-Psychological Society, November 21, 1895.

per cent. gradually recovered while 64 per cent. died. This is certainly a large percentage of deaths, but does not justify the grave prognosis ordinarily given.

It may be maintained that the fatal cases alone were worthy of being classed under Landry's paralysis, but the careful perusal of the records shows a similarity among the cases too striking to allow this claim. In all, the rapid onset, the complete involvement of the trunk, the embarrassment of respiration, the total relaxed paralysis with loss of reflexes (where tested), and absence of marked sphincter weakness, were sufficiently conspicuous to justify forming a group, whether as a distinct class or as a subdivision of a class already established.

In respect to the etiology, it is a significant fact that in most of the cases in which a cause was assigned, that is, in about half, the cause was one generally recognized as giving rise to multiple neuritis; for example, alcohol, septicemic processes, syphilis and acute infectious diseases.

When we come to consider the pathological findings, the majority of autopsies may be disregarded as not sufficiently complete and accurate from a microscopical and bacteriological point of view to be conclusive. Certain it is, however, that various careful post-mortem examinations have revealed sufficiently marked changes to give a clue to the process; notably the following:

Centanni found marked interstitial neuritis, and micro-organisms in the cord. Oettinger and Marinesco found nothing in the peripheral nerves, but in the gray matter of the spinal cord found infiltration of vessel walls with leucocytes, the latter filled with microbes (*diplococcus*), also with megarocytes with vacuoles and degeneration due to streptococcus. Eisenlohn found degeneration of peripheral nerves, also acute myelitic processes, and micro-organisms in the cord, as well as in the peripheral nerves. Pitres and Vaillard found marked degeneration of peripheral nerves, nothing in the cord. Baumgarten and Curschman found respectively, bacilli of malignant pustule and of typhoid in the cord. Hun, who opposes the view of neuritis, and regards the disease a clinical entity, found only a few degenerated fibres of the anterior roots of the cauda equina, and cerebral and spinal meningitis of recent origin.

In view of the frequent implication of the cord, as demonstrated by autopsy, it may be pertinently asked, why classify the disease under neuritis? But, conversely, it may be asked why, in view of the frequent implication of the peripheral nerves, should it be classed under spinal diseases? In other toxic disorders, notably lead-poisoning and diphtheritic paralysis, in which peripheral neuritis is considered the essential process, the cord is sometimes also invaded, and cases of so-called Landry's paralysis, though more acute, correspond much more nearly to this type of disorder than to disease of the cord. This is certainly true of the convalescent cases, which offer opportunity for careful study, and even in the cases rapidly succumbing to the overwhelming effects of the poison, signs are present that the nerves are also affected (pain and tenderness being frequently present) though the cord and brain are also attacked by the products of infection. The restlessness and hysterical tendency often noted at the onset certainly point to temporary involvement of the former organ.

The cranial nerves are occasionally affected, though the cerebral symptoms are generally limited, if present,

to those mentioned. In our case the restlessness was extreme, and temporary diplopia showed slight implication of the cranial nerves, other than phrenic and pneumogastric.

The foregoing considerations would seem to justify material modification of the disease. Perhaps it might fairly be described as follows:

Landry's paralysis is an acute toxic disease, characterized by rapid loss of power in the lower extremities, trunk, and to a less degree in the upper extremities, affecting also the vagus and phrenic, sometimes other cranial nerves. The affected muscles are lax. Pain, paresthesia, anesthesia, and tenderness are generally present in varying degrees, though in some cases sensory disturbances are wanting. Death follows in more than half (64 per cent.) of the cases. Recovery when present is very slow. The reflexes, deep and superficial, are lost at an early stage; wasting and degeneration reaction appear if the patient survives. The process is a toxic affection of the peripheral nerves (neuritis), cord and brain, the former being the essential and persistent lesion.

These introductory observations will enable us to appreciate, on the one hand, how closely our case conforms in its essential characteristics to the type of so-called Landry's paralysis, and, on the other, how appropriately it falls under the head of the now well-recognized toxic multiple neuritis.

The discussion of its etiology I leave to those more learned in bacteriology than myself; but in view of a possible connection with the surgical experiences through which the patient has passed, I have invited Drs. Cabot and Harrington to be present, as well as Dr. Gannett, under whose care he came during the paralytic stage, and to whom I am greatly indebted for asking me to see the case in consultation, and for allowing me the opportunity to study and report it. I wish also to express my appreciation of the careful hospital reports for which the history is mainly taken, and specially those of Dr. Joslin, who followed the case with great care and completeness during the period which was of special interest from a neurological point of view.

The patient is a man about thirty years of age, of Irish extraction, a letter-carrier. Admitted into Dr. Cabot's service February 15, 1895.

Family History.—Father had kidney and asthmatic trouble; is said to have died of *la grippe*. Mother suffered from nervous prostration, and is said to have died of heart failure. Two brothers and two sisters died in infancy. One brother is in good health but nervous; two sisters are living, not very strong.

Habits.—No tobacco. Gonorrhea at seventeen; again at twenty-four. No history of other venereal trouble.

Patient's History.—Has had scarlet fever, measles, varioloid, and whooping-cough; *la grippe* five or six years ago. As far back as he can remember, has had to get up at night to pass water; no incontinence. After the first attack of gonorrhea had the usual burning and frequency of micturition. Discharge lasted nine months. Was then perfectly well till second attack of gonorrhea. This attack was followed by the same symptoms, and lasted for about the same time. When in health has had to pass water every two hours. Beginning September, 1894, micturition was very frequent (from two minutes to three hours). He stopped

work. Had chills and fever at night, and profuse sweating. There was flatulence at night. Slept fairly well. Appetite was poor; lost weight. On coming under Dr. Cabot's care had lost ten pounds since January 1, 1894. There was pain in the left renal region and in the left groin, and the kidney could be felt as a distinct tumor which was not tender to pressure. Jolting made micturition more frequent and increased the pain. There was a smarting sensation through the rectum and bladder after passing water. Has not been a heavy drinker, though a more or less steady one. Repeated examination of the urine failed to show tubercle bacilli.

Examination under ether by Dr. Cabot showed no stone on sounding.

On March 14th there was, on the whole, less pain than at entrance. The urine was of good quantity, and contained less sediment. There was still much pus, small round cells and blood globules; albumin, a trace. Repeated examination showed no tubercle bacilli. He was transferred to Waverley, relieved.

He was re-admitted under Dr. Harrington, June 3, 1895, with the following history: Since discharged, symptoms have remained much the same, but has lost gradually a little in general health. Still abundance of pus in urine; pain in left side. Kidney can be felt on the left, enlarged and somewhat tender. Patient is very thin and anemic, though strong enough to walk about. Put to bed and watched. Alcohol with dinner. Strychnia, one-sixtieth, t. i. d. No tubercle bacilli in the urine. Dr. Harrington operated June 11th.

Operation.—Ether administered. An incision, four inches long, was made in the left flank, one inch above, and parallel with, the crest of the ilium. The incision was carried into the peri-nephritic fat, and the kidney isolated with the fingers. The surface of the kidney was exposed by dissection from the peri-nephritic fat over a space of several inches. Puncture with the aspirating-needle directly into the kidney substance revealed pus. An incision, two inches long, was made into the kidney substance, and was followed by a gush of pus. Washed out with boiled water. The finger introduced into the kidney felt calculus. This was withdrawn between the curette and the finger. Cavity douched with boiled water. Further exploration with the finger into the kidney showed tissue very friable and infiltrated with foul pus. Another large pocket of pus was found containing a calculus, and douched as before. In this way another pocket was opened, and five calculi in all, varying in size from a pea to a small marble, were removed. Several ounces of foul pus were removed and the cavity cleaned out as thoroughly as possible. At the end of the operation the finger enters three cavities, the middle being the deepest and having a smooth lining supposed to be the dilated pelvis of the kidney. Drainage-tube surrounded with gauze inserted to the bottom of this cavity; the other two cavities packed with iodoform gauze. Dry dressing. Considerable shock after operation, but patient responded to stimulation with brandy (enema) and subcutaneous injection of strychnia.

Second day, patient very weak and all motions extremely painful. Much discharge, and dressing soaked with urine. Tube syringed with boracic acid, 1 to 40. Half an ounce of brandy every four hours.

Fourth day, still weak and motion painful. Pulse small and quiet. Strychnia, one-fortieth of a grain every three hours.

Seventh day, patient very comfortable. Pulse good. Passed 64 ounces of clear, pale urine. Dressing the same, but tube has been removed.

Ninth day, rapid general improvement. Has no pain, and moves freely. Is gaining flesh.

Twenty-fifth day, improvement seen every day in flesh and strength. Has been up and about for some time. A sinus three or four inches deep extends inwards and backwards. There is a line of granulations. Considerable discharge of pus, though free from pain. Patient discharged much relieved.

Re-admitted under Dr. Gannett's service August 28, 1895.

Last Friday night pain appeared in right lumbar region, and has been constant, though varying in intensity to time of entrance. Sunday night there was pain on both sides in the lumbar region. This extends through thighs to knees, also through to legs and buttocks. Pain in legs came Monday night, lasted twenty-four hours. Yesterday morning lost control of both legs within a few hours. Can move toes only. Sensation not affected. Vomited considerably Monday, but not since Tuesday morning. Diarrhea Monday, none since. No incontinence of feces, but has scalding movements. Urine passed in spurts. Catheterized yesterday afternoon by Dr. Harrington, and has not passed urine since. No cough, no palpitation. Yesterday and to-day has had chills and sweating lasting for a few minutes. Has had severe headache for three days. Has noticed no change in eyesight. Some twitching of legs, with an occasional cramp in calf of both legs. A sinus in left back at seat of wound has discharged since he left the hospital. Leucocytes 16,000 (3.25 p.m.). Urine; color normal, acid, 1020, slight uric-acid zone; albumin, one-eighth; sugar, none; urea, 2.08 per cent. Many hyaline and colorless fine granular casts, chiefly of small diameter. Some with a few renal or blood corpuscles adherent, occasionally blood corpuscles, normal or abnormal, free and on casts.

Physical Examination.—Man of small size, well developed, fairly well nourished. Pupils alike, and contract. Expression anxious and nervous. Lungs negative. Heart apex at fourth space, within nipple line. No murmurs. Abdomen: Below right costal border, two inches from median line, is a rounded body, which protrudes very slightly on inspiration, probably right kidney compensatorily enlarged. On left flank is a scar representing the seat of operation, with sinus from which a moderate amount of pus is discharged. Sensation perfect. All reflexes absent. Legs flaccid, not atrophied. In the afternoon dull headache with nausea and vomiting every half hour. Dr. Gannett considered patient uremic.

Pilocarpine, one-eighth of a grain, subcutaneously at 9 p.m.; blankets. Perspires freely. Nausea persisted till 11 p.m. Then slept three to four hours.

Third day (from onset of paralysis). No headache, no dulness. Sinus discharging freely. Potas. citrat., 60 grains every four hours. High oil injection, followed by enema of suds and glycerine.

Fourth day, passed 25 ounces of urine. No longer necessary to catheterize. Urine: color normal; reaction neutral; specific gravity, 1028; urea, 3.28 per cent.; albumin, one-eighth; sugar, none; sediment slight. Speech hitching. Diplopia. Partial paralysis of left arm, with complete paralysis of both legs, save for slight motion of toes of right foot. Cannot turn

in bed. Constantly asking to have position changed on account of pain in legs. Not able with both hands to draw up foot by means of a bandage fastened on toes.

Fifth day, ophthalmoscopic examination by Dr. Amadon. Fundus normal. Reported very restless at night. Trional, 20 grains, in hot milk. Slept one and one-half hours.

Sixth day, restlessness continues.

Seventh day, so very restless that a special night-nurse was ordered, who reported: "Very nervous and restless from 8 to 1.45, urging to have position changed every two to ten minutes. Pain in thighs all night. From 1.45 A. M. to 5.30 called every twenty to thirty minutes to have position changed. Remainder of the time very nervous and depressed. Slept in all one hour and thirty-five minutes." Similar nights for about one week. No renal symptoms from this time. Sulphonal and trional, each, ten grains every night for four nights.

Fifteenth day, involuntary defection this morning.

Eighteenth day, still involuntary defection. Patient cannot cough.

At this time the complete physical condition (nervous) is as follows: The limbs are perfectly flaccid and absolutely powerless. Both legs are quite cool, except slight plantar flexion of toes. There is tenderness of the sciatic and peroneal nerves, and in the muscles of the calf and thigh. The lightest touch is everywhere felt, though patient states that the electricity is not so plainly felt over the legs, as, for example, on the right shoulder, and not so plainly in left upper arm as in right. The breathing is very superficial, chest expansion very slight. Abdominal respiration better than intercostal, but apparently impaired. Patient apparently unable to cough, sneeze or blow the nose. Absolutely unable to roll over in bed. Cannot expel feces. The movements of the right arm fairly good. In left arm, loss of biceps, triceps and deltoid. Movements very feeble in pectoralis major, supinator longus, extensors and flexors of the wrist, interossei, thenar and hypothenar muscles. Movements of neck and face unaffected. All reflexes, deep and superficial, lost. Movements of eyes normal, pupils unaffected.

Twenty-ninth day, breathing better. Facial expression better. Wasting of muscles has appeared, being especially noticeable in the thenar and hypothenar muscles. Pulse has varied between 100 and 140.

Thirty-second day, moves left arm a little more. Has not moved legs since entrance.

Forty-sixth day, can now take a long breath. Respiration still largely abdominal. Voice stronger. Pulse 120, respiration 22. No loss of tactile or temperature sense. Finger movements very good in both hands, and patient extends the right wrist well, the left rather feebly. Flexes the wrist well on the right, rather feebly on the left. Ability to cough slightly improved. No return of reflexes. No power in deltoids or triceps of either side. Complete paralysis of lower extremities persists, with marked wasting and coolness.

I have recently seen the case through the kindness of Dr. Monks, under whose care he is at present, at the City Hospital. It is now nearly three months since the onset of paralysis. The reflexes are still abolished, and no power has returned in the legs. Movement of the left arm has improved somewhat, and the muscles of the hand have begun to fill out.

Power of retaining and expelling the feces has improved. There has been slight return of power of erection. Temperature has remained normal; the pulse has varied from 64 to 120; the respiration is constant at 25. The patient reports that he sleeps better and feels stronger. Moderate tenderness and pain persist, especially when he is moved.

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OBSERVATIONS UPON RELAPSING APPENDICITIS, WITH A RECORD OF THIRTY-TWO OPERATIONS WITHOUT A DEATH.

BY ARTHUR T. CABOT, A.M., M.D.

SINCE my first operation done for relapsing appendicitis in an interval between the attacks in October, 1890, my experience has led me to become more and more in favor of this method of procedure, and to believe that by generally adopting it we shall save a certain proportion of these cases from sudden fatal inflammation, while certainly relieving all of them from continually recurring discomforts which interfere with their enjoyment of life and with their attention to business.

I find, however, that some of my colleagues are still in doubt as to the wisdom of interference in this class of cases. The experience from which final conclusions can be drawn must be wider than that accorded to one man. That which I have learned from my cases is now published in order to put it within the reach of all those who are thinking and working upon this subject.

The operation done between attacks, when the tissues are in a comparatively healthy state, and not already filled with micro-organisms, is free from many of the difficulties and dangers which surround the acute attack, and consequently its mortality is comparatively trifling. Dr. Bull's statistics put it at about three per cent., and probably, with improved technique and experience in meeting the difficulties encountered, this percentage can, in the hands of good operators, be materially reduced. My personal experience comprises thirty-two operations done upon thirty-one patients without a death.

It is difficult to estimate what would be the mortality among these patients if left to themselves to be operated upon only in case of a severe attack. Some of them might get along without operation. But while reckoning these to the credit of conservatism, we should put on the other side of the account those patients, not a few, who have lost their lives through pursuing the Fabian policy. I can recall several cases in which the expectant plan was followed, and in which an acute attack came on with such rapidity that, in spite of prompt surgical interference, the patient succumbed. I have had one case within a short time where the patient had been long subject to these attacks, and was recovering from one when I saw her. I advised an operation in an interval, but it was not deemed necessary. Two months later I was summoned to operate in an acute attack, and, although my operation was done within ten hours of the onset of pain, I found a perforated appendix with from six to eight ounces of sero-pus free in the peritoneal cavity. Fortunately, our prompt interference saved the patient; but the result might have been quite otherwise had circumstances caused any further delay.

These are the cases which make the slight risk of an operation during quiescence justifiable and of wise acceptance.

There does not seem to be any sure way in which we can separate the cases in which we are to fear acute inflammation from those that are likely still to run a subacute course. I am inclined to feel that if the patient continues to have slight discomfort in the iliac region after the acuteness of the attack subsides, that that is a case in which an operation is imperative. These are the cases in which the appendix is often palpable and tender to pressure.

Also the degree of severity of past attacks will guide us somewhat in judging of future ones, and if they are successively increasing in severity, an operation will appear more urgent than when they are pursuing a steady subacute course.

It sometimes happens on the other hand, that a severe attack may bring about a spontaneous cure by causing obliteration or total destruction of the appendix so that after a very severe attack with evidence of abscess formation, it is well to wait for further evidence before deciding that the appendix must be removed.

The diagnosis of a relapsing appendicitis is usually not difficult. It happened, however, in one of my early cases, that several good observers were deceived and the appendix was removed in a case where subsequent developments showed the attacks to be probably due to irritation of the right ureter by the passage of oxalic gravel.

Since this experience, I have had three or four cases referred to me which were believed to have trouble in the appendix, in which careful study showed the pain to be due to oxaluria. I have also seen one case in which cancer of the head of the colon gave rise to symptoms which were ascribed to the appendix. With these exceptions the diagnosis has been tolerably clear.

Much has been written of late to show that the operation is a trivial one and of sure success. Such is a fact in those instances in which the attacks have been comparatively slight, or in which the operation has been done early, before the intestines have been seriously matted together and in which, therefore, the adhesions are soft and easily separated. When, however, the cecum and adjoining coils of intestine are firmly matted by extensive and old adhesions, it may become a difficult and dangerous undertaking to search for and remove the appendix; sometimes, indeed, as will be seen, the attempt has to be abandoned. It is in this last class of more serious cases that information as to the exact technique of the operations and the relief of symptoms obtained is especially desirable.

PATHOLOGICAL CONDITIONS FOUND.

In most of my cases the appendix was found distorted. In the majority of instances it was bent sharply on itself and bound down by adhesions. In one or two cases, it seemed clear that the distortion was due, primarily, to a short mesentery which held the appendix twisted back under the head of the colon. It was impossible to determine positively whether this condition was congenital or due to contraction of the mesentery by past attacks of inflammation. It seemed probable, however, in several of the cases, that a congenital shortness and malposition of the meso-appendix had caused a predisposition to inflammation.

In almost all cases the appendix was firmly adherent, often buried between coils of adherent intestine, and very difficult of removal. In a considerable proportion of the cases the appendix was deeply buried, and firmly adherent beneath the head of the colon. In several of these distorted appendices intestinal concretions were found.

In one case the appendix was perfectly straight, stretching down into the pelvis beside the rectum, and was held in that position by a firm band of adhesion attached to its tip. The distal half of the appendix was very narrow, nearly obliterated; then came a dilated portion in which lay a fecal concretion, about the size of a kidney bean; and then, just before its

entrance to the cecum, the appendix was again narrowed, so that the concretion was imprisoned.

In some cases, where the appendix was closely tied down, it was found upon separating it, that a perforation existed which was closed by the adhesion of the appendix to the omentum, to an adjoining coil of intestine or to the abdominal wall. Twice a little abscess cavity was found, communicating through a small opening with the interior of the appendix, and evidently discharging through it.

Besides these grosser anatomico-pathological conditions of misplacement, twist, foreign body and perforation, there were other changes which required microscopical examination for their right understanding.

In some appendices a considerable ulceration of the mucous membrane and infiltration of the deeper layers with small cells was found at the time of operation. In others, cicatrices of mucosa with thickening of the outer coats gave evidence of previous ulcerations; and in some, the mucosa had been entirely destroyed over considerable surfaces, and the lumen of the appendix was much narrowed or even closed by the subsequent cicatrization.

A portion of the distal extremity of the appendix may be thus shut off from any communication with the bowel; and if, in subsequent attacks of inflammation, fluids accumulate in this distal portion, they are likely to lead to rupture of its wall, with infection of the peritoneal cavity. In some cases considerable portions of the tube are wholly obliterated, and if the terminal portion is thus closed, it is, of course, a conservative happening.

Some time after this was written the paper by Dr. Senn appeared in which he describes, at some length and with microscopical illustrations, the pathological processes by which this gradual obliteration is brought about. While I have not, as yet, happened to meet with cases in which the process has affected so large a portion of the appendix as in some of his cases, still the condition described by him was precisely the same as that I have roughly described above.

I now come to the final group of cases that I have met with, and to which I wish to draw especial attention. These are four cases in which, after as thorough a search as I felt at the time to be justifiable, I failed to find the appendix. In one of these cases I found and removed it at a subsequent operation. In all of these cases the coils of the intestine about the cecum were bound together by many and firm adhesions.

It is often difficult at a post-mortem to thoroughly understand the relations of contiguous and adherent coils of intestine, and this can sometimes only be accomplished after the bowel has been opened, so that its lumen can be followed. How much more difficult is it, then, to speak positively of these relations in cases in which the cavity of the intestine has to be respected, and in which also, the investigation is necessarily carried on through a limited opening?

In view of these difficulties, these observations upon the anatomical relations found in these cases are offered with reserve.

CASE I¹ was that of a boy, twelve years of age, who had had his first attack of abdominal pain nine months previous to the operation. Following this,

he had had more than a dozen similar attacks, which had gradually come closer and closer together, and latterly a tumor about the size of an orange had appeared in the right iliac fossa. This had been persistent for two months, although diminishing somewhat in size between the attacks.

At the operation this tumor was found to be made up of a bunch of omentum and coils of intestine bound together. On pulling these aside, the cecum was uncovered. The tendinous line down the front of the cecum disappeared at its lower end, looking as if the appendix was curled in beneath the caput coli and adherent in that position. Careful palpation could not detect anything that felt like an inflamed appendix in that situation. An attempt was made to dissect out the cecum, in order that a search might be made for the appendix beneath it, but presently the outer layers of the intestinal wall began to give way and the attempt was abandoned. The boy made an excellent recovery. He had one or two slight feelings of discomfort in the abdomen soon after his return home, and since that time he has been perfectly well.

CASE II. J. B., a man of thirty-one, began in the latter part of the year 1888 to have attacks of pain in the right iliac region. In 1889, he was in the Massachusetts General Hospital with such an attack, which was not accompanied by high fever and soon yielded to remedies. In October, 1893, he re-entered the hospital with the history, that, since his last visit there, he had engaged in light work, but had had discomfort pretty constantly in the right iliac region. A hard, cord-like mass was to be felt in the region of the appendix just on the brim of the pelvis.

October 23, 1893. Under ether an opening was made in the right linea semilunaris. The ileum was found twisted down over the lower end of the cecum and firmly held there by dense adhesions. The cecum was also bound down posteriorly by a dense mass of fibrous tissue. The ileum was freed as far as possible and it was then found that the tendinous line disappeared beneath the head of the colon as if the appendix were buried beneath the cecum. Nothing, however, could be felt of it, the mass which had been felt before the operation proving to be merely dense fibrous tissue. The colon was dissected up considerably from its posterior attachments, but no trace of the appendix could be found. The opening was closed after relieving as far as possible the adherent condition. I heard from this patient in the middle of January, 1894. He said that he had enjoyed good health since the operation and had had no pain at all. He had gained eighteen pounds.

CASE III. B. F. D., a spare man of forty-nine, was sent to me in January, 1894. His abdominal trouble dated from June, 1891, when, after many indiscretions of diet, he had an attack of general abdominal pain with a temperature that ran as high as 102° F. The bowels were inactive for a number of days, and the pain was more severe in the right inguinal region than over the rest of the abdomen. After this attack which lasted for three weeks, he had a number of others, similar in nature, but of less severity.

When I saw Mr. D., he had considerable tenderness over the seat of the appendix, but no tumor could be felt even on deep palpation. It was evident from the history that he had had at least one sharp inflammatory attack in the cecal region, probably appendicitis. From the tenderness existing at the time of my

¹ Reported in the Boston Medical and Surgical Journal for July 27, 1893.

examination, it seemed pretty certain that some chronic inflammatory condition still persisted there. From my notes I find that I wrote his physician at the time that, "possibly his discomfort was largely due to adhesions in that region." I operated on Mr. D. on January 25, 1894.

The coils of intestine about the cecum were much bound by adhesions, with the ileum twisted down sharply over the lower end of the cecal pouch and held there by adhesions to the parietal peritoneum over the iliac muscle and vessels.

These adhesions were readily separated, and the ileum was pushed over towards the middle of the abdomen. This entirely uncovered the cecum, and the anterior tendinous line disappeared beneath its lower end without any vestige of an appendix being visible or palpable.

An attempt was made to separate the cecum from its posterior attachments, so as to get at the appendix which presumably lay behind it. It was presently found that the intestinal wall was giving way, and here, too, the attempt to find the appendix was abandoned. I was encouraged to stop the operation at this stage by the success which had attended the simple breaking up of the adhesions in the two previous cases.

The relief obtained, however, was not as distinct as in the former two instances, and I have lately heard (November, 1895) that he still suffers from discomfort in the cecal region with occasional attacks of pain.

CASE IV. Just after my operation on Case III, I had another very similar in many respects, and in which I had an exceptional opportunity to see how a moderate degree of inflammation may lead to very extensive adhesions causing a constantly progressive and finally serious intestinal obstruction.

The patient was a physician, so that his accurate history may be relied upon.

H. J., born in 1859, remembers to have had in 1877 a moderate colic, not accompanied by vomiting, with which he was laid up for but a few days. In 1886 he had a similar mild attack of abdominal pain. In October, 1892, this was again repeated, still without nausea. In January, 1893, he had a more severe attack, associated with vomiting and diarrhea. In February he had two attacks, and now for the first time there was localization of pain in the right iliac region. In March he had two attacks, and during that summer he had two slight attacks unattended by nausea.

In October, November and December he had attacks of some severity, but never lasting for more than two or three days. In none of the attacks up to this time had the temperature risen above 100° F.

In January, 1894, he had two attacks, and I saw him for the first time in the last of these. The history, together with the localization of pain in the right iliac region, seemed to point to the appendix as the seat of trouble, and I advised an operation which was carried out on February 1, 1894.

The ileum was found twisted across the cecum, as in the three cases just described, and adherent to it and to the brim of the pelvis. Although the pain of the last attack has subsided a week or ten days before this operation, the adhesions were in a rather active state of inflammation, being much reddened and covered by a layer of greenish-yellow friable lymph.

This was readily wiped away, and the adhesions

were broken up until the intestines went easily back into their normal position. On uncovering the cecum, it was found that the appendix was buried beneath it exactly as in the three cases just reported. There was no appearance of inflammation about it and it was not so thickened or enlarged as to be perceptible to the touch.

The intestinal walls were somewhat softened by the inflammation still present, and showed a tendency to tear when efforts were made to separate the cecum from its posterior attachments.

The limitation of the evidences of active inflammation to the outermost adhesions and the absence of any induration or swelling about the appendix made me hopeful that the present troubles were mainly due to the adhesions and therefore likely to cease on the restoration of the intestines to their normal position. The operation was therefore stopped after this was accomplished.

Sixteen days after the operation there was an attack of nausea and abdominal pain without special localization in the right iliac region. Ten days latter there was a similar attack; and after this for some time these attacks repeated themselves about once a fortnight, and then began to come somewhat more frequently.

They were usually relieved and seemingly cut short by laxative remedies.

In the autumn they began to be more and more severe, until in December, 1894, they came every week, and there was discomfort in the right iliac region most of the time.

In all of these attacks the distinctly obstructive nature of the symptoms was very marked.

It was decided to again operate and to remove the appendix, as it was believed that it must be the point of irritation which was responsible for the re-formation of the adhesions.

On December 30th, the patient went to a private hospital, and at once began an attack which proved the most severe he had ever had, culminating in very distressing fecal vomiting.

On January 8, 1895, after the subsidence of this attack the operation was done.

Again the intestines about the cecum were found very adherent. The adhesions were firmer and more extensive than before, but showed no signs of recent inflammation.

The tendinous line upon the front of the cecum was followed down where it turned beneath into the post-cecal pouch, and after a long dissection the appendix, which was firmly bound over its whole surface was finally freed and removed. It was not enlarged but showed the signs of old inflammation by a partial obliteration of its lumen. No signs of any recent inflammation were apparent, although as has been said, the patient was just recovering from the most severe attack of pain and obstruction that he had ever had.

The recovery from this operation was uneventful, and it was followed by a complete restoration to health, the patient gaining thirty pounds in the next few months.

It was interesting in this case to notice what an extensive tying up of the intestines resulted from an appendix which showed no signs of any active inflammation; and yet that the appendix was responsible for the adhesions cannot be doubted in view of the entire relief which followed its final removal.

It is interesting to contrast the first two cases, in which entire relief followed the separation of adhesions, with the two later cases which were to all appearances similar in anatomical condition and yet were not relieved by a similar operative procedure.

It would seem probable in the former cases either that the appendix had been destroyed by sloughing or by chronic obliterative inflammation, or that the inflammatory condition in it had so far subsided that when the adhesions were once separated there was no tendency for them to form again: while in the last two cases a very slight chronic inflammation of the appendix remained, which was enough to lead to a renewal of the adhesions even after they had been thoroughly separated.

The outcome in the earlier cases encouraged us to hope much from a simple freeing of adhesions in cases where the appendix seemed quiescent and could only be reached by extensive dissection. In fact it was so favorable as to make a difficult dissection seem unjustifiable in similar cases. But the later cases demonstrated the impossibility of determining when a buried appendix was quiescent and showed the importance of making the greatest possible effort to reach and remove it in every case.

I shall do a second operation on Case III, if the patient continues to have enough discomfort to lead him to consent.

In the *British Medical Journal* for March 9, 1895, Mr. Treves reports a series of eighteen cases, in two of which a condition similar to that just described was found and in which the appendix was not removed. Relief followed the operation in one of these.

Cases 20 and 36 are included in this table even though they were operated upon during the attack, because in both of them the inflammation found was of so mild a grade that, after the removal of the appendix, the abdomen could be tightly closed.

Case 20 was of especial interest clinically, for, although there was severe pain and a temperature of 102° F., the appendix was found only moderately swollen and injected. The peritoneum in the neighborhood was also injected as if it were being subjected to severe irritation. Unfortunately, I did not have a culture tube with me to test the possible presence of organisms outside of the appendix.

CHARACTER OF OPERATION.

The incision was made, in these operations, through or close to the linea semi-lunaris. The opening in the muscular wall was rarely over two inches in length and there was usually no difficulty in finding and freeing the appendix. Occasionally, the use of the Trendelenburg position was of material assistance in enabling a deep-lying appendix to be uncovered and readily dealt with.

The method of treating the stump was, when possible, to strip back a cuff of the peritoneal coat and with catgut to tie off the appendix, flush with the bowel-wall inside of this cuff of peritoneum, which was then pulled over the stump and stitched with fine, continuous black silk. In all but one operation, the abdominal wound was tightly closed without drainage. In that case,² a small abscess was found deep below the cecum in connection with the end of the appendix, and it was thought safer to leave a tube and wick of iodoform gauze reaching down to its cavity.

² No. 9 in the table.

RESULTS OBTAINED.

Besides the relief from periodic attacks of inflammation, it has been quite a common experience with me to see the operation work a total change in the digestive powers of patients. Two of them who are physicians have especially noted the fact that since the removal of the appendix they can, with immunity, indulge in the pleasures of the table as they never could before. In a large proportion of cases there has been a substantial gain in weight, reaching about thirty pounds in several instances.

It is too soon to know how many of these patients will have trouble from hernial protrusion through the scar; but, as yet, nothing of this sort has occurred in any of them, and in but one case has the scar shown any sign of stretching. In that case there was supuration in the wound due to infection of it from the appendix, which contained pus.

Clinical Department.

A CASE OF ACUTE OSTEO-ARTHRITIS INVOLVING THE WHOLE CERVICAL REGION OF THE SPINE, IN A WOMAN NEARLY SIXTY YEARS OF AGE, WITH RECOVERY.

REPORTED BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

CASES of acute osteo-arthritis in which the spine is involved are not common, and it is for this reason that the following case is reported.

The patient, a woman fifty-eight years of age, by occupation a nurse, had always been well and actively engaged in her work until the present sickness. Her family history is good, and she has never had the least trouble from rheumatism.

In July, 1893, she was caught in a thunder-shower, and her clothing wet through. The next morning she complained of pain in the neck, with some tenderness in the upper part of the chest. There was no cough or expectoration. The pain in the neck increased in severity very rapidly, until the slightest motion caused the most intense suffering, and because of this the patient was admitted to the Good Samaritan Hospital. The patient entered the hospital in the service of Dr. Coolidge; and it was through his kindness that I was enabled to see her.

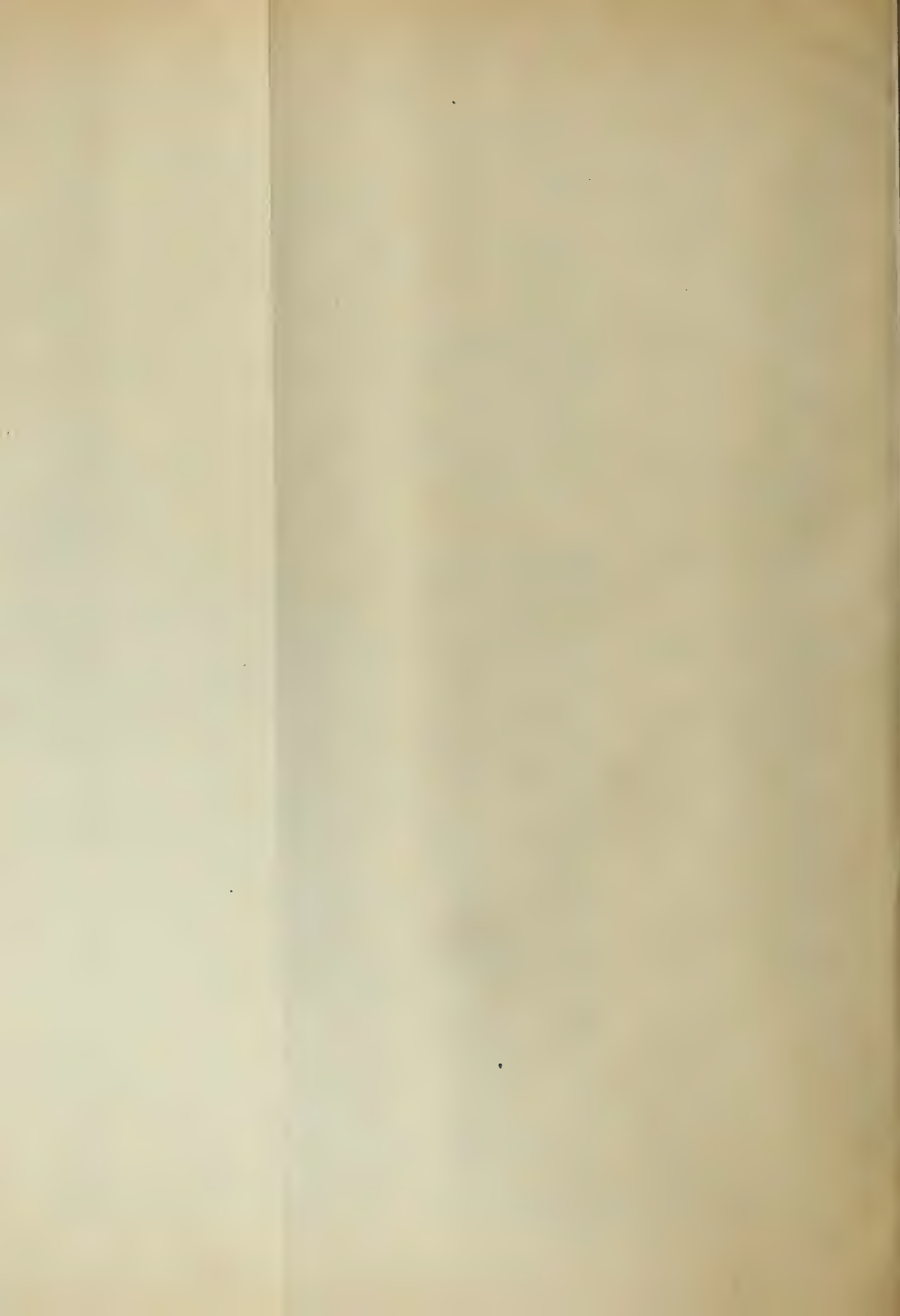
At the time of the first examination the patient was evidently suffering a good deal. The head was held a little to one side, the chin to the left, the shoulders drawn up, and all motions were most carefully guarded by muscular contraction. Any attempt at motion caused great pain. None of the other joints were in the least involved; and aside from this local condition the patient seemed well.

For the first week or two the patient was kept quiet in bed, and the various rheumatic remedies freely given with very little if any effect. After this a Thomas collar was applied for more complete fixation, and following this light weight extension was used. These gave some relief, but neither could be used continuously because of the nervousness of the patient; so that the two appliances were used alternately, each being worn for a few hours.

In three or four weeks after the beginning of the attack a swelling appeared in the right side of the neck. This was about the size of a small lemon, and was apparently connected with the spine. At the

THIRTY-TWO OPERATIONS FOR RELAPSING APPENDICITIS.—CABOT.

No.	Name.	Age.	Date of operation.	Attacks previous to Operation.	Condition found.	Subsequent History.
1	J. M. H.	25	Nov. 3, 1890.	First attack ten months before. Second attack four months before operation.	Appendix strongly bent beneath the cecum. Enlarged and thickened walls and ulcerated mucous membrane.	Entire relief.
2	P. McD.	12	July 24, 1891.	Nov., 1890. Since then twelve attacks.	Extensive adhesions of omentum and intestines separated. Appendix not found.	Two slight sensations of pain in abdomen after returning home. Since then perfectly well.
3	H. W. L.	22	Oct. 26, 1892.	First attack ten months ago. Eighteen attacks since.	Appendix twisted, thickened, and contained a concretion.	Entire relief.
4	F. C. A.	19	Nov. 1, 1892.	First attack a year and a half previously and second attack in April, 1892.	Appendix stretched down into the pelvis, narrowed near the bowel, containing a concretion.	Operation followed by entire relief.
5	P. C.	21	Jan. 11, 1893.	Had five attacks of appendicitis, first in March, 1889.	Appendix found constricted and bent upon itself with small perforation closed by adhesions.	Perfect health. Scar less solid than usual owing to stitch abscess. No hernia.
6	Miss M. M.	21	July 3, 1893.	Attacks for past five years. Five attacks since October, 1892.	Distorted and somewhat adherent appendix.	Relieved from the old pain. Scar solid.
7	W. F. B.	19	July 13, 1893.	First attack one year before. Since then two attacks.	Appendix twisted and tied in behind cecum by adhesions.	Entirely relieved.
8	Dr. H.	40	Aug., 1893.	First attack in 1885. Since then attacks every few months. These moderate in severity till 1893 when they became more severe.	Distorted and somewhat adherent appendix.	Entirely relieved of attacks. Chronic indigestion also relieved.
9	N. A. J.	34	Aug. 19, 1893.	In June, 1893, had sharp attack of colic with chills and vomiting. In bed twenty days. Afterwards pain persisted in right side and leg. Worse when walking.	Appendix extended into pelvis where there was a little abscess in communication with the end. Gauze and drainage tube.	Entirely relieved.
10	F. Q.	23	Aug. 26, 1893.	First attack five years ago. Three attacks since January, 1892. Last one August 13, 1893.	Appendix much enlarged, perforated at tip and in middle and wholly enveloped with adhesions.	Entirely relieved.
11	H. K. P.	24	Sept. 18, 1893.	Five attacks in year preceding the operation.	Appendix sharply bent on itself with a perforation at the bend which was closed by adhesions.	One month after operation had abdominal pain, relieved by laxatives. Since then well. Gained ten pounds in the next year.
12	F. E. H.	16	Oct. 11, 1893.	In February and July, 1893, severe attacks. After July an attack every three or four weeks.	Appendix so sharply twisted as to make almost a complete knot.	Entirely relieved. Gained seventeen pounds in three months.
13	J. B.	26	Oct. 23, 1893.	First attack in 1889. Constant discomfort and tenderness since, with about two sharp attacks yearly.	Many adhesions separated. Appendix buried beneath caput coli and not found.	Entirely relieved. Gained eighteen pounds.
14	Dr. S. E. W.	39	Nov. 27, 1893.	First attack in 1883. Next attack 1890. After these attacks about once in four months.	A stiff-walled appendix with a concretion in the terminal portion, bent sharply upon itself at about the middle and adherent to the colon.	Weight increased from 108 to 135 pounds. Entire relief of troublesome indigestion and great improvement in nervous tone.
15	B. F. D.	49	Jan. 25, 1894.	First attack in June, 1891.	See Case III in the body of the paper.	Entire relief, except for neuralgia in right leg during the following March. This promptly passed off.
16	Prof. H. G.	54	Jan. 30, 1894.	First attack in Oct., 1893. Second one in Dec. and a slight one in Jan., 1894.	Appendix bent in beneath caput coli, and adherent there. Narrowed in places by chronic inflammatory thickening.	
17	Dr. H. J.	38	Feb. 1, 1894.	First attack in 1877, second attack in 1886, third attack in 1892. After Jan., 1893 he had about two attacks a month, except in the summer when they were less frequent.	Cecum and ileum tied up by extensive adhesions which were covered with greenish lymph. Appendix not found. See Case 22.	Slight relief from the severity of the attacks for a time, then progressively increasing severity of the attacks until finally the condition worse than before.
18	W. Y. P.	35	Feb. 22, 1894.	Troubled with indigestion for twenty years. First attack of appendicitis in 1884. Since then three or four moderately severe attacks a year.	Appendix straight but occluded at distance of one inch from the ileum.	Entirely relieved from the attacks.
19	Dr. F. W. W.	40 (?)	Feb. 28, 1894.	First attack fourteen years ago. Many mild attacks since. Had also oxaluria and a stiffness of back.	A twisted, adherent and partly obliterated appendix.	Subsequently developed Pott's disease with left psoas abscess.
20	Miss S.	19	Sept. 15, 1894.	For several months she had constant discomfort in right iliac region with occasional exacerbations of pain.	Operated in midst of attack with temperature 102°. Appendix congested and bent upon itself.	Entirely relieved of the discomforts and pains she had previously suffered.
21	I. R. T.	32 (?)	Dec. 14, 1894.	First attack in Aug., 1894, and after that about once a fortnight till time of operation.	Appendix large with thick walls and containing pus. It was adherent to anterior abdominal wall.	Entirely relieved and gained greatly in weight.
22	Dr. H. J.	39	Jan. 8, 1895.	See full history in the body of the paper. Second operation on Case 17.	Appendix shrunken and adherent behind cecum.	Entirely relieved. Gained thirty pounds.
23	G. E. S.	33	Feb. 9, 1895.	First attack three years ago. Since then many attacks not counted.	Appendix thickened and bound down by short meso-appendix.	Entire and lasting relief.
24	J. McF.	35	Feb. 15, 1895.	Doubtful attack fifteen years ago. Second attack in Jan., 1895.	Appendix thickened, twisted beneath cecum and adherent there.	Not heard from.
25	J. C.	33	Feb. 15, 1895.	First attack in April, 1894. Second severe attack in Jan., 1895.	Appendix doubled on itself and held by adhesions. Calibre partly obliterated.	Immediate relief of dragging discomfort.
26	W. C. C.	29	March 1, 1895.	First attack twelve years ago. Second attack five months ago. Since then about one a month.	Appendix tied by adhesions beneath the cecum.	Not heard from.
27	F. O. H.	33	March 1, 1895.	Two slight attacks in 1894. Severe attack in Jan., 1895.	Appendix adherent beneath caput coli and twisted on itself. Cheesy remains of pus about meso-appendix.	April 4, 1895 writes of better health than for years. Weight greater then ever before and still increasing at the rate of one pound a day.
28	A. F.	20	March 25, 1895.	First attack in Nov., 1894.	Appendix retrocecal. Held by adhesions, with dilated extremity.	Wholly relieved.
29	Kate L.	25	April 25, 1895.	Two attacks in Jan. and Feb.	Appendix long. Some adhesion about cecum.	Relieved.
30	A. F.	22	May 24, 1895.	One previous attack. Operation during an attack of moderate severity.	Appendix doubled on itself and bound down by adhesions.	Wholly relieved.
31	Miss E. F.	24	May 8, 1895.	One or two a year, since eleven years old.	Somewhat thickened appendix. Short meso-appendix. A few adhesions about the cecum.	Been perfectly well and gained twenty pounds.
32	D. G. E.	21	June 22, 1895.	Three attacks in past year. Two of them lasted about ten days.	Adherent and distorted appendix.	Wholly relieved.



same time numbness of the left arm was noticed, with some impairment of motion. This latter condition continued and increased until the arm was almost entirely helpless. The right arm and both legs also became involved, never in as marked a degree as the left arm, but enough to make motion unassisted in bed, impossible. At one time there was some difficulty in swallowing, and for some time the breathing was almost entirely diaphragmatic.

The patient's condition remained about the same for two months, after which there was a slow but steady improvement, so that at the end of the third month she was able to sit up for a short time each day, and in December, five months from the onset of the trouble, she was able to move about with but little assistance, and was taken home. The paralytic symptoms referred to the right arm and the legs had by this time practically disappeared, but the left arm was still very helpless. The swelling in the neck was practically the same as when first noticed.

The patient was not again seen until thirteen months later, during which time, aside from the Thomas collar no special treatment had been carried out. At the time of this examination the improvement in the patient's general condition was most marked. She moved about with perfect ease; and, aside from the stiffness of the neck and some impairment in the use of the left arm, she seemed well. Extension of the neck was entirely restricted, so that in order to raise the chin the whole body was bent backward. Rotation was also entirely restricted, while flexion of the neck was nearly normal, it being possible to lower the chin to the chest. On each side of the neck, over the transverse processes, was very distinct thickening, apparently bony in character.

In the left arm all motions were limited, especially those in which the shoulder muscles were used. The fingers were flexed, apparently due to contraction of the palmar fascia and the flexor tendons. The sensation of the arm and hand was normal.

At the present time the patient's condition is practically the same as at the time of this last note. She is able to be about at her work, but there has been no change in the condition of the neck or the arm.

In commenting upon such a case the chief interest lies in the diagnosis. Certain conditions can be eliminated at once or in a short time while with others positive differentiation is difficult or impossible. The fact that other joints are not involved, together with the effect of the salicylates, makes it easy to rule out acute rheumatism, while the history of the onset, this condition developing so rapidly, makes the chronic rheumatism improbable. The simple "crick" is rarely so severe and is well in a few days. Caries of the cervical spine developing after middle life is very rare; so that, while this may not be put aside entirely, it is improbable. The chief difficulty lies in differentiating osteo-arthritis from malignant disease; and this at times is impossible until after the lapse of considerable time. In the present case the positive diagnosis was not made until the improvement commenced. The history of the onset, if this can be depended upon, is at least suggestive; but the character of the pain is probably of as much importance as any one symptom. In malignant disease the pain is, as a rule, much more severe and more constant than in the bone inflammations, and fixation or drugs (aside from morphia) have no effect upon it.

The treatment of osteo-arthritis of the spine is largely palliative. Absolute quiet for the affected part is of first importance and for this purpose splints, bandages and various forms of apparatus are of use. In certain portions of the body extension can be employed to advantage to control the muscular spasm. Local heat is also of benefit. Drugs, aside from making the patient more comfortable, are of little use.

CLINICAL NOTES OF CATARACT PATIENTS.

BY DAVID COGGIN, M.D., SALEM, MASS.

DISLOCATION DOWNWARDS OF A CATARACTOUS LENS WITH NORMAL VISION.

Mr. W., forty, accountant, February 16, 1877. Was sent from a life insurance office because of poor vision of his left eye ($\frac{1}{10}$ and $\frac{1}{2}$, right). Incipient cataract, left, with fluid vitreous and floating opacities.

April, 1888. Mature cataract, left. With a cylindrical glass from an optician, vision = $\frac{5}{8}$, right eye. Cataract forming.

Christmas, 1889. Last evening suddenly observed "stars," and saw surrounding objects with his blind (left) eye. The opaque lens was found to be dislocated downwards, rising and falling with the movements of the eye. No pain or redness.

Later he sought his optician, who gave him a lens with which, one month ago, his vision was normal, or $\frac{5}{8}$. The upper edge of the cataract could be seen behind the lower border of the pupil. No pain or discomfort was complained of. The cataract of his right eye had so far advanced that he could count fingers only, half a metre off.

RUPTURE OF A PUPILLARY MEMBRANE AFTER REMOVING A CATARACT.

Miss S., sixty, April 1, 1877. Extraction of cataract from her left eye (Graefe modified). Healing process normal. Discharged from the Salem Hospital May 2d with a delicate membrane which prevented clear vision. Six weeks later, on examining the eye previous to performing a double-needle operation, it was found that a spontaneous rupture of the membrane had occurred, so it was necessary only to order the glass with which she could see well.

HEMORRHAGE AFTER EXTRACTION OF A CATARACT.

Mr. M., sixty-seven, master mechanic, September 9, 1880. Left eye lost, owing to an accident four years before. Mature cataract of the right. Patient timid, and insisted on inhaling ether, under the influence of which he came slowly and with considerable excitement. Lens apparently adherent inferiorly, so it was extracted with a scoop. Loss of a moderate amount of fluid vitreous. Scarcely any hemorrhage had accompanied the iridectomy. Half an hour later the eye looked well, the patient had about recovered consciousness, and the knit bandage was applied. On visiting him in the evening the dressings were found saturated with blood. He had vomited, or retched, most of the afternoon. The lips of the wound were separated by a firm clot of blood which was removed and the band was reapplied.

But little pain was complained of during the healing process. There was a good anterior chamber, a closed pupil, perception of light and no atrophy of the eyeball. No attempt was made later to improve the

man's vision (which, very likely, would have been unsuccessful), as he became insane and died shortly afterwards.

SPONTANEOUS EXPULSION OF CATARACTS, LOSS OF VITREOUS; GOOD VISUAL RESULTS.

W. H. P., forty-nine, master machinist, February 28, 1884. Cataract, right eye, six years. No ether. Section above. Patient steady. After lacerating the capsule the lens was suddenly extruded and with it a considerable amount of fluid vitreous, after which some normal vitreous protruded, which was excised. Healing process retarded, but the final result was good—vision being $\frac{2}{3}$ of normal.

January 18, 1888. Having seen to make a cart with his right eye, he wished to have his left one operated upon. Cocaine and pilocarpine anesthesia. Incision superiorly, with a small iridectomy as previously. Remembering how violently the cataract had escaped from the right eye, precautions were taken this time to prevent a recurrence of the same casualty. After making the iridectomy and incising the capsule and while reaching for a bit of linen, the lens was abruptly ejected (as from a catapult) landing on the lower lid. Vitreous gushed from the gaping corneal incision. Vision was $\frac{4}{8}$ on the 6th of February, when he was sent home.

MORSEL OF HORNBLLENDE IN THE LENS, SIMULATING STEEL.

G. T., thirty-one, foreman of quarry, December 12, 1892. While overseeing a workman, standing two feet away, he felt something strike his right eye, which was followed by a trickling of water. When seen by me a few hours later, there was a perforating wound of the cornea at the equator, on the nasal border of the pupil, through which iris tissue protruded. No blood to speak of within the eye. Lens becoming cloudy. On its surface there was the appearance of a particle of steel about two millimetres in diameter. It made no advance towards Dr. Bradford's magnet, however. Atropine was ordered, a flannel bandage applied, and the patient went home.

December 17th. Had no pain. Corneal wound closed. Prolapsed iris had disappeared within the anterior chamber. Cataractous lens beginning to dissolve, showing more clearly the foreign body.

December 27th. Had pain but once. Pupil regularly dilated. Lens quite opaque, apparently. Cocaine and sublimate. Linear incision with keratome. The foreign body (extracted with forceps) proved to be a particle of syenite about four millimetres in length, on the presenting end of which was the bit of hornblende that so resembled a fragment of steel! Only a thin layer of the front of the lens had become opaque so the patient was again sent home.

February 9th. With Teale's suction tube, removed the balance of the cataract.

Later, with a lens, his vision was $\frac{3}{4}$, being better than that of the left eye owing to the presence of an old cicatrix on the cornea of the latter. The right pupil was round and the point of entrance of the bit of stone could barely be recognized.

COLLAPSE OF CORNEA AFTER AN EXTRACTION.

E. S., seventy-six, book-keeper, October 15, 1894. Left eye lost twenty-five years ago after a cataract extraction. Vision of right, $\frac{1}{2}$. Lens becoming opaque.

February 2, 1895. Small iridectomy upward, preliminary to an extraction (and Förster's procedure).

March 9th. Removed the cataract. As it escaped through the incision, the very tenuous cornea collapsed, rising and falling as the patient breathed, or so it seemed. As on two or three previous occasions the thinned cornea had become sunken and wrinkled in the same manner at the time of the operation, and as the visual result was ultimately good, this eye was bandaged with hope. It was examined five days later, and found to present a normal appearance so far as the healing process was concerned. Subsequently, with his temporary glasses, his vision was $\frac{5}{12}$ of normal and he read the smallest Snellen type (0.5).

The experience of Dr. Derby in removing cataracts from the eyes of extremely old patients (see JOURNAL, September 26th) is most interesting. My own is more limited and mainly with younger people, though it accords with his.

In over a score in whom the age varied from seventy-five to eighty-eight, each one had useful vision.

In this connection it may not seem irrelevant to say a word in favor of home treatment when it is practicable. Most of these old patients lived within a radius of fifteen miles, thus they were able to undergo treatment in the midst of a familiar environment. Surrounded by members of the family circle, the days of confinement must have seemed less irksome and a favorable result was more likely to follow than if they had been treated at a distance from home and attended by strangers for two or three weeks. The case of an old lady of eighty, at the Salem Hospital a few years ago, who was found beneath her bed groping for something two hours after having had a cataract removed, is an illustration of this. She was sent to her home a fortnight later with good vision, however.

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., BOSTON.

SUB-CONJUNCTIVAL INJECTIONS.

MARTI,¹ in a dissertation upon sub-conjunctival injections, begins with a review of all the writings on the subject since the year 1866, when Rothmund, of Munich, recommended subcutaneous injections of common salt as a means of promoting the clearing of corneal opacities. In the clinic of Professor Schiess of Basle, the use of sublimate injections was begun in 1892, and gave, especially in the cases of hypopyon keratitis, satisfactory results, but was attended with much pain, and the production of inflammatory adhesions of the conjunctiva to the sclera in the region of the injection. Mellinger found, on experimenting with rabbits, that if the sublimate solutions were reduced to a strength of 1 to 4,000, no such results occurred. He, therefore, adopted the latter strength in treating the human eye.

The success obtained with this extremely dilute sublimate solution suggested the probability that it was rather the fluid than the disinfectant that was the efficient agent. Experiments in which a normal solution of common salt was substituted for the sublimate solution appeared to confirm this idea. Stronger solutions up to four per cent. appeared to answer still better.

¹ Inaugural Dissertation, Basle, 1894; Ophthalmic Review, July, 1895.

Since December, 1893, these salt solutions have been employed to the exclusion of the sublimate. The cases treated were chiefly those of destructive corneal ulceration. It is to be noted that the sub-conjunctival injections were not used as a substitute for the well-established treatment by atropine and hot fomentation, but in conjunction with it. Mellinger's conclusions, as formulated in Marti's dissertation, are as follows:

(1) Sub-conjunctival sublimate injections act favorably upon destructive corneal ulceration, but lead to adhesive inflammation and obliteration of the sub-conjunctival space.

(2) Sub-conjunctival salt injections render service of at least equal value, without the disadvantages of sublimate injections.

(3) The good results obtained by sub-conjunctival injections depend not upon a disinfecting action of the solution, but upon its quickening influence on the lymph circulation.

(4) The quickening of the lymph circulation causes a quicker absorption and elimination of the noxious material and thereby hastens the healing process.

(5) According to the experiments of Heidenhain common salt is among the most active of the substances which accelerate the flow of lymph; there is, therefore, a reasonable explanation of the good results which have been clinically observed.

OCULAR TROUBLES OF BICYCLE RIDERS.

Dubois² reports a case of a professional rider, twenty-four years of age, who was attacked with a peculiar visual disturbance during a twenty-four hours' race made in very cold weather. About the eighteenth hour he noticed that his vision was disturbed, that he steered badly and that he ran into other machines. Dr. Dubois found a diffuse disturbance of both corneæ without superficial lesion. He prescribed warm lotions and rest. The same evening the vision commenced to improve; the next day the corneæ had regained their normal appearance and the vision had its usual acuity. This trouble, according to the author, was due to the cold. It is interesting to note that in the race in question, the thermometer sank to 10° below zero, Centigrade. It is to be noticed that during the entire race there was a corps of pace-makers, who broke the force of the wind for the racers.

Clavelier³ gives an account of a man thirty-two years of age, who had ridden a race of twelve kilometres in which a very rapid pace was taken in the last four. He was seized with severe palpitations, which had scarcely terminated when there was a sudden diminution of vision of the left eye, falling to one-fourth, while the right eye remained normal.

Ophthalmoscopic examination showed traces of numerous hemorrhages.

Examination of the heart was negative, and the urine perfectly normal. There was no rheumatic, syphilitic, or alcoholic history; no anemia, and no lesions of the digestive organs. The evident cause of the hemorrhages was, then, the bicycle race.

MUSCÆ.

Gould,⁴ in an article upon muscæ, advocates a new theory as to their location, and says that with a slight upward movement of the eye the particles can be seen

to jerk upwards, and then if the gaze is kept steady to slowly fall by gravity out of sight in the dark parts of the chamber, and that this fact necessarily locates the chamber in front of the vertical equator of the eye. If the chamber were posterior to the equator, an upward glance would throw the particles downward, and he asserts that they must necessarily be in what he calls the aqueo-vitreous chamber, by which he means a narrow space between the vitreous body and the posterior surface of the lens, and maintains that because such a chamber has not been described by anatomists does not prove its non-existence, as the mere fact of opening the globe would destroy the space and the extremely thin film of liquid would disappear.

ERYTHROPSIA.

Fuchs,⁵ noticed on climbing a high snow-covered mountain that when he entered a hut erected on the top, everything appeared red. This suggested a series of experiments which seemed to show that in order to elicit the erythropsia in the normal eye, it is necessary to expose it for some length of time to the glare of the snow upon which the sun is shining, and that this was still more quickly accomplished if cataract cases were exposed to a reflection of light from the snow.

As a result of his experiments, he states that the erythropsia of normal eyes, as well as of eyes deprived of their lenses, is caused by dazzling, which need not be disagreeably strong, but must be of long duration. Exposure to sunlight reflected by snow is the most effective means of producing it. For most eyes, however, it is necessary that the dazzling shall take place high above the level of the sea, where the sunlight is stronger and also richer in short waved rays. He found by trial that the phenomenon was produced on patients who had been operated on for cataract, without regard to elevation above the sea-level. He draws attention to the fact that the color of the erythropsia is exactly like the color of the retinal purple, also that the erythropsia is, as a rule, less pronounced or entirely absent in the part of the field of vision which corresponds to the macula lutea, and thinks that by long exposure to strong light the retinal purple is bleached and the retina becomes uncolored, and that phenomenon is seen during the re-establishment of the retinal purple.

HYDRAULIC CURETTING OF THE CORNEA.

Santarnecchi⁶ says that 70 per cent. of ocular diseases are lesions of the cornea, and that they are those which compromise the integrity of the visual organ most severely, and that their treatment should be assigned the first place in all ophthalmic literature. He says that actual cautery, which not long ago seemed destined to supplant Saemisch's operation, seems destined to be given up after further experience, because it destroys healthy tissue together with the neighboring infected tissue and leaves a dense, white leucoma upon the healing of the wound. His method of procedure in cases of sloughing ulcers of the cornea he calls hydraulic curetting, which is nothing more nor less than syringing the ulcer with Anel's syringe, employing the large point which gives a filiform jet that is energetic enough to detach the portions of dead tissue which cover the fundus of the ulcerations. This is done under cocaine, the force of the stream being

² Annales d'Oculistique, April, 1895.

³ Archiv. Med. de Toulouse, April, 1895; Annales d'Oculistique, August, 1895.

⁴ Medical News, September 14, 1895.

⁵ Ophthalmic Review, August, 1895.

⁶ Annales d'Oculistique, September, 1895.

increased progressively until the last portion of adherent tissue is removed. When nothing more can be detached, the operation is stopped and a protective bandage is applied.

The immediate reaction following this method of treatment is insignificant. The parts of the cornea which were transparent become gray, but this cloudiness disappears in a few hours. The results are quite surprising: suppression of pain and photophobia with clearing up of the portions of the cornea surrounding the ulcers with greater rapidity than with any other method, and the repair is by a tissue which is frequently non-cicatricial, and capable of resuming its transparency so as to leave no trace of the lesion.

(To be continued.)

Reports of Societies.

BOSTON MEDICO-PSYCHOLOGICAL SOCIETY.

H. C. BALDWIN, M.D., SECRETARY.

MEETING of November 21, 1894, DR. C. F. FOLSOM in the chair.

DR. G. L. WALTON read a paper entitled

MULTIPLE NEURITIS THE ESSENTIAL ELEMENT IN LANDRY'S PARALYSIS.¹

DR. J. J. PUTNAM spoke of several cases which might be classified as Landry's paralysis, which had come under his observation. One case had been reported with autopsy, under the heading of acute fatal neuritis. In the first case, followed by death on the ninth day, leucocytes were found about the vessels of the brachial nerves of the left side, and much swelling of the axis cylinders. Similar conditions were found in the anterior crural nerve, though they were less marked. Healthy nerve fibres were found adjacent to diseased fibres, if swelling can be called disease. He should be inclined to agree with Dr. Walton's views with regard to the close analogy of the Landry symptom-complex to that of multiple neuritis; but multiple neuritis is itself a complicated matter, and it would seem to him more rational to preserve a name like Landry's paralysis, as identifying a class with a definite symptomatology, rather than limit ourselves to a term supposed to indicate the pathology. He alluded to the fact that the brain and spinal cord showed changes in neuritis, as in Landry's paralysis. In his own case the spinal cord was slightly involved, the axis cylinders in the lateral tracts being very much swollen here and there. As regards the etiology, the symptoms certainly occur under various conditions, but it is possible that the real causes are fewer in number, and this is the direction in which we ought to search. In one case the onset was preceded by a ride on the outside of a horse-car on a wet and cold night. In another case, that of a young girl, no exciting cause even was found.

In regard to the bacteriological findings, no particular reliance can be placed on the discovery of bacteria in small number, as in Centanni's case. In fact it is probable, or possible, that no characteristic bacteria will ever be found, the process being perhaps the result of a toxin or ptomaine poisoning. Even in cases where pathological changes are found, the symptoms

may be due not to them but to the direct action of the poison on the nerves or nerve-centres. It is probably this which gives the disease its characteristic stamp.

DR. W. N. BULLARD: A certain number of these cases are probably multiple neuritis, that is, the pathological condition is not the same as regards location; at least, in all cases of Landry's paralysis the main lesion is in the nerves. Some lesion occurs in the cord also in most cases, and in some the main lesion is found in the cord. Is the disease a distinct entity? I am not yet convinced that all the cases have the same pathology or the same etiology. The trouble is probably generally toxic; as far as our present knowledge goes, more probably the result of ptomaines than of bacteria. It is hard, however, to see how exposure to cold can generate ptomaines.

DR. A. H. HARRINGTON reported a case. The patient was not insane, but irritable, during the onset of the symptoms. He appeared hysterical, and had been regarded as feigning. He was sent to the Danvers Lunatic Hospital on the ninth day, after having thrown a cup at some one. There was history of malaria, and a question of syphilis. Paresis of the lower limbs was present. He died four days later with the classical symptoms of Landry's paralysis. The brain and spinal cord were removed, and the latter was examined by Dr. M. Allan Starr, who reported moderate congestion of the gray matter of the cord. There was numbness and tingling in the extremities, and the onset was accompanied by great pain in the back. The electrical reactions were not tried. He died from paralysis of respiration.

DR. MORTON PRINCE: The subject is one of extreme interest. We must know more about it before absolutely establishing its class. I agree with Dr. Walton that it would be better to take Landry's paralysis out of the spinal diseases, but it is a partial view to simply call it a neuritis, because its pathology is more extensive than this would imply. Statistics are misleading, for many cases of multiple neuritis have been reported as Landry's paralysis; and if these are included in the statistics, it is reasoning in a circle to prove the disease neuritis by such statistics. Unquestionably many cases of multiple neuritis have been reported as Landry's paralysis, but this does not make them such, and such statistics give erroneous symptom-pictures. There is no doubt about this case being neuritis, Dr. Prince having satisfied himself upon this point by a recent examination of the patient while at the City Hospital. He has seen another case, about which the classification was uncertain. The general course of the disease, which ended in recovery, was that of neuritis, but there was no sensory disturbance, pain, tenderness nor anesthesia; the muscles were flaccid in the extreme, but showed no electrical degeneration, except in a few fibres of the vastus internus, at a time when this feature should appear. Dr. George B. Shattuck was inclined to call the case neuritis, Dr. Prince to regard it a case of Landry. Which was it? If this case and that of Dr. Walton were grouped together in a classification of either Landry's paralysis or simple multiple neuritis, the symptom-pictures, as made up by such statistics, would be affected. That multiple neuritis may suddenly develop in Landry's paralysis has been proved to be true. This is only a partial view. The same is true of other diseases.

Beri-beri results in a multiple neuritis, but it is not fair to call it a neuritis alone. The same is true of

¹ See page 637 of the Journal.

diphtheritic paralysis. It is better to compare the primary disturbance to a paralysis resulting from a poison like curare, and other chemical poisons, which have a special action on the motor nervous elements, and may lead to inflammatory changes in the cord and nerves. Although Landry's paralysis leads secondarily to neuritis, it follows a certain type, it is very fatal and has special characteristics. Poliomyelitis has actually been found; and to classify the disease under multiple neuritis is like calling all membranous sore throats diphtheria. Such membrane may reveal either streptococcus, staphylococcus or the Klebs-Löffler bacillus, the course of the disease varying according to the poison. It is better to keep Landry's paralysis as a distinct clinical entity for the present, but to bear in mind the anatomical changes that may be present.

DR. PRINCE also showed sections of spinal cord and nerves taken from a case twelve hours after death. No abnormality was apparent in either.

DR. COURTNEY thought the term "ascending paralysis" should be dropped, as the course of the disease did not always justify this description. He would prefer retaining the name Landry's paralysis.

DR. P. C. KNAPP: Dr. Walton speaks of the possible disappearance of the term Landry's paralysis as a designation of a special disease. It is a curious fact that, on looking through the files of nine of the leading neurological journals, extending back over periods of from three to ten years, I have found no article on Landry's paralysis, nor, in a tolerably well-stocked library have I any monogram or reprint except Dr. Hun's paper, so that the literature is not very extensive, and it is to be found chiefly in the general journals. Many cases have undoubtedly been called Landry's paralysis, which do not fill the requirements, nor present the characteristic symptoms. Dr. Sanger Brown reported a case, where in addition to an acute ascending paralysis, there were ataxia, increased knee-jerks and diminution of tactile and thermal sensibility, which helped to support Carter's hypothesis that a chill might cause dropsy of the central canal of the cord and give rise to the symptoms. Hun has attempted to define the symptoms more exactly, and to exclude all cases where there were no bulbar symptoms, and where there were sensory disturbances. If we adopt such restrictions, we must exclude many of Ross's 93 cases. That many of the reported cases of Landry's paralysis are really cases of multiple neuritis must be admitted; but we must also admit that there are many cases, presenting the typical symptoms as given by Landry, which are not multiple neuritis, and in which the autopsy shows no lesion of the peripheral nerves. Out of 24 autopsies which I have collected the nerves were affected in only 9, and the cord in 15, and in many of the cases in which there were cord lesions the nerves were found to be normal. The clinical history of the cases, too, is not like that of neuritis, for it is certainly very rare to find neuritis with bulbar symptoms and without sensory symptoms. It seems to me that Landry's paralysis must be regarded as due to some toxin, or perhaps to some bacillus, although Centanni's special bacillus has not been found by late observers. It may act somewhat like lead, only more acutely. There has been much dispute as to whether the lesion in lead was in the peripheral nerves or in the cord, changes being found in both regions, but the recent work of Stieglitz renders it probable that lead attacks the whole peripheral or

centro-muscular motor neuron. The visible changes from the poison are usually first manifest in the part of the neuron most remote from the muscles, the axi-cylinder of the nerve, and later in the cell itself. The earlier changes may appear in other equally remote parts of the neuron, the collaterals in the cord rather than the fibres of the peripheral nerve. It is possible that this unknown toxin has a similar action. We are not, at any rate, in the light of the autopsies justified in adopting Ross's sweeping assertion that all cases of Landry's paralysis are nothing but multiple neuritis.

DR. F. B. HARRINGTON said that he at first believed that the patient's nervous trouble, including the difficulty in passing water, was the result of the apprehension accompanying the kidney disease. On looking back, however, he realized that the nervous system was itself involved. No local disturbance beyond the discharge remained after the removal of the calculi. The patient was anxious to have the remains of the kidney removed, but taking into consideration the doubt whether the sinus had anything to do with the paralysis, and the possibility that this operation might set him back, it was not undertaken.

DR. PRINCE alluded to a case which followed a false passage in the urethra.

DR. BULLARD was reminded of a case of spinal disease with a similar kidney complication, which he regarded as merely coincident, though he would not commit himself to this view in the case under discussion.

DR. PUTNAM: I hardly see the advantage of classifying the disease at all at present, even though it has many symptoms in common with neuritis.

DR. E. W. TAYLOR reported a case in which marked affection of the cranial nerves was present. There was double facial paralysis and probable implication of the hypoglossal and glosso-pharyngeal nerves. The electrical reactions to faradism were slightly impaired. Dr. Putnam considered the case one of multiple neuritis. The autopsy was unsatisfactory on account of the lapse of time. Bacteria were found, but they were evidently the result of putrefaction. There was, however, enlargement of the spleen, and sufficient distinctive features were present to point to an acute infective process of some sort.

DR. WALTON: I coincide fully with the prevailing sentiment of the meeting, that the disease is not to be regarded as a neuritis simply. As indicated in the paper, I would by no means overlook the implication of the cord, nor that of the brain in the toxic process, especially at the onset. If I supposed this complication would be forgotten in classifying the disease under neuritis, I should by no means favor this course; but as Dr. Putnam has reminded us, however, in every case of neuritis we must bear the fact in mind, that the process is not a simple one, and I do not see that the danger of our forgetting this fact is greater here than elsewhere. It does seem that we have a sufficiently well-marked group of cases, clinically, to justify our placing them together, and it appears to me that the essential features of the disease warrant us in classifying it under neuritis, rather than under diseases of the cord, the latter plan being open not only to the objection already stated, but also to that of calling attention to an organ which does not, probably, represent the chief seat of trouble, at least after the initial effects of the poison have passed away.

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ANNUS MEDICUS, MDCCCXCV.

THE year just closing has not been marked by great medical discoveries, but by steady and substantial progress, for the most part along lines already laid down. Sero-therapy and particularly that of diphtheria, has overshadowed all other subjects in medical thought. The results of the extensive, almost universal trial given to the antitoxin treatment will be discussed under that special heading. Suffice it to say here, that our prophecy of last year has been in the main justified, and our expectations realized. The good, however, which has been accomplished by sero-therapy has not been unmixed with evil. As is unavoidably the case where any really new and beneficent discovery is first adopted, hasty reasoning, the commercial spirit, and desire for notoriety, have led to the publication of results of wrong and unscientific applications of the treatment to various diseases. Time and the good sense of the medical profession will eliminate the false from the true in sero-therapy as in other departments of medicine.

The same statements may be made with regard to organo-therapy, from which quackery and the advertising spirit have attempted to profit. The untrustworthiness and falsity of such pretensions have been in general easy to expose. In this department activity has been manifested during the year in the treatment of myxedema by the extract of the thyroid gland, and of exophthalmic goitre by thymus extract.

During the year death has deprived the medical profession of two of its veritable leaders, Pasteur and Ludwig; one of whom may justly be called the founder of the rational application of sero-therapeutics, and the other of the modern school of physiologists, both taking the highest rank as benefactors of mankind. Surgery has lost leaders in the death of Thiersch and Von Bardeleben in Germany, and Thomas Keith in England; medicine in that of Loomis, of New York.

EPIDEMICS.

CHOLERA.—Although during 1895 cholera was prevented from gaining a foothold anywhere in Eastern Europe, the story of the year shows that it is constantly smouldering wherever in either hemisphere dirt and barbarism give it an opportunity, and is ready to invade our shores from unexpected quarters; as shown by the history of our Pacific quarantine this fall. Brought to Japan by the troops returning from China, the disease was carried at once to Honolulu, and from there narrowly escaped being brought into this country.

It will be remembered that during the latter part of 1895 cholera was epidemic in Turkey, and that in the interior provinces of Russia it held its foothold. There was a mild epidemic also on this continent in southern Brazil, along the borders of the Argentine Republic, and in Uruguay. Through January numerous cases appeared in Constantinople. In that ill-governed city few and insufficient precautions were taken. Cases were frequently not reported to avoid disinfection, and this when performed at all was performed insufficiently. During the winter the disease broke out in various parts of Asiatic Turkey, the primitive measures adopted by the Turkish Government, consisting of sanitary cordons and a short quarantine of suspected cases, operating in such a manner as to paralyze trade without preventing the spread of cholera. In March there were six infectious diseases working wide-spread havoc in Constantinople; namely, cholera, small-pox, measles, whooping cough, influenza and diphtheria.

In Brazil and the Argentine Republic, however, the efforts of the health authorities were well planned and effective. Careful inspections were made of all railway trains coming from the infected districts, and hospitals were established for the isolation of suspected cases. By March the disease in Brazil was confined to the valley of the Parahyba River, a small stream flowing parallel to the coast just inland of Rio di Janiero, the waters of which were found to be infected. During April and May cholera in Brazil gradually died out, or succumbed to the vigilance of the health authorities.

With regard to the Meccan pilgrimage, the signal success of the sanitary measures for the care of pilgrims adopted by the International Sanitary Conference for 1894 was unfortunately not repeated this year. Either because the failure of cholera to appear in the Hedjaz during the preceding year had induced the authorities to relax their vigilance, or because the precautions which were successful last year were insufficient this year, an outbreak of cholera began on March 24th at the lazaretto of Camaran, the island in the Red Sea where pilgrims coming from Asiatic parts—India, Persia, Java, etc.—have to undergo ten or more days quarantine. The disease was introduced by two steamship-loads of pilgrims from Bombay, where, strange to say, cholera cases were at that time very rare. This fact tends to show that under

favoring circumstances a single case of cholera may be the source of a wide-spread epidemic, and makes it seem more probable that a less careful inspection of pilgrims at their ports of embarkation was carried out this year than in 1895. It is known that the regulations with regard to the number of pilgrims which each ship was entitled to carry were not enforced, nor were the prescribed number of latrines provided. The quarantine station at Camaran presented serious defects, the sanitary conditions being imperfect, and the water-supply impure. Later in the year this station instead of a quarantine for the arrest of cholera, became a veritable depot for its spread, as in due time a destructive epidemic appeared in the Hedjaz.

It is interesting to note the number of times cholera has broken out in the Hedjaz since the year 1817. From 1817 up to 1866, that is to say, during forty-five years, two epidemics only occurred in Mecca; these were in the years 1831 and 1865. In the year 1872 a sanitary service was established at the Hedjaz, and sanitary physicians were also appointed at the ports. Since this latter date, 1872, and up to 1881, two more epidemics broke out, the first was in the year 1872, and the second in the year 1877. In the year 1881 the lazaretto of Camaran was established, where, as already mentioned, all the pilgrims coming from southward have to undergo quarantine, and which lazaretto can accommodate from 4,000 to 5,000 pilgrims. Since the establishment of this lazaretto (1881), cholera has broken out at Mecca and throughout the Hedjaz seven times, that is, in 1881, 1882, 1883, 1890, 1891, 1892, 1893, and the present year did not prove an exception. It must not be forgotten that the number of pilgrims is without comparison larger now than it used to be during the first half of the century.

The first case to occur in Mecca was in a woman who had arrived from the Cape of Good Hope, the second a pilgrim from Morocco, and the third victim was an arrival from the Soudan. By May 5th there had been 209 cases in the Hedjaz, all of which proved fatal, and 85 cases with 72 deaths at the Camaran quarantine. At this time only 27,000 pilgrims of the 300,000 to 400,000 who annually go to the holy city had arrived in the Hedjaz, and the prospect of a serious epidemic had to be faced. The Turkish government, which had failed to follow the example of France, Russia and Persia, and forbid the pilgrimage, although urged to do so by the International Sanitary Commission, began to take tardy steps to prevent the spread of the evil on the return of the pilgrims from Mecca. Two sanitary physicians were assigned to duty at the quarantine station at El Tor, and two were sent to Jeddah to watch the pilgrims on their return from the Hedjaz.

Precautions were adopted to prevent the overcrowding of the vessels by which the pilgrims were to return from Jeddah to El Tor, and efforts were made to prevent the assembling of large numbers of pilgrims at Jeddah. This can hardly have helped mat-

ters much, as the pilgrims were thereby obliged to remain longer at Mecca where the epidemic was in full force. During June and July, however, the epidemic at Mecca declined somewhat, although at the same time it spread to other towns in the Hedjaz. On June 11th the first departure of pilgrims to the north took place, and the quarantine at El Tor is believed to have prevented the spread of the disease from this source into Turkey, although a number of cases occurred among the pilgrims detained at this place, and the disease spread to Damietta where a rather severe outbreak occurred, and to Egyptian ports in the Red Sea.

During May cholera at Constantinople gradually died out, but in the provinces of Asiatic Turkey, and at seaports on the Mediterranean, such as Adalia and Tarsus, and throughout Syria it prevailed with great severity. In the province of Aleppo a severe epidemic occurred at Marash, and in Adana there was also a severe, persistent epidemic. The sanitary cordons, etc., enforced by the Turkish government were entirely ineffective in limiting the disease. Toward the end of October it was dying out in the Turkish provinces, but still prevalent at Damietta and in Egyptian ports on the Red Sea.

In Russia the province of Volhynia was the seat of an epidemic which raged with severity all through the spring and summer. Between July 6th and 20th there were 214 cases and 85 deaths, and from July 2d to August 3d, 688 cases and 238 deaths. The epidemic was, however, limited practically to this province, except for a few cases in Podolia during the early spring, and although it lies upon the frontier of Austria-Hungary, an extension into the latter country was limited by the sanitary precautions taken by the Austrian government to a few cases which occurred in Galicia in August. During October and November a few cases occurred in Galicia, but in Volhynia cholera was increasing and had appeared in Podolia and Kieff. The German frontier was carefully guarded, and during 1895 no cases of cholera appeared in the German empire.

Another epidemic of cholera occurred in a far-distant quarter of the world this year, which is of great interest at this time as proving a direct menace to this country, and as an example of the evils that war brings in its train in semi-civilized countries.

The Japanese troops brought back cholera from Corea, Tien Tsin, Che Foo and other Chinese ports. It first appeared in March at Moji, a naval station, and at Nagasaki. By the returning troops it was soon widely distributed throughout the empire, invading every province. During the seven months following the outbreak it caused no less than 36,000 deaths and 52,000 cases, the mortality averaging 65 to 75 per cent. This wide distribution took place in spite of stringent measures adopted by the Japanese authorities under the direction of competent men trained in European schools, which did much to prevent the spread of the disease. Although it began to decline during October, there was in the region surrounding

Yokohama, a temporary increase. The latest reports in November show a slow but steady decrease.

On August 9th the steamer *Belgic* arrived at Honolulu with 538 Chinese and Japanese immigrants, having had three deaths during the voyage. Several of these immigrants soon died with acute gastro-intestinal symptoms, and the cases were found to be cholera.

By September 5th there had been 39 cases and 32 deaths. The *Belgic*, on leaving Honolulu, proceeded to San Francisco. On her arrival at quarantine she presented a clean bill of health and landed passengers. The next steamer from Honolulu brought the news of the cholera epidemic, and some alarm was felt lest the passengers from the *Belgic* should start an epidemic on the Pacific coast, but no such event occurred. By the end of October the epidemic at Honolulu had come to an end.

A careful inspection and disinfection of luggage is carried out by the Marine-Hospital Service at Yokohama for Honolulu and the United States, and the Pacific Coast quarantine stations have been constantly on the watch to prevent the entrance of cholera into this country.

In India, cholera has as usual, prevailed to a considerable extent, in an endemic form, throughout the year; and during the early autumn an epidemic occurred at Singapore, in the Malay Peninsula.

In Morocco there was a slight epidemic of cholera during September, but careful quarantine enforcement at Gibraltar prevented its entrance into Europe.

During October and November a few cases of cholera have appeared in St. Petersburg.

SMALL-POX.—The year began with small-pox widely diffused through the Middle and Western States, though the large cities have been much freer from this disease than last year. The manner in which the facilities of modern railway travel enable the disease to be carried to great distances, and the arrival of a single case in an unprotected community may start up a severe local epidemic has been well illustrated. Wherever small-pox has appeared, however, its disappearance has been prompt in proportion to the efficiency with which vaccination, isolation and disinfection have been carried out by the boards of health or other sanitary authorities. The efficiency of the Marine-Hospital Service has been again demonstrated by the protection of this country from two threatened invasions of small-pox across the Mexican frontiers of Arizona and Texas.

Of the large cities, Milwaukee, Chicago and Philadelphia were the only ones in which it prevailed to any extent. The opposition of the lower classes in Milwaukee to sanitary regulations, noted in the *JOURNAL* a year ago, was strong enough to secure the passage by the city council of an ordinance forbidding the removal of patients with small-pox from their homes to hospitals against their will. As a result, this disease was most persistent in Milwaukee and was rather extensively diffused through Wisconsin. Chicago also

served as a centre for the distribution of small-pox. During the month of January there were 193 cases and 44 deaths in that city. New York was almost free from small-pox during the winter, while Philadelphia was subject to a mild epidemic. Between December 18, 1894, and March 16, 1895, there were 224 cases and 26 deaths in that city. Many cases occurred in the State of Pennsylvania, and through Illinois, Wisconsin, Ohio, Indiana and Missouri during the winter and spring. In February a sharp epidemic began at Little Rock, Ark. The disease was carried there by a man coming from Missouri, who was supposed to be suffering from eczema, and who died soon after his arrival. The undertaker who buried him and his assistants were the first to fall ill, and from this source an epidemic was started, which, between the time of its outbreak in February and April 22d, caused 194 cases and 44 deaths.

During the spring numerous cases of small-pox appeared in towns along the Ohio and Mississippi rivers, from West Virginia to New Orleans, appearing among the crews and roustabouts of the river steamers, and it was soon found that there was a widespread infection among the marine of the great valley. A compulsory vaccination was ordered in May by the Supervising Surgeon-General of the Marine-Hospital Service of all members of the crews of steamers who could not show satisfactory evidence of recent vaccination. Special sanitary inspectors were appointed for this purpose, and the work was efficiently carried out at all important ports from Wheeling to New Orleans. At St. Louis up to June 14th, 1,625 seamen were inspected and 505 vaccinated, 151 cases of variola being discovered. In New Orleans 2,500 vaccinations were made among the crews of the river steamers.

In July small-pox in New Orleans was decreasing.

In March small-pox was brought from Chicago to Newport, N. H., by a "walking" case, and a local epidemic of some twenty cases started. In April a few cases appeared in Connecticut.

During April and May small-pox was brought to Nogales, which it will be remembered is situated on the frontier of Arizona, lying partly in that State and partly in Mexico on the Sonora Railroad, from certain Mexican mining camps along that railroad where it was extremely prevalent, and where no precautions were taken to prevent its spread. Inspection and vaccination of north-bound passengers and disinfection of luggage was practised at Nogales, and though a considerable epidemic occurred in that town, no spread of the disease to the northward took place from that source.

The danger of the entrance of infectious disease from Mexico into this country was again emphasized during last summer, by a small-pox epidemic at Eagle Pass, Tex. The disease was brought to this frontier station by negro refugees, who had been earlier in this year induced by the agents of a certain commercial company to settle on their plantations in the State of Durango, Mexico, for the cultivation of corn

and cotton. After a few months small-pox appeared among them, and they left the colony, travelling slowly in crowded freight cars; and after many vexatious delays about 300 of them arrived at Eagle Pass from July 23d to July 30th. The State authorities at first attempted to cope with the situation, but facilities were insufficient, even tents enough for the shelter of the sick could not be obtained, and in August the control of Camp Jenner was assumed by the Marine-Hospital Service. Tent hospitals and detention camps were established. Regular inspection, vaccination and isolation were enforced. The camp was open from August 11th to October 21st; 411 refugees were received, and 178 cases of small-pox treated, with 51 deaths. Considering the deplorable condition of the refugees on arrival, this was a very creditable record.

During the autumn small-pox has been much less prevalent than last year in the large cities throughout the country, and its general diffusion has been correspondingly less.

In the Western Continent small-pox has been constantly present on the island of Cuba, where the conditions of the war, the crowding of the country population into the towns for protection against the ravages of the soldiery, and the arrival of large numbers of unacclimated troops have favored in a marked degree the spread of infectious disease.

Throughout the interior towns of Northern Mexico, this disease has also prevailed.

In London, the prevalence of small-pox throughout the year has been less than the average except during the autumn months; and England and Scotland have been singularly free from the disease.

In Dublin, Ireland, a rather severe epidemic prevailed throughout last winter. The disease was allowed to spread for some time before the sanitary authorities took efficient action.

All through the year small-pox has prevailed in Constantinople, together with most of the other infectious diseases.

YELLOW FEVER.—Yellow fever has been unusually prevalent this year in the seaports of South America and the West Indies. The quarantine stations along our South Atlantic coast have performed efficient service in preventing its entrance into this country. The number of times it has been necessary to detain vessels coming from Brazil or the West Indies, either because there were cases of yellow fever on board or deaths had occurred during the voyage, has well shown the inestimable importance of our quarantine service to the public health and safety.

The sanitary conditions prevailing in Cuba have this year been particularly bad, owing to the unavoidable results of the insurrection. The large cities have been overcrowded with Spanish troops, who not being acclimatized, have fallen easy victims to yellow fever and small-pox. An insufficient water-supply has in many cases rendered proper cleanliness and sanitation absolutely impossible.

The height of the epidemic in Havana was reached in September. Between September 5th and 19th there were 210 cases and 67 deaths in that city. In Santiago de Cuba during July and the first seventeen days of August there were 259 deaths. During the autumn the disease has gradually declined, although owing to conditions due to the war the decline has been unusually slow.

On account of these conditions special vigilance was required of the authorities in regard to vessels arriving from Havana, and special precautions were taken. Health-officer Doty of New York was sent to Cuba in June to study the methods of discharging and loading cargoes at Cuban ports. A five days' quarantine was established at New York against all vessels arriving from Cuba, whether there had been yellow fever on board or not. Visits were made during the summer by an inspector of the Marine-Hospital Service to the principal cities throughout the island of Cuba, and reports of their sanitary conditions forwarded to Washington. All vessels arriving from Cuba during the summer were compelled to stop at southern quarantine stations.

At Rio this disease prevailed during February and March as usual, and during the spring months. It failed to abate as is commonly the case with the coming of the cooler weather of what is the southern autumn season. In March a severe epidemic broke out at Santos and continued through the spring.

In May and June, owing to the conditions previously noted as due to the war, a decided increase in the fever took place at Santiago de Cuba and Havana. Through the summer vessels arrived at the Gulf quarantine from Havana, having had yellow fever on board, and in August a case of yellow fever was brought from Havana to New York on the steamship *Seneca*; the case developing during the five days' quarantine to which the steamship was subjected. Vessels also arrived at South Atlantic stations having had yellow fever on board during their voyage.

During the summer a considerable epidemic took place at Vera Cruz, Mexico; but although isolated cases of the disease were unavoidably carried to numerous ports in the West Indies, South and Central America and Mexico, no other extensive outbreaks resulted.

THE PLAGUE.—Although the epidemic of plague in China this year did not compare in severity with that which last year devastated the city of Hong Kong, a considerable outbreak occurred in Foo Chow in the early spring, and later in the year the disease was quite generally distributed along the southern coast of the empire. Inasmuch as in a city like Foo Chow it was impossible to institute any sort of sanitary measures to prevent the spread of contagious diseases, it was at first feared that a serious epidemic among the million and a half inhabitants could not be avoided. The epidemic, however, for some reason ran its course rapidly, and was confined to a small section of the native city of Foo Chow.

The Chinese thought that the apparent abatement of the plague there was the result of a simple remedy or preventative discovered by them. But there was reason to believe that the plague was caused by natives who fled from the threatened attack of the Japanese on the ports lying farther down the coast, and that these fugitives were the principal victims of the disease they brought with them in their flight. The appearance at the same time of unmistakable cases of plague in Hong Kong and Madras made this view extremely probable.

The epidemic in Hong Kong, however, at no time assumed serious proportions, although a few cases occurred at the neighboring ports of the Kwangtung province. The severest outbreak occurred during June, at Amoy, when for a time about fifteen deaths a day from this cause were reported.

An epidemic of bubonic plague also occurred during May in the Yemen, in Southern Arabia, and many of the pilgrims to Mecca coming from the East were stricken. It was necessary for a time to establish a quarantine on this account against pilgrims arriving in the Hedjaz from the Yemen. Although this quarantine was of two days only, and was inefficiently carried out, on account of fear of rioting in case the pilgrims should arrive too late for certain sacrifices, no epidemic of plague occurred in the Hedjaz. From the above short account it will be seen that the two epidemics of plague which have occurred this year were mild and easily controlled, a fact, in view of the ravages of the same disease during the previous year at Hong Kong, which is difficult to explain.

TYPHOID FEVER.—Several epidemics of typhoid fever have occurred during the year, notably those at Stamford and New Milford, Conn., and Montclair, N. J., which are of interest as being traced to infected milk, the infection having been due in all three cases to washing the cans with water containing typhoid bacilli.

INFLUENZA.—Although there has been this year no pandemic of influenza, it, nevertheless, prevailed considerably during February and March in widely separated regions. In this country a form of influenza prevailed during the winter, the highest mortality being reached in February, when 42 deaths from this cause in New York City during the week ending the 23d of that month were reported. In New England during February and March, influenza also prevailed to a considerable extent. In Great Britain during the same months quite a severe epidemic took place, the mortality increasing rapidly with the age periods. Under the age of twenty it averaged 1.5 per thousand, and between the ages of sixty and eighty, 40.6 per thousand. In Constantinople influenza also prevailed during the spring months.

EPIDEMIC DISEASES AND WAR.—The extensive ravages of cholera in Japan this year have again called attention to the fact that the most fatal factor in war does not proceed from arms but from the epidemic

diseases which almost always break out among large bodies of troops, especially if unacclimated in a foreign country. The same lesson has been repeated in the case of the Cuban insurrection by the experience of the Spanish troops, among whom yellow fever and small-pox have been extremely prevalent and fatal. Both of these outbreaks have been dangerous to other countries beside those involved in the conflict, and constant vigilance has been necessary to protect the United States.

MISCELLANY.

SERO-THERAPY IN DIPHTHERIA.—At the close of the year 1894, enough was known of the results of sero-therapy in diphtheria to justify the hope that at length a remedy had been found, and that not by empiric methods, but by close and careful application of scientific principles, which would markedly lessen the terrors of that universal scourge. Although the reports of the action of the remedy were generally favorable, and its effect upon statistics of mortality almost without exception good, many considerations, such as the well-known variations taking place from year to year in the severity of epidemics, and the absolutely small number of cases reported (we were then able to collect but 1,600), rendered necessary a suspension of final judgment as to the value of the remedy. Enough had been shown, however, as was stated in our review of a year ago, to render a fair and extended trial of the remedy imperative upon the profession.

The year just closing has, as was predicted, been one of the greatest activity and interest in diphtheria and in sero-therapy in general. Antitoxin plants have sprung up all over the world, some under State and municipal control, some established as the results of private charity, and others on a purely commercial basis. The products of the various establishments have necessarily varied greatly in proportion to the degree of knowledge, skill and care of those having them in charge; but it can be said in the main that those under State and municipal control have been placed in competent hands and issued a reliable product. Although the experience of the past year in the preparation and use of the antitoxin of diphtheria has been extensive, our knowledge of the dosage is incomplete, and the methods of measuring its strength crude and inaccurate. In spite of these drawbacks, however, the experience of the past year has greatly and justly increased confidence in the immense value of the remedy.

A most careful and thorough presentation of this subject was made last July by Welch of the Johns Hopkins University, Baltimore, and was published in the *Bulletin* of that institution for July and August. His statement, which is of value as based upon a thorough knowledge of the pathology and bacteriology of the disease, upon a considerable clinical experience, and the most careful collation of all the statistics which had been published up to the time of his writing, is that "the published testimony of those who have had the largest opportunity to study the therapeutic effects of antitoxin has been overwhelmingly in its favor." The most favorable expressions of opinion have come from such observers as Heubner, von Widerhofer, von Ranke Gaughofner, Escherich, Bokai and the physicians of the *Hôpital des Enfants*

Malades and Hôpital Trousseau in Paris. These observers had reported in detail at the time of publication of Welch's paper over 2,300 cases of diphtheria treated with antitoxin. More convincing than statistics to the clinical observers themselves, has been the observed effects of the antitoxin upon cases of severe disease, which according to previous experience would have terminated fatally, and more than anything else the reversion to the former high mortality when for some cause the supply of antitoxin has been temporarily cut off.

Yet as Welch justly says, general clinical impressions, convincing as they may be to the person receiving them, may not be equally convincing to others; and if antitoxin really exerts any specific curative action in diphtheria this must be apparent in the fatality statistics of the disease. Up to last July he had been able to collect statistics of published results of treatment in 7,166 cases of diphtheria treated with the antitoxin, showing a mortality of 17.3 per cent., as compared with an estimated mortality of 42.1 in cases treated previously or simultaneously without the antitoxin. In 648 cases treated with the antitoxin in which tracheotomy was performed the mortality was 39.8 per cent.; in 342 in which intubation was practised the mortality was 28.9 per cent.; in 26 in which intubation was followed by tracheotomy the mortality was 53.8 per cent.; in 211 cases in which it is not stated whether tracheotomy or intubation was practised the mortality was 40.2 per cent. The estimated mortality in cases treated simultaneously or previously without the antitoxin was 64.5 per cent. after tracheotomy and 62.4 per cent. after intubation. Making all due allowance for the small possibility of the diphtheria epidemics over such wide areas as those represented in this report being of a mild character, and also for the somewhat greater possibility of the effect of the fact that milder cases are now sent to hospital, the reduction in mortality is still a great and remarkable one.

A class of cases in which the question as to the mildness or severity of the epidemic, etc., can have manifestly no effect upon the value of statistics is that which have required operation for laryngeal stenosis. The remarkable diminution in the mortality in these cases shown by Welch's table places the value of antitoxic serum beyond possible doubt. The percentage of cases of laryngeal diphtheria recovering without operation has also been markedly improved.

A clinical fact which early gained recognition, and which has been shown by Welch to be based on the pathology of the disease, namely, that the mortality is markedly decreased in the cases where the treatment is begun early, has been further proven as our experience has extended. An analysis with reference to this point of 1,729 cases of diphtheria with a mortality of 14.9 per cent., showed that in 1,115 cases treated within the first three days of the disease the mortality was 8.5 per cent, while in 546 cases where the serum was injected later than the third day of the disease the mortality was 27.8 per cent.

Adverse opinions on the value of the serum have been few, and the arguments used to sustain them have been usually of a kind in which prejudice predominated over logic, and the character of which has plainly shown a reluctance to abandon an adverse attitude taken at the outset and not sustained by a broad view of the facts.

Statements such as those of Mr. Lennox Browne that "a greater number of children have been found liable to attacks of cyanosis and fainting" and that "complete recovery is for the most part found to be greatly delayed," and "that an unexpectedly fatal result at a late period is more frequent," are supported neither by statistics nor by the published opinions of other observers.

The effect of antitoxin upon the three most important complications of diphtheria—nephritis, heart-failure and paralysis—has been found to be rather favorable than otherwise. A few cases have been reported in which death has been thought to be due to the serum. There has been no satisfactory evidence in any of them that such was the case; and, as Welch rightly says, "the essential harmlessness of the serum has been demonstrated by over a hundred thousand injections." Behring in an address delivered lately at Lubeck before the German Society of Naturalists and Physicians, practically takes the same position as Welch, claiming that by the use of the antitoxin treatment the mortality of diphtheria may be reduced at least 75 per cent.

With regard to the effect of the general employment of antitoxin upon municipal mortality-rates from diphtheria, the report made on October 14th by the health department of New York City to the mayor may be cited. This report states that "the reduction in the mortality-rate for the first, second and third quarters of 1895, as compared with average death-rate for corresponding periods of previous four years, has been 43.94 per cent. The large reduction in the mortality-rate from diphtheria and croup for the first three-quarters of 1895 is attributed mainly by the medical officers of this department to the introduction and use of diphtheria antitoxin, and if this remedy had been generally or universally employed, the reduction in the mortality-rate would doubtless have been larger."

In Boston the percentage of mortality from diphtheria is shown by the reports of the board of health to have decreased in marked degree. This decrease may be partly accounted for by the early discovery of many cases by the new system of inspection of the public-school children, but is probably also due largely to the general use of antitoxin.

In London, on the contrary, a great increase has taken place since September, both in the number of cases reported and in the mortality. It is noteworthy that this increase in diphtheria in London has been accompanied by a similar marked increase in small-pox and other infectious diseases. It is also noteworthy that in September the supply of antitoxin serum to the hospitals of the Metropolitan Asylums Board by the laboratories of the Royal College of Physicians and Surgeons was begun. The poor success attending the serum treatment in England, as has been noted by the *British Medical Journal*, is apparently confined to that country.

In Paris throughout the year, the mortality from diphtheria has remained extremely low, only 1 to 11 deaths a week being reported in that city, a mortality considerably lower than the coincident mortality of measles.

The experience of London during the past autumn has been directly at variance with that of Paris and other large cities where the antitoxin treatment is extensively carried out, in that the mortality from diphtheria has markedly increased within the last two

months. Whether this may be due to a failure to efficiently apply the serum treatment or to a deterioration in the supply of the antitoxin is an interesting question.

No conclusion to this sketch could be more fitting than the words with which Welch closes his most valuable paper on this subject:

"The principal conclusion which I would draw from this paper is that our study of the results of the treatment of over 7,000 cases of diphtheria by antitoxin demonstrates beyond all reasonable doubt that anti-diphtheric serum is a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it.

"The later reports show in general a decided improvement in the results of the treatment over the earlier ones, and there is every reason to believe that the results of the second year's employment of the new treatment will make a much more favorable showing than those of the first year. We shall come to a clearer understanding of the mode of action of the healing serum. Improvements in the methods of preparation and preservation of the serum, and possibly the separation of the healing substance, at least from other ingredients which produce the undesired effects, may be expected.

"The discovery of the healing serum is entirely the result of laboratory work. It is an outcome of the studies of immunity. In no sense was the discovery an accidental one. Every step leading to it can be traced, and every step was taken with a definite purpose and to solve a definite problem.

"These studies and the resulting discoveries mark an epoch in the history of medicine. It should be forcibly brought home to those whose philozoic sentiments outweigh sentiments of true philanthropy, that these discoveries which have led to the saving of untold thousands of human lives have been gained by the sacrifice of the lives of thousands of animals, and by no possibility could have been made without experimentation upon animals."

SERO-THERAPY IN TETANUS.—A number of cases of the treatment of tetanus with its antitoxin have been reported during the year, the majority of which have been successful. The importance of an early application of the treatment is even greater in this disease than in diphtheria, owing to the fact that quite early in the progress of a case, even before it is possible to recognize it, so large a quantity of toxin may be absorbed into the system as to require a dose of antitoxin so large that it becomes impracticable to administer it. This fact gives us a great advantage in the sero-therapy of diphtheria over that of tetanus.

SERO-THERAPY IN TUBERCULOSIS.—The interest in sero-therapy which has been brought about during the year by the success of the antitoxin treatment of diphtheria, has led to attempts at sero-therapy in many affections, some of the attempts having a rational basis, and some not. Among these attempts may be mentioned the employment of the blood-serum of animals supposed to be immune to tuberculosis, such as horses, asses, etc. Systems of treatment based on such supposed immunity have been carried out by Professor Maragliano of Genoa, Dr. Paul Paquin of St. Louis, and others. Although favorable results have been

reported for these, as for all other new methods of treatment for tuberculosis that have ever been exploited, the results on eliminating the personal equation of their sponsors, cannot be said to be very brilliant. The practice of reporting "cures" in cases of a disease which progresses so slowly as tuberculosis within a few months after the beginning of any treatment, cannot be too strongly condemned.

With regard to the treatment by "anti-phthisis," a serum which is claimed by its advocates to be a kind of tuberculin refined in some manner so as to be free from the dangerous liability of disseminating the disease which tuberculin has been shown to possess, it can be said that up to the present time we have no satisfactory evidence of its value. In laboratory experiments the results have been good, and good beginnings are reported to have been made in the clinical use of the remedy, but in regard to this we must again repeat, that the chronicity of the disease, and the tendency to relapse are so great, that no observations have been recorded covering anything like a satisfactory length of time for judgment.

INOCULATIONS AGAINST CHOLERA.—At the Indian Medical Congress at the close of 1894, Haffkine presented his results from the inoculation against cholera up to that time. The results were so favorable that the medical profession were unanimously of the opinion that the inoculations should be tried on as large a scale as possible. Dr. W. J. Simpson, health-officer, reported to the Corporation of Calcutta on July 15, 1895, that since the Haffkine system was introduced 4,397 persons had been inoculated. Opportunities for comparing the liability to cholera of the inoculated with the uninoculated living in the same houses and under the same conditions have occurred 36 times. In the 36 houses there were 521 inmates, 181 were inoculated and 321 were not. Among the uninoculated members of these houses there were 45 cases and 39 deaths. Among the inoculated there were 4 deaths. These figures show that the uninoculated were 6.08 times more liable to attack, and 5.27 times more liable to death from cholera than the inoculated. Haffkine's results also show that a period of eight days is required for the inoculation to protect the system.

Certain cases occurred where the proportion of inoculated living in a house was much larger than the uninoculated, and where cholera picked out the uninoculated leaving the inoculated free.

The showing made in this report is on the whole extremely favorable, and indicates that the method deserves further trial.

SERO-THERAPY IN STREPTOCOCCUS INFECTION.—A few cases have been reported of the treatment of streptococcus infection by its antitoxin, cases of erysipelas and lymphangitis, streptococcus angina and puerperal septicemia being among the number. Although the results have generally been favorable, experience is not yet sufficient to justify any conclusions as to the value of this antitoxin.

QUARANTINE.—The work of the United States quarantine officers during the year has been discussed at some length under the heading, "Epidemics." The importance and value of our quarantine service can hardly be overestimated.

Under the last regulations of the United States Treasury Department, the plague has been declared quarantinable, along with cholera, yellow-fever, typhus, variola and leprosy.

MEDICAL CONGRESSES AND MEETINGS.

The most important medical congresses held this year were the International Congress of Physiologists at Berne, and the International Congress of Railway and Marine Hygiene held at Amsterdam in September. At this latter congress a subject of great practical interest for the public safety, the necessity for efficient eye-sight in traffic conductors, was the chief subject of discussion. Professor Snellen, of Utrecht, consulting ophthalmic surgeon to the Dutch Railways called attention to the increasing importance of this question in view of the increasing amount of travel for business and recreation. He traced the development of the movement for securing better control which originated with Wilson of Edinburgh, and was supported by Favre in France, Holmgren in Sweden, Cohen and Donders in Holland, and Joy Jeffries in America. The papers and discussing which followed were of great interest, and will it is to be hoped result in actual improvement of the Service.

At the Congress of Physiologists, Professors Goltz and Ewald presented a most important communication on the functions of the spinal cord, and Professor Langley on the function of the sympathetic system. Papers were also presented by Professors Herzen of Lausanne, Tigerstedt of Stockholm, Dastor of Paris, Gotch of Oxford and others. Professors Hürtle and Mosso each demonstrated a new apparatus for the determination of the blood-pressure in man.

The American Surgical Association met in New York, May 28th to 30th; the American Association of Obstetricians and Gynecologists, in Chicago, September 24th to 26th; the American Dermatological Association, in Montreal, Canada, September 17th to 19th; the American Orthopedic Association, in Chicago, September 17th to 19th; the Association of American Physicians, in Washington, May 30th to June 1st; the American Laryngological Association, in Rochester, N. Y., June 17th to 19th; the American Neurological Association, in Boston, June 5th to 7th; the American Pediatric Society, at Hot Springs, Virginia, May 27th to 29th; the American Association of Genito-Urinary Surgeons, at Niagara Falls, May 28th to 31st; the American Medical Association, at Baltimore, in May; the Association of Military Surgeons of the United States, at Buffalo, N. Y., in May; the American Public Health Association, at Denver, Col., October 1st to 4th; the American Medico-Psychological Association, at Denver, Col., June 11th to 14th; the American Academy of Medicine, at Baltimore, in May; the American Electro-Therapeutic Association, at Toronto, Can., September 3d to 5th; the American Academy of Railway Surgeons, at Chicago, September 25th to 27th; the Mississippi Valley Medical Association, in Detroit, September 3d to 6th; the Southern Surgical and Gynecological Association, at Washington, D. C., November 12th to 14th; the Tri-State Medical Society, of Alabama, Georgia and Tennessee, in Chattanooga, October 8th to 10th; the New York State Medical Association, in New York City, October 15th to 17th. The Massachusetts Medical Society held its one hundred and fourteenth anniversary meeting, in Boston, on June

12th. The Medico-Legal Congress was held at New York, the last week in August.

The sixty-third annual meeting of the British Medical Association was held in London, July 30th to August 2d; the third International Congress of Physiologists was held in September, from the 10th to the 14th of the month, at Berne, Switzerland; the twenty-fourth Congress of the Association of German Surgeons was held at Berlin from the 17th to the 20th of April; the International Congress of Gynecology and Obstetrics met at Geneva, in September; the sixth Congress of the German Association of Gynecologists was held in Vienna, June 4th to 7th; the ninth Congress of the French Surgical Association was held at Paris, October 21st; the Association of German Alienists held its annual meeting this year in Hamburg, September 13th and 14th; the annual Italian Congress of Internal Medicine was held at Rome in October; a National Congress on Tuberculosis was held at Coimbra, Portugal, beginning on the 24th of March; the German Society of Naturalists and Physicians met this year at Lubeck.

LECTURES.

In connection with established lectureships in the United States and Great Britain, the following lectures and orations were delivered:

The Wesley M. Carpenter Lecture, before the New York Academy of Medicine, "On the Important Facts Relative to Malignant Disease," by Joseph D. Bryant, M.D.; the Shattuck Lecture before the Massachusetts Medical Society, by Robert T. Edes, M.D., on "The New England Invalid." In Great Britain the Goulstonian Lectures on the "Supra-renal Bodies," by H. D. Rolleston, M.A., M.D., F.R.C.P.; the Lumleian Lectures on "The Diagnosis, Prognosis and Prophylaxis of Insanity," by G. Fielding Blandford, M.D., F.R.C.P.; the Milroy Lectures on "The Natural History and Affinities of Rheumatic Fever," by Arthur Newsholme, M.D., Lond., M.R.C.P.; the Lettsomian Lectures on "The Combinations of Morbid Conditions of the Chest," by Frederick T. Roberts, M.D., F.R.C.P.; the Ingleby Lectures on "Appendicitis and Perforation of Gastric Ulcer," by Gilbert Barling, M.B., F.R.C.S.; the Croonian Lectures, "Contribution to the History of the Respiration of Man," by W. Marceet, M.D., F.R.C.S.; the Hunterian Lectures on "The Experiences of St. George's Hospital in Laparotomy," by Timothy Holmes, F.R.C.S.; the Bradshaw Lecture on "Some New Vaso-Dilators" by Professor J. B. Bradbury, M.D., F.R.C.P.; the Harveyian Oration on "Harvey and the Rise of Physiology in England," by W. S. Church, M.D., F.R.C.P.; the Cavendish Lectures on "Dreamy Mental States," by Sir James Crichton Browne, M.D., LL.D., F.R.S.; the Baillie Lectures on "Dropsy," by W. Howship Dickinson, M.D., F.R.C.P., Lond.

NECROLOGY.—FOREIGN.

Adolphe von Bardeleben, M.D., professor of surgery in the University of Berlin, died in that city September 24, aged seventy six.

George Octave Dujardin-Beaumetz, M.D., commander in the Legion of Honor, editor-in-chief of the *Bulletin de Thérapeutique* and the author of many suggestive works on subjects in clinical medicine, ther-

apentics and hygiene, died in Paris, February 16, aged sixty-one.

John Syer Bristowe, M.D., senior consulting physician to St. Thomas's Hospital and formerly president of many medical societies, died August 20.

Sir George Buchanan, M.D., F.R.S., late principal medical officer of the Local Government Board of Great Britain, and Chairman of the Royal Commission on Tuberculosis, died on May 5, aged sixty-four.

Louis Florentin Calmeil, M.D., the distinguished French specialist in psychological medicine, died on March 11, aged ninety-seven.

Arthur E. Durham, F.R.C.S., consulting surgeon to Guy's Hospital, died May 7, aged sixty-four.

J. Gottstein, M.D., the eminent laryngologist, died in Breslau, January 10, aged sixty-three.

Alphonse Guérin, the distinguished French surgeon, died February 21, aged seventy-eight.

John Whitaker Hulke, M.D., F.R.C.S.E., President of the Royal College of Surgeons of England and senior surgeon to the Middlesex Hospital, died in London, on February 19, aged sixty-five.

Prof. Thomas H. Huxley, M.D., the distinguished writer on evolution, died at Eastbourne on June 29, aged seventy.

Dr. Enrico Jacolucci, of Naples, who in 1862 performed the first successful case of Cæsarean section in Naples, died in August.

Thomas Keith, M.D., LL.D. Edin., F.R.C.S. Edin., a distinguished surgeon and one of the leaders in the development of abdominal surgery, died October 9, aged sixty-eight.

Baron Felix Hippolyte Larray, M.D., a distinguished French military surgeon and formerly Grand Officer of the Legion of Honor, died early in October, aged eighty-seven.

Surgeon-General Sir Thomas Longmore, M.D., an eminent British surgeon, died on September 30, at the age of seventy-nine.

Karl Ludwig, M.D., the eminent physiologist, died at Leipsic, April 26, aged seventy-nine years. He had been professor of physiology in Leipsic since 1865, and for the preceding ten years had held the chair of physiology in Vienna.

Henry Widenham Maunsell, M.A., M.D., M.R.C.S., a distinguished surgeon, aged forty-eight, died on February 21.

Willhelm Meyer, M.D., of Copenhagen, the discoverer of adenoid vegetations in the pharynx, died in June, aged eighty-one.

Friederich Miescher, M.D., professor of physiology at Basle, died at Davos, August 26.

M. Louis Pasteur, director of the Pasteur Institute, died at Villeneuve, on the morning of September 28, aged seventy-three.

Dr. Petronio, professor of surgical pathology and teacher of surgery in the University of Naples, died on March 1, at the age of fifty-five.

Franz von Reid, M.D., professor of surgery at Jena (retired), died June 10, aged eighty-five.

Sir William Scovell Savory, M.D., F.R.S., consulting surgeon to St. Bartholomew's Hospital, surgeon to the Charité Hospital, died in London on March 4, aged sixty-nine.

Kurt Schimmelbusch, M.D., Privat-Docent in surgery at the University of Berlin, died on August 1, aged thirty-five.

Hermann Seidel, M.D., professor of surgery, chief

of the surgical section of the Brunswick Hospital, and for a long time assistant to Volkmann, at Halle, died in October, aged forty-one.

Dr. Felix Hoppe-Seyler, professor of physiological chemistry in the University of Strasburg, died on August 12, aged seventy.

Karl Thiersch, M.D., professor of surgery in Leipsic, died April 28, aged seventy-three.

Sir John Tomes, M.D., F.R.C.S., who was called the father of the dental profession in England, died July 29, aged eighty.

D. Hack Tuke, M.D., F.R.C.P., LL.D., the author of well-known works on mental diseases, died in London on March 5, aged sixty-eight.

M. Verneuil, the oldest professor of surgery in the Paris Faculty, died June 12.

NECROLOGY.—UNITED STATES.

Robert Battey, M.D., of Rome, Ga., a distinguished surgeon and gynecologist, died November 15, aged sixty-seven.

John M. Byron, M.D., chief of the bacteriological department of the Loomis Laboratory and lecturer on that branch in the University Medical College, died of tuberculosis (probably contracted in his laboratory work) May 7, aged thirty-four.

Thomas H. Chandler, M.D., D.M.D., dean and professor of mechanical dentistry in the Harvard Dental School, died August 27.

James Collins, M.D., of Philadelphia, a member of the staff of the German Hospital for twenty-five years, died in that city October 7, aged sixty-five.

George Cupples, M.D., a former president of the Texas State Medical Association and a surgeon of reputation, died April 19, aged eighty.

William Detmold, M.D., emeritus professor of clinical and military surgery in the College of Physicians and Surgery of New York, died December 26, 1894, aged eighty-seven.

Frank L. Dubois, M.D., medical inspector, United States Navy, died February 24, at Portsmouth, N. H., after thirty-three years in the service.

Dr. James E. Garretson, dean of the Philadelphia Dental College, and known for his scientific contributions on diseases of the mouth, died on October 27, at the age of sixty-seven years.

Albert C. Gorgas, M.D., medical director, U. S. N., died in Germantown, June 29, 1895.

Lewis D. Harlow, M.D., one of the founders and at one time president of the Philadelphia Obstetrical Society, died in Philadelphia, June 23, aged seventy-seven.

William C. Jarvis, M.D., clinical professor of laryngology and rhinology in the medical department of the University of the City of New York, died July 30, aged forty.

Thomas Leach, M.D., medical inspector, U. S. N. (retired) died December 30, aged fifty-eight years and eight months.

Alfred L. Loomis, M.D., professor of medicine in the medical department of the University of the City of New York, died January 23, aged sixty-four.

Geo. A. Mursick, M.D., of Nyack, N. Y., distinguished for his service in the U. S. Army during the Civil War, died October 17, aged sixty-one.

Ferdinand W. Ostrander, M.D., the oldest practising physician in Brooklyn, died at his residence in that city on January 30, aged ninety-one.

Ezra R. Palmer, M.D., professor of physiology in the University of Louisville, Kentucky, died July 6, aged fifty-three.

Henry W. Rand, M.D., of Brooklyn, attending surgeon at the Long Island and at St. John's Hospitals, died in that city August 31, aged forty-four.

John A. Ryder, M.D., professor of comparative embryology in the University of Pennsylvania and a very distinguished embryologist, died on March 26, at the age of forty-three.

J. D. Robinson, M.D., Wooster, O., who is said to have performed the first amputation in the War of the Rebellion, died May 9, aged seventy-five.

Dr. William S. W. Ruschenberger, medical director U. S. N. (retired), died March 24, in Philadelphia, aged eighty-eight.

Gilbert Saltounstall, M.D., health inspector of Jersey City, died June 15, aged sixty-six.

Surgeon-General Charles Sutherland, M.D. (retired), died at Washington, May 11, aged sixty-six.

Bernard E. Vaughn, M.D., assistant surgeon to the New York Cancer Hospital, died on March 5.

Joshua Greene Wilbur, M.D., of Brooklyn, an army surgeon during the four years of the war, and afterward a prominent life insurance examiner, died at Montclair, N. J., June 25.

John S. Young, M.D., of Brooklyn, a former secretary and vice-president of the Kings County Medical Society, died September 23, aged sixty-three.

John Lloyd Zabriskie, M.D., consulting physician to the Long Island College Hospital and Kings County Hospital, died in Brooklyn, November 10, aged sixty-four.

NECROLOGY.—MASSACHUSETTS MEDICAL SOCIETY.

Benjamin Faneuil Dunkin Adams, M.D. (formerly of Waltham), died at Colorado Springs, Col., October 28, aged fifty-six.

Jonathan Wheeler Bemis, M.D., of Cambridge, died January 6, aged eighty-four.

Stephen Wallace Bowles, M.D., of Springfield, died February 12, aged fifty-nine.

Patrick Henry Campbell, M.D., of Dorchester, died May 3, aged thirty.

William Mason Cornill, M.D., of Boston, died April 14, aged ninety-four.

Benjamin Cushing, M.D., of Dorchester, died October 16, aged seventy-three.

Lemuel Dickerman, M.D., of Foxboro, died August 14, aged sixty-nine.

Dyer Ball Nelson Fish, M.D., of Amherst, died October 28, aged fifty-seven.

Cyrus Mentor Fisk, M.D., formerly of Lowell, Mass., died at Bradford, N. H., January 21.

Frank Lyman Forsyth, M.D., of Providence, R. I., died May 11, aged 41.

Nathan French, M.D., of Malden, died April 27, aged eighty-four.

Moses Reuben Greely, M.D., of South Weymouth, died April 23, aged sixty-seven.

Joseph Hagar, M.D., of East Marshfield, died April 9, aged seventy-five.

Jonas Cowdry Harris, M.D., of Arlington, died February 10, aged seventy-five.

Joseph W. Hastings, M.D., of Warren, died September 23, aged sixty-one.

Henry Alfred Jewett, M.D., of Northborough, died August 23, aged seventy-five.

William Mack, M.D., of Salem, died June 9, aged eighty.

Edwin Mayberry, M.D., of East Weymouth, died July 18, aged sixty-eight.

Edward McGlynn, M.D., of Roxbury, died July 26, aged thirty-two.

David Worthington Minor, M.D., of Ware, died January 2, aged seventy-four.

George A. Perkins, M.D., of Salem, died May 18, aged eighty-two.

Levi Pillsbury, M.D., of Fitchburg, died February 4, aged seventy-seven.

Frederic Augustus Sawyer, M.D., of Wareham, Vice-President of the Massachusetts Medical Society, died February 10, aged sixty-two.

Horatio S. Soule, M.D., of Winthrop, died October 7, aged seventy-two.

Charles Parker Spalding, M.D., of Lowell, died March 25, aged forty-six.

George Newton Thomson, M.D., of Boston, died July 13, aged eighty-two.

Samuel Knapp Towle, M.D., of Haverhill, died August 16, aged sixty-five.

Albert Francis Tracy, M.D., of Westfield, died July 18, aged thirty-two.

Elisha Gustavus Tucker, M.D., of Boston, died May 18, aged eighty-six.

George Clark Webber, M.D., of Millbury, died June 11, aged fifty-seven.

Henry Willard Williams, M.D., of Boston, died June 14, aged seventy-three.

Charles Sayward Young, M.D., of Stoughton, died May 16, aged forty-three.

David Youngman, M.D., of Boston, died May 11, aged seventy-seven.

Since the last report thirty-three members of the Society have died, nine more than in the preceding year. The average age was sixty-six years, as against sixty and one-tenth years in 1894. Sixteen were over seventy years, seven over eighty, and one ninety-four years of age, a remarkably high average. There were only two deaths under forty.

FATAL ACCIDENTS IN THE ALPS.—Eighteen fatal accidents occurred in the Alps last summer, four in the French Alps, six in the Swiss, six in the German and Austrian, and two in the Italian Alps.

VACCINATION VIRUS VANQUISHER.—The above is the name of a patent medicine which is being exploited in England as "rendering all vaccination safe," that is, free from all ill-effects. The medicine has to be taken before vaccination. By the time vaccination has been performed, the remedy will have entered the blood, and, so says the promoter, "will be there, as it were, to meet the germs as they enter, and quickly kill them. Thus the diseases are clearly prevented, as the germs never get the smallest chance to begin their nefarious work." But it is further insisted upon that "the medicine does not in any way affect pure vaccine lymph, and the benefits of vaccination are not, therefore, in any way lessened or interfered with." It is surely a matter of pride for our day and generation that so distinguished a man as the discoverer of this remedy has arisen to round out and supplement the work of the great Jenner.

METEOROLOGICAL RECORD.

For the week ending December 14th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr. "		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...8	30.14	34	42	25	70	78	74	W.	N.	13	9	C. C.
M...9	30.24	24	30	19	86	77	82	N.W.	N.W.	10	7	O. O.
T...10	30.11	24	30	17	84	59	72	N.W.	N.	10	12	F. F.
W...11	29.91	18	23	14	80	61	70	N.	N.	26	26	N. O.
T...12	30.24	12	16	8	65	38	52	N.	N.	18	20	O. O.
F...13	30.27	14	18	10	79	64	72	N.	N.	24	22	N. O.
S...14	29.90	22	29	16	73	41	57	N.	N.	20	12	O. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 14, 1895.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	708	251	11.88	17.76	1.54	.84	5.88	
Chicago	1,678,967	396	136	20.75	6.25	3.50	1.75	11.50	
Philadelphia	1,164,000	390	134	15.75	15.00	.50	3.00	10.50	
Brooklyn	1,100,000	415	138	18.96	16.56	.72	1.20	13.44	
St. Louis	560,000	—	—	—	—	—	—	—	
Boston	491,005	214	60	15.84	17.80	.48	1.44	12.68	
Baltimore	496,315	130	68	14.04	12.48	3.12	—	7.80	
Cincinnati	336,000	124	33	8.10	25.35	—	4.86	1.62	
Cleveland	311,637	88	29	15.96	12.54	7.98	—	6.84	
Washington	275,500	—	—	—	—	—	—	—	
Pittsburg	238,617	93	38	22.68	11.88	2.16	4.32	4.56	
Milwaukee	265,000	—	—	—	—	—	—	—	
Nashville	87,754	37	7	2.71	16.26	—	—	—	
Charleston	65,165	36	12	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	30	12	20.00	23.33	—	6.66	6.66	
Fall River	88,020	32	13	34.43	18.78	18.78	—	12.52	
Lowell	84,359	32	9	6.26	21.91	—	—	—	
Cambridge	81,519	20	7	25.00	5.00	—	5.00	15.00	
Lynn	62,355	18	8	16.66	5.55	—	—	16.66	
New Bedford	55,254	24	7	—	—	—	—	—	
Springfield	51,534	10	3	30.00	10.00	10.00	—	20.00	
Lawrence	52,153	14	5	—	14.28	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	11	2	—	27.27	—	—	—	
Brookton	33,167	7	3	14.28	28.56	—	—	14.28	
Haverhill	30,185	4	2	25.00	25.00	—	25.00	—	
Malden	29,706	5	2	—	—	—	—	—	
Chelsea	31,295	14	5	7.14	—	—	—	7.14	
Fitchburg	26,394	8	3	12.50	—	—	12.50	—	
Newton	25,322	6	2	—	33.33	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	11	1	—	—	—	—	—	
Waltham	20,877	2	1	—	—	—	—	—	
Quincy	20,712	3	1	—	—	—	—	—	
Pittsfield	20,447	3	1	—	—	—	—	—	
Everett	18,573	3	1	—	—	—	—	—	
Northampton	16,738	3	1	—	33.33	—	—	—	
Newburyport	14,554	4	1	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,029; under five years of age 1,008; principal infectious diseases (small-pox, measles, diphtheria and croup, diarrheal diseases, whooping-cough, erysipelas and fevers) 463, acute lung diseases 462, consumption 339, diphtheria and croup 267, diarrheal diseases 53, typhoid fever 52, measles 29, scarlet fever 21, erysipelas 13, whooping-cough 11, cerebro-spinal meningitis 10, malarial fever 5, small-pox 2.

From measles New York 15, Baltimore 5, Brooklyn and Providence 3 each, Philadelphia 2, Cincinnati 1. From scarlet fever New York and Pittsburg 6 each, Brooklyn 3, Chicago, Philadelphia, Baltimore, Boston, Providence and Fall River 1 each. From erysipelas Chicago 5, Brooklyn and Pittsburg 2 each, New York, Boston, Worcester and Cambridge 1 each. From whooping-cough Philadelphia and Brooklyn 3 each, Chicago, Boston, Cincinnati, Cleveland and Providence 1 each. From cerebro-spinal meningitis Chicago 7, New York, Philadelphia and Worcester 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending November 30th, the death-rate was 17.9. Deaths reported 3,639; acute lung diseases (London) 285, measles 211, diphtheria 93, fever 65, whooping-cough 63, diarrhea 48, scarlet fever 46, small-pox (West Ham 2, London 1) 3.

The death-rates ranged from 11.3 in Croydon to 29.0 in Blackburn; Bradford 13.1, Birmingham 19.5, Brighton 12.2, Gateshead 14.1, Hull 16.4, Leeds 18.3, Leicester 14.3, Liverpool 23.3, London 17.3, Manchester 21.0, Newcastle-on-Tyne 16.6, Nottingham 17.0, Plymouth 18.7, Sheffield 18.9, Sunderland 18.2, West Ham 17.1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,591,530, for the week ending December 7th, the death-rate was 17.9. Deaths reported, 3,644; acute diseases of the respiratory organs (London) 264, measles 207, diphtheria 109, whooping-cough 80, fever 66, scarlet fever 54, diarrheal diseases 51, small-pox (West Ham 2, London and Oldham 1 each) 4.

The death-rates ranged from 10.0 in Croydon to 28.9 in Liverpool; Birmingham 18.4, Bradford 16.1, Bristol 17.6, Gateshead 17.4, Hull 17.1, Leeds, 18.2, Leicester 15.3, London 17.3, Manchester 23.5, Newcastle-on-Tyne 15.4, Nottingham 14.3, Sheffield 16.1, Swansea 16.1, West Ham 15.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 14, 1895, TO DECEMBER 20, 1895.

CAPTAIN GUY L. EDIE, assistant surgeon, is granted leave of absence for four months.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING DECEMBER 15, 1895.

STONER, G. W., surgeon. Granted leave of absence for thirty days. December 6, 1895.

GLENNAN, A. H., passed assistant surgeon. Granted leave of absence for ten days. December 5, 1895.

PETTUS, W. J., passed assistant surgeon. To assume temporary command of service at Norfolk, Va., in addition to present duties, during absence of Surgeon H. R. CARTER. December 13, 1895.

KINYOUN, J. J., passed assistant surgeon. Granted leave of absence for twenty-three days. December 12, 1895.

COBB, J. O., passed assistant surgeon. Granted leave of absence for two days. December 5, 1895.

BLUE, RUPERT, assistant surgeon. Granted leave of absence for eighteen days. December 3, 1895. Detailed to make physical examination of immigrants at San Francisco, Cal. December 13, 1895.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, December 30th, at 8 o'clock.

Papers: Dr. S. H. Durgin, "One Year's Experience in the Medical Inspection of Schools and the Supervision over the Isolation and Release of Infectious Persons."

Dr. H. C. Ernst, "One Year's Experience in Cultural Diagnosis of Diphtheria, illustrated by a chart." Discussion by Drs. H. P. Walcott, C. M. Green, H. E. Marion, and Messrs. E. P. Seaver, Superintendent of Schools, J. A. Page, master of the Dwight School and A. H. Kelly, master of the Lyman School.

Dr. F. C. Cobb will read on "Empyema of the Antrum" and show cases.

JAMES G. MUMFORD, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, January 2, 1896, at 8 P. M., by DR. J. ORNE GREEN. Subject: "Otic Brain Diseases and their Treatment." The profession are invited.

CORRECTION.

In the issue of the JOURNAL for December 19th, in the review of the Twentieth Century Practice, p. 629, Sanson should read Sanson, and in the sentence on the second column, "Dr. Murray has apparently had no personal experience with the extract of thyroid gland in exophthalmic goitre," the word thyroid should read thymus.

APPOINTMENT.

HENRY PARKMAN, Esq., has been appointed trustee of the Boston City Hospital, in place of GEORGE B. NICHOLS, Esq., deceased.

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